

# HUMAN HEALTH AND DISEASE

## BIOLOGY

### Single Correct Answer Type

- Cannabis sativa* is the source of  
a) Opium                      b) LSD                      c) Marijuana                      d) cocaine
- Which of the following is a pair of bacterial diseases?  
a) Typhoid and Pneumonia                      b) Malaria and AIDS  
c) Ringworm and AIDS                      d) Cold and Malaria
- Which of the following is a protozoan disease?  
a) Malaria                      b) Amoebiasis                      c) Sleeping sickness                      d) All of these
- Antibody is connected with  
a) Skeletal system                      b) Circulatory system                      c) Immune system                      d) Respiratory system
- Which of the following vaccines are injected to babies at age of  $1\frac{1}{2}$ ,  $2\frac{1}{2}$  and  $3\frac{1}{2}$  months?  
a) DPT-Hib and polio                      b) Polio and BCG  
c) BCG and DPT-Hib                      d) BCG and hepatitis-B
- Interferons protect healthy cells in human from  
a) Viral infection                      b) Bacterial infection                      c) Fungal infection                      d) Protozoan infection
- During an allergic reaction, the binding of antigens to IgE antibodies initiates a response, in which chemicals cause the dilation of blood vessels and a host of other physiological changes. Such chemicals are  
a) Interferons                      b) Hormones                      c) Histamines                      d) acetylamine
- Colostrum provides the infant with  
a) Autoimmunity                      b) Passive immunity                      c) Active immunity                      d) Innate immunity
- Which class of antibodies is abundant in body secretion  
a) IgM                      b) IgA                      c) IgG                      d) IgE
- Which of the following cells are related with inflammatory reactions and immediate hypersensitivity?  
a) Mast cells                      b) Plasma cells                      c) Both (a) and (b)                      d) All of these
- ELISA is used to detect viruses, where the key reagent is  
a) DNA probe                      b) RNA Aase  
c) Alkaline phosphatase                      d) Catalase
- Which of the following health disorder includes symptoms of fever, chills, cough, headache, gray or bluish lips and finger's nails?  
a) Filariasis                      b) Typhoid                      c) Pneumonia                      d) Malaria
- What is the main lymphoid organ where all blood cells including lymphocytes are produced?  
a) Bone marrow                      b) Tonsils                      c) Liver                      d) Spleen
- The tendency of the body to manifest a characteristic and unpleasant withdrawal syndrome on abrupt discontinuation of regular dose of drugs/alcohol is called  
a) Depression                      b) Dependence                      c) Abnormalty                      d) All of these
- Regarding common cold consider the following statements  
I. Rhinovirus is responsible for common cold which infects the nasal epithelium and respiratory passage but not the lungs  
II. The symptoms of common cold included nasal congestion and discharge, sore throat, gruffiness, cough, headache and tiredness  
Which of the statement given above is/are correct?  
a) Only I                      b) Only II                      c) I and II                      d) None of these
- Mast cells have important role in the development of  
a) Allergens                      b) Allergy                      c) Inflammation                      d) Both (b) and (c)

17. Which of the following is related to humoral immunity?  
 a) T-lymphocyte                      b) B- lymphocyte                      c) I- lymphocyte                      d) P- lymphocyte
18. Note the following words.  
 I. Skin                      II. Phagocytes  
 III. B-cells                      IV. Inflammation  
 V. Antibodies                      VI. T-cells  
 VII. Fever                      VIII. Antimicrobial proteins  
 IX. NK-cells                      X. Secretions  
 Identify the factors involved in second line of defence.  
 a) II, IV, VII and IX                      b) II, III, V and IX                      c) IV, VI, VIII and X                      d) III, V, VII and VIII
19. BCG vaccine is used against  
 a) TB                      b) Leprosy                      c) Food poisoning                      d) None of these
20. Allergens are  
 a) Infectious and increased secretion of IgE                      b) Non-infectious and increased secretion of IgE  
 c) Infectious and increased secretion of IgG                      d) Non-infectious and increased secretion of IgM
21. Smoking results in ...A... build up in the blood and reduce ...B... delivery to the tissue.  
 Here A and B refers to  
 a) A-carbon dioxide; B-carbon monoxide                      b) A-carbon dioxide; B-oxygen  
 c) A-carbon monoxide; B-oxygen                      d) A-oxygen; B-carbon monoxide
22. What is true about T-lymphocytes in mammals?  
 a) They scavenge damaged cells and cellular debris  
 b) These are produced in thyroid  
 c) There are three main types-cytotoxic T-cells, helper T-cells and suppressor T-cells  
 d) These originate in lymphoid tissues
23. The thymus is a lobed organ located near the ...A... and beneath the ...B... . The most appropriate combination for A and B is  
 a) A-heart; B-breast bone                      b) A-liver; B-ribs  
 c) A-heart; B-ribs                      d) A-intestine; B-ribs
24. Exotoxins are related with  
 a) Tetanus                      b) Diphtheria                      c) Cancer                      d) Both (a) and (b)
25. Bacterium, which is concerned with pertussis is  
 a) *Bordetella pertussis*                      b) *Bacillus*  
 c) *Diplococcus*                      d) *Mycobacterium tuberculosis*
26. *Entamoeba histolytica* causes  
 a) Malaria                      b) Amoebiasis                      c) Typhoid                      d) Filariasis
27. Consider the following statements  
 I. Neural system and endocrine system influences our immune system  
 II. Immune system maintains our health  
 Which of the statement (s) given above is/are correct?  
 a) Only I                      b) Only II                      c) I and II                      d) None of these
28. Electrocardiograph was developed by  
 a) Hans Berger                      b) Willem Kolff                      c) Willen Einthoven                      d) Wilhelm Roentgen
29. Which of the given sets include lymphatic organs?  
 a) Thymus, lymph nodes and spleen                      b) Liver, spleen and thymus  
 c) Tonsils, Peyer's patches and liver                      d) Thymus, liver and tonsils
30. Secondary metabolite is  
 a) Sugar                      b) Glucose                      c) Antibiotics                      d) All of these
31. Identify the molecules A and B given below and select the right option giving their use and source



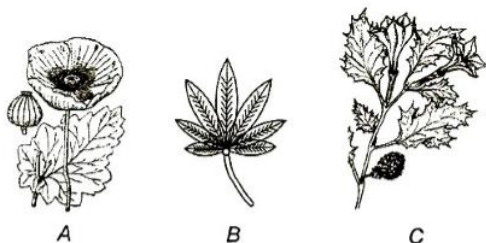
39. Carcinoma refers to  
 a) Malignant tumour of the colon  
 b) Benign tumour of the connective tissue  
 c) Malignant tumour of the connective tissue  
 d) Malignant tumour of the skin or mucous membrane
40. Who among the following is recognized as the father of immunology?  
 a) Robert Koch                      b) Ferdinand Kohn                      c) Edward Jenner                      d) Louis Pasteur
41. Heroin is a  
 a) Diacetyl morphine                      b) Morphine                      c) Hemp                      d) Stimulant
42. Monoclonal antibodies are used for  
 a) Immune suppression for kidney transplantation  
 b) Growth induction  
 c) Suppression of symptoms of rabies  
 d) Treatment of breast cancer
43. Non-specific host defence that exists prior to the exposure to an antigen is called  
 a) Acquired immunity                      b) Passive immunity                      c) Innate immunity                      d) Active immunity
44. Cancer of the internal organs is detected by  
 a) Radiography                      b) Computed tomography  
 c) Magnetic resonance imaging                      d) All of the above
45. Full form PMNL is  
 a) Poly Morpho-nuclear Leukocytes  
 b) Para Morpho-nuclear Lymphocytes  
 c) Penta Morpho-nuclear Leukocytes  
 d) Poly Morpho-nuclear Lymphocytes
46. A doctor advises a patient to include yellow fruits, carrots and butter in his diet. What deficiency disease do you think the patient is suffering from?  
 a) Night blindness                      b) Colour blindness  
 c) Kwashiorkor diseases                      d) Marasmus disease
47. Which one of the following is correctly matched?  
 a) Body louse - Typhoid                      b) House fly - Yellow fever  
 c) *Anopheles* - Malaria                      d) *Aedes* - Plague
48. To which type of barriers under innate immunity?  
 Saliva in the mouth and the tears from the eyes belongs?  
 a) Cytokine barriers                      b) Cellular barriers  
 c) Physiological barriers                      d) physical barriers
49. After drinking alcohol, a person walks clumsily because, the alcohol affects his  
 a) Cerebellum                      b) Cerebrum  
 c) Medulla oblongata                      d) Spinal cord
50. An uncontrolled division or proliferation of cells without any differentiation is called  
 a) Cancer                      b) AIDS                      c) Filariasis                      d) None of these
51. AIDS virus is also known as  
 a) HIV                      b) HTL V-III                      c) LAV                      d) All of these
52. Opioids are the drugs, which bind to specific opioid receptors present in our  
 a) Central nervous system                      b) Gastrointestinal tract  
 c) Both (a) and (b)                      d) Urinogenital system
53. Which one of the followin pairs is not correctly matched?  
 a) *Streptomyces* - Antibiotic                      b) *Serratia* - Drug Addiction  
 c) *Spirulina* - Single cell protein                      d) *Rhizobium* - Biofertilizer
54. Cocaine is obtained from  
 a) *Erythroxylum coca*                      b) *Cannabis sativa*                      c) *Datura*                      d) Opium plant
55. How many variable segments are present in the basic structure of antibody molecules?

- a) One                                      b) Two                                      c) Three                                      d) Four
56. The incubation period for hepatitis-B virus is  
 a) 15-20 days                                      b) 30-180 days                                      c) 42-56 days                                      d) One week
57. Main barrier which prevents the entry of disease's causing organism in our body is  
 a) Skin                                      b) Saliva                                      c) Lymphocytes                                      d) Interferons
58. The primary host of *Plasmodium* is  
 a) Man                                      b) Male *Culex*                                      c) sheep                                      d) Female *Anopheles*
59. An example of gene therapy is  
 a) Production of injectable hepatitis-B vaccine  
 b) Production of vaccines in food crops like potatoes which can be eaten  
 c) Introduction of gene for adenosine deaminase in persons suffering from Severe Combined Immuno Deficiency(SCID)  
 d) Production of test tube babies by artificial insemination and implantation of fertilized eggs
60. Two of the body parts, which do not appear in MRI may be  
 a) Molar teeth and eye lens                                      b) Scapula and canines  
 c) Ligaments and ribs                                      d) Tendons and premolars
61. Regarding pathogens consider the following statements  
 I. A pathogen or an infectious agent is a microorganism, such as a virus, bacterium, fungus that causes disease in its host  
 II. These pathogens multiply in our body and interfere with the normal vital activities, resulting in morphological and functional damage  
 Which of the following statement (s) is/are correct?  
 a) Only I                                      b) Only II                                      c) I and II                                      d) None of these
62. Which one the following statements is false?  
 a) Psychoactive drugs have the ability to alter the activity of the nervous system  
 b) Adolescence is marked by accelerated physical growth, development of reproductive organs and changes in functioning of the neuroendocrine system  
 c) Hallucinogen can alter a person's thoughts, feeling and perceptions  
 d) Mescaline is a stimulant
63. Active immunity development is related to  
 a) Natural killer cells                                      b) Memory cells                                      c) Helper T-cells                                      d) Suppressor T-cells
64. Housefly is a vector of  
 a) Amoebiasis                                      b) Swine flu                                      c) Filariasis                                      d) Dengue
65. Which of the following are considered as cellular barrier of the body?  
 a) Lymphocytes                                      b) Neutrophils                                      c) Macrophages                                      d) All of these
66. Nobel Prize for medicine was given for confirming the role of *Helicobacter pylori* in causing  
 a) Nephritis                                      b) Rhinitis                                      c) Bronchitis                                      d) Peptic ulcer
67. Inflammatory response in allergy is due to the release of ..... from the mast cells  
 a) Antigen                                      b) Antibody                                      c) Histamine                                      d) None of these
68. Consider the following statements. Health is a combination of  
 I. complete physical health  
 II. mental health  
 III. social health  
 Which of the statements given above are correct?  
 a) I and II                                      b) I and III                                      c) II and III                                      d) I, II and III
69. *Yersinia pestis* is responsible for  
 a) Syphilis                                      b) Whooping cough                                      c) Plague                                      d) Leprosy
70. Modern lifestyle is responsible for  
 a) Lowering of immunity                                      b) More sensitivity of allergens  
 c) Both (a) and (b)                                      d) None of the above

71. Products from plants like *Datura* sp. are  
 a) Hallucinogen                      b) Stimulants                      c) Sedatives                      d) Pain killers
72. The 'Christmas disease' patient lacks antithaemophilic  
 a) Homogentisic acid oxidase                      b) Factor-VIII  
 c) Factor-XI                      d) Factor-IX
73. Acquired immunity is due to  
 a) Physiological and inflammatory barriers                      b) Lymphocytes  
 c) Erythrocytes                      d) NK-cells
74. The human immune system consists of  
 a) Lymphoid organs                      b) Immune cells                      c) Antibodies                      d) All of these
75. AIDS day is  
 a) 1 May                      b) 1 December                      c) 1 June                      d) 1 January
76. IgA, IgM, IgE and IgG are the example of  
 a) Antigen                      b) Antibody                      c) Haemoglobin                      d) Lymphocytes
77. A new born baby who receives IgA from its mother's milk develops  
 a) Naturally acquired active immunity  
 b) Artificially acquired active immunity  
 c) Naturally acquired passive immunity  
 d) Artificially acquired passive immunity
78. The virus that cases Acquired Immune Deficiency Syndrome (AIDS) parasitizes in  
 a) B-cells                      b) Cytotoxic cells                      c) Helper T-cells                      d) Lymph nodes
79. Antigen binding site in an antibody is found between  
 a) Two light chains  
 b) Two heavy chains  
 c) One heavy and one light chain  
 d) Either between two light chains or between one heavy and one light chain depending upon the nature of antigen
80. The flower tops, leaves and the resin of *Cannabis sativa* are used to produce  
 a) Marijuana                      b) Hashish                      c) Charas                      d) All of these
81. Chagas disease is caused by  
 a) *Trypanosoma gambiense*                      b) *Plasmodium* sp.  
 c) *Trypanosome cruzi*                      d) *Treponema pallidum*
82. Dipsomania is  
 a) A type of depression                      b) Insanity due to psychosis  
 c) Severe addiction to alcohol                      d) Tendency to take much water
83. Cells obtained from cancerous tumours are known as  
 a) Hybridomas                      b) Myelomas                      c) Lymphocytes                      d) Monoclonal cells
84. Consider the following statements  
 I. Opioids are the drugs, which bind to opioid receptors in the central nervous system and gastrointestinal tract  
 II. Heroin is a white, odourless, bitter, crystalline compound  
 III. Heroin is commonly called smack  
 Which of the statements given above are correct?  
 a) I and II                      b) I and III                      c) II and III                      d) I, II and III
85. Which of the following elements is important to maintain structure of immunoglobulin?  
 a) P                      b) Fe                      c) S                      d) Ca
86. In the cell mediated immuno response, T-lymphocytes divide and secrete  
 a) antigens                      b) Plasmogens                      c) Collagens                      d) cytokines
87. The smallest known agents of infectious diseases are  
 a) Viruses                      b) Mycoplasma                      c) Viroids                      d) Actinomycetes
88. The group of disease carried by insects is

- a) Typhoid, jaundice, dysentery  
c) Scrabies, ringworm, scarlet fever
- b) Mumps, measles, smallpox  
d) Malaria, filaria, yellow fever
89. The study of body's defence mechanism against pathogens and toxic molecules is known as  
a) Immunity                      b) Immunology                      c) Defence                      d) Prevention
90. Which one of the following is useful in identifying the different strains of a causal microbe of an infectious disease?  
a) Colchicines                      b) *Agrobacterium*  
c) Complementary DNA                      d) Crystal violet
91. Which one of the following correctly matches a Sexually Transmitted Disease (STD) with its pathogen?  
a) AIDS \_\_\_\_\_ *Bacillus anthracis*                      b) Syphilis \_\_\_\_\_ *Treponema pallidum*  
c) Urethritis \_\_\_\_\_ *Entamoeba gingivalis*                      d) Gonorrhoea \_\_\_\_\_ *Leishmania donovani*
92. When a person dies after stung by bee followed by the administration of penicillin, death may be due to  
a) Prophylactic shock                      b) Anaphylactic shock                      c) Autoimmunity                      d) Sedation
93. Passive immunity can be obtained through  
a) Antigen                      b) Vaccines                      c) Antibiotics                      d) Antibodies
94. Which one of the following statements is correct?  
a) Patients, who had undergone surgery are given cannabinoids to relieve pain  
b) Benign tumours show the property of metastasis  
c) Heroin accelerates body functions  
d) Malignant tumours may exhibit metastasis
95. Which of the following statements best describes the role of reverse transcriptase?  
a) Synthesis of RNA from genomic RNA                      b) Synthesis of DNA from genomic RNA  
c) Synthesis of DNA from genomic RNA                      d) Synthesis of mRNA from genomic DNA
96. Eradication of smallpox has been possible due to the following facts except  
a) Use of highly effective vaccine                      b) Immunization programs  
c) Elimination of animal reservoir                      d) International cooperation
97. The AIDS test is known as  
a) ELISA                      b) Australian antigen                      c) HIV test                      d) None of these
98. Just as *Xenopsylla* is to *Yersinia pestis*, so is  
a) *Glossina palpalis* to *Wuchereria bancrofti*                      b) *Culex* to *Plasmodium falciparum*  
c) *Homo sapiens* to *Taenia solium*                      d) *Phlebotomus* to *Leishmania donovani*
99. AIDS was first reported in  
a) 1981                      b) 1980                      c) 1982                      d) 1983
100. Humoral immune system defends against viruses and bacteria is present in  
a) Blood                      b) Lymph                      c) Both (a) and (b)                      d) None of these
101. Black-foot disease is caused due to groundwater contaminated with excess of  
a) Nitrate                      b) Fluoride                      c) Arsenic                      d) Sulphur
102. Select the correct statement from the set given below  
I. Growing number of people are taking LSD and other drugs like barbiturates and amphetamines  
II. Several plants, fruits and seed having hallucinogenic properties have been used in folk-medicine  
Which of the statements given above is/are correct?  
a) Only I                      b) Only II                      c) I and II                      d) None of these
103. Tobacco consumption is known to stimulate the secretion of adrenaline and nor-adrenaline. The component causing this could be  
a) Nicotine                      b) Tannic acid                      c) Curaimin                      d) Heamozoin
104. Alcoholism may leads to  
a) Skin cancer                      b) Liver cirrhosis                      c) Viral disease                      d) Eye infections
105. Triple antigen vaccine is not used for  
a) Typhoid                      b) Tetanus                      c) Diphtheria                      d) pertussis
106. SCID is caused by defective gene coding for the enzyme called  
a) Adenosine transaminase                      b) Guanosine transaminase

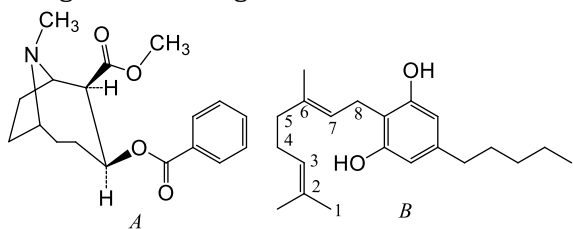
- c) Adenosine deaminase  
 107. Charas and ganja generally taken by  
 a) Inhalation                      b) Oral ingestion                      c) Both (a) and (b)                      d) Injection
108. Rat, carries rat fleas, which are the causal organism of  
 a) Typhus fever                      b) Tick fever                      c) Bubonic plague                      d) Yellow fever
109. Amoebiasis is prevented by  
 a) Eating balanced food                      b) Eating washed fruits  
 c) Using mosquito coil                      d) Drinking boiled water
110. Morphine is  
 a) A very effective sedative and pain-killer  
 b) Very useful in patients who have undergone surgery  
 c) both (a) and (b)  
 d) Stimulant
111. The effect of hydrogen sulphide on man leads to which of the following diseases?  
 a) Paralysis                      b) Blindness                      c) Sterility                      d) None of these
112. Vaccination protects a person from disease because it  
 a) Helps in RBC production                      b) Produces antibodies  
 c) Helps in digestion                      d) Correct body function
113. Addiction to alcohol causes  
 a) Cirrhosis                      b) Epilepsy                      c) Neurosis                      d) psychosis
114. HIV/AIDS is a contagious disease which is caused by  
 a) Virus                      b) Bacteria                      c) Fungal                      d) Protozoa
115. Antibody molecule has  
 a) Four polypeptide chains                      b) Five polypeptide chains  
 c) Six polypeptide chains                      d) Seven polypeptide chains
116. Identify the pictures A, B and C



- a) A-Opium poppy, B-*Cannabis sativa*, C-*Datura*  
 c) A-*Datura*, B-Opium poppy, C-*Cannabis sativa*  
 b) A-*Cannabis sativa*, B-Opium poppy, C-*Datura*  
 d) A-Opium poppy, B-*Datura*, C-*Cannabis sativa*
117. Morphine, obtained from opium, is  
 a) Latex                      b) Pome                      c) Alkaloid                      d) tannin
118. The chemical used in 'National Malaria Eradication Programme' is  
 a) 2, 4-D                      b) BHC                      c) DDT                      d) Pyrethroid
119. Benign tumours  
 I. remain confined to their original location and do not spread to other parts  
 II. cause little damage  
 Which of the statements given above is/are correct?  
 a) Only I                      b) Only II                      c) I and II                      d) None of the above
120. *Entamoeba histolytica* is a parasite of  
 a) Large intestine                      b) Liver                      c) Lungs                      d) Kidney
121. Common examples of allergens are  
 a) Dust                      b) Pollen grains                      c) Animal dander                      d) All of these
122. Smack is chemically a ...A... which is white and odourless and crystalline in nature. This is obtained by ...B... Here A and B refers to  
 a) A-diacetyl morphine; B-acetylation of morphine                      b) A-morphine; B-acetylation of hashish



- c) A-stimulant; B-acetylation of morphine                      d) A-hallucinogen; B-acetylation of hashish
123. The pathogen *Mircosporum* responsible for ringworm disease in humans belongs to  
 a) Virus    b) Bacteria    c) Fungi    d) Protozoa
124. The genes concerned with the production of cancer are called  
 a) Cancer genes    b) Carcinogenes    c) Carcinomas    d) Oncogenes
125. The given below figures show



- a) A-Cannabinoid; B-Morphine    b) A-Morphine; B-Cannabinoid  
 c) A-Morphine; B-Quinine    d) A-Quinine; B-Cannabinoid
126. Who stated that human population grows gemoretically?  
 a) Malthus    b) Darwin    c) Cannon    d) Lamarck
127. Cyclosporin and endosporins are the drugs that are used as  
 a) Anti retroviral drugs    b) Immuno-suppressants  
 c) Immuno-modulators    d) Immuno-vaccines
128. Emphysema is a  
 a) Cardio vascular disease    b) Pulmonary disease  
 c) Neural disease    d) renal disease
129. Alpha-interferons  
 a) Activate the immune system  
 b) Help in destroying the tumour  
 c) Both (a) and (b)  
 d) None of the above
130. Which technique uses the body's water molecules as the bases for its images?  
 a) Sonography    b) MRI  
 c) Radioactive traces    d) Thermography
131. Antigen binding site of immunoglobulin is  
 a) Variable region of heavy chain    b) Variable region of light chain  
 c) Constant region of light chain    d) Variable region of both heavy and light chain
132. Amoebiasis infection occurs by ingesting cysts with food and drinks  
 a) True    b) False  
 c) Sometimes (a) and sometimes (b)    d) Neither (a) nor (b)
133. The synthetic drugs structually similar to adrenaline are  
 a) Amphetamines    b) Barbituratess  
 c) Halluncinogens    d) Nicotinic derivatives
134. Antibody production is controlled by  
 a) B-lymphocytes    b) T-lymphocytes    c) Both (a) and (b)    d) Interferon
135. Cannabinoids is obtained from  
 a) Inflorescence of the plant *Cannabis sativa*  
 b) Fruits of the plant *Papaver somniferum*  
 c) Latex of the plant *Cannabis sativa*  
 d) Plant *Papaver somniferum inflorescence*
136. A substance that cause an allergic reaction is called  
 a) Allergen    b) Pollen    c) Foreign substance    d) Dander
137. The polypeptide chains present in gamma immunoglobulin are  
 a) 2    b) 4    c) 6    d) 8
138. Kala-azar is caused by

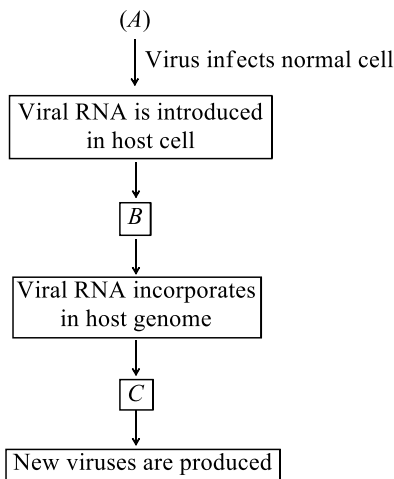


- I. Secondary lymphoid organs includes lymph nodes, spleen and small masses of lymph tissue such as Peyer's patches, appendix and tonsils  
 II. The secondary lymphoid organs all the site of lymphocyte maturation and they efficiently trap antigens for exposure to T and B-cells

Which of the statements given above is/are correct?

- a) Only I                                      b) Only II                                      c) I and II                                      d) None of these
156. Who among the following is recognized as the Father of Medicine?  
 a) Robert Koch                                      b) Hippocrates                                      c) Louis Pasteur                                      d) Edward Jenner
157. Which of the following organs is not involved in the elicitation of immune response?  
 a) Brain                                      b) Lymph nodes                                      c) Spleen                                      d) Thymus
158. The term 'Vaccine' was introduced by  
 a) Jenner                                      b) Koch  
 c) Pasteur                                      d) Jointly by Koch and Pasteur
159. Tuberculosis is caused by  
 a) *Mycobacterium* sp.                                      b) *Aspergillus* sp.                                      c) *Clostridium* sp.                                      d) *Vibrio* sp.
160. Main source of amoebic dysentery is  
 a) Contaminated food and water  
 b) Water and food contaminated by the faecal matter  
 c) Water and food contaminated by urine  
 d) Water and food contaminated by polluted air
161. *Mycobacterium leprae* causes  
 a) Tuberculosis                                      b) Leprosy                                      c) AIDS                                      d) Tetanus
162. Excessive doses of drugs may lead to coma and death due to  
 a) Respiratory failure                                      b) Heart failure                                      c) Cerebral hemorrhage                                      d) All of these
163. All stages of the *Plasmodium* get digested in stomach of female *Anopheles* except  
 a) Sporozoite                                      b) Gametocyte                                      c) Erythrocyte                                      d) None of these
164. Hodgkins disease is  
 a) Cancer of the lymphoid tissue                                      b) Cancer of the mammary gland  
 c) cancer of the WBC                                      d) Cancer of the liver
165. The interferons are  
 a) Antibacterial drug                                      b) Antiviral drugs  
 c) Antibiotic drugs                                      d) Immunosuppressive drugs
166. Food poisoning is caused by  
 a) *Nitrosomonas*                                      b) *Lactobacillus*                                      c) *Escherichia coil*                                      d) None of these
167. Choose the true statements  
 I. Innate immunity is accomplished by providing different types of barriers  
 II. Acquired immunity is present from the birth and is inherited from parents  
 III. Sweat, tears, acid in the stomach and saliva prevent microbial growth
- Codes**
- |          |       |      |
|----------|-------|------|
| I        | II    | III  |
| a) True  | False | True |
| c) False | False | True |
- |          |      |       |
|----------|------|-------|
| b) True  | True | False |
| d) False | True | False |
168. Immunoglobulins are made up of  
 a) Two polypeptide chains                                      b) Four polypeptide chains  
 c) Three amino acids only                                      d) Five nucleotides
169. AIDS is not diagnosed by  
 a) Enzyme Linked Immuno Sorbant Assay test  
 b) WIDAL test  
 c) RIA  
 d) Both (b) and (c)

170. The protein  $\alpha - 1$  antitrypsin is used to treat which of the following disease?  
 a) Cancer  
 b) Rheumatoid arthritis  
 c) Alzheimer's disease  
 d) Emphysema
171. The immune system is made of  
 a) Humoral system  
 b) Humoral and cell mediated system  
 c) Humoral and fibrous system  
 d) Antigen induced antibodies
172. An autoimmune disease is  
 a) AIDS  
 b) Haemophilia  
 c) Allergy  
 d) Myasthenia gravis
173. AIDS is the condition where  
 a) The patient's immune system is completely destroyed  
 b) The patient succumbs to various infect, has wasting and develops symptoms such as fever, diarrhoea and weight loss  
 c) Both (a) and (b)  
 d) Virus multiply in T-cytotoxic cells
174. Which of the following is correct for immuno-modulators?  
 a) They always suppress immune system  
 b) They never suppress immune system  
 c) They always stimulate immune system  
 d) Specific immuno-modulators stimulate the immuno-response of immune system, whereas some other immuno-modulators inhibit it
175. The disease filarial is transmitted by  
 a) Tse-tse fly  
 b) Sand fly  
 c) *Culex*  
 d) *Anopheles*
176. The immune system plays a major role in  
 a) Allergic reactions  
 b) Auto-immune diseases  
 c) Organ transplantation  
 d) All of these
177. What is HLA?  
 a) Group of proteins  
 b) Group of chromosomes  
 c) Group of genes  
 d) Group of polypeptides
178. *Aloe vera* cures cough and cold by  
 a) Leaf juice with opium  
 b) Leaf juice mixed with oil  
 c) Juice of roasted leaves taken with honey  
 d) Salad of leaves
179. Active immunity may be produced by  
 a) Contacting a disease  
 b) Readymade antibodies  
 c) Both (a) and (b)  
 d) Receiving gamma globulin infection
180. If the person shows the production of interferons in his body, chances are that he is suffering from  
 a) Anthrax  
 b) Malaria  
 c) Measles  
 d) Tetanus
181. Which of these is based on magnetic resonance?  
 a) EEG  
 b) CT scanning  
 c) NMR scanning  
 d) PET scanning
182. With regard to the transmission of the Human Immunodeficiency Virus (HIV), Which one of the following statements is not correct?  
 a) The chances of transmission from female to male are twice as likely as from male to female  
 b) The chances of transmission are more if a person suffers from other sexually transmitted infections  
 c) An infected mother can transmit the infection to her baby during pregnancy at child birth and by breast feeding  
 d) The risk of contracting infection from transfusion of infected blood is much higher than an exposure to contaminate needle
183. Amniocentesis is used for determining  
 a) Heart disease  
 b) brain disease  
 c) Hereditary disease of the embryo  
 d) All of the above
184. In the given flow chart, the replication of retrovirus in a host cell is shown. Observe it carefully and fill up the blank A, B and C



- a) A-Retrovirus, B-Viral DNA is produced, C-New viral RNA is produced  
 b) A-Transcriptase, B-Bacterial RNA is produced, C-New viral DNA is produced by the infected cell  
 c) A-Reverse transcriptase, B-Viral DNA is produced, C-New viral RNA is produced by the infected cell  
 d) A-Reverse transcriptase, B-Viral DNA is produced, C-New viral DNA is produced by the infected cell
185. Most important component of oral contraceptive is  
 a) LH                                      b) GH                                      c) Thyroxine                                      d) progesterone
186. Which of the following normally confined to their original location and do not spread to other parts of the body?  
 a) Malignant tumour                      b) Metastasis                                      c) Benign tumour                                      d) cancer
187. Protein deficiency leads to  
 a) Kwashiorkor                                      b) Marasmus                                      c) Cretinism                                      d) Both (a) and (b)
188. In AIDS, the system which show failure is  
 a) Digestive system                      b) Respiratory system                      c) Defence system                      d) Sensory system
189. Cannabinoid are the group of chemicals, which interact with cannabinoid receptors present principally in  
 a) Brain                                      b) Neuron                                      c) Nephron                                      d) Dendron
190. Histamines or other, inflammation producing substances are formed by  
 a) Macrophages                                      b) Interferons                                      c) Mast cells                                      d) Collagen tissue
191. Which group of three of the following five statements (I-V) contains is correct regarding beri beri?  
 I. A crippling disease prevalent among the native population of sub-Sahara Africa.  
 II. A deficiency disease caused by lack of thiamine (vitamin-B<sub>1</sub>).  
 III. A nutritional disorder in infants and young children when the diet is persistantly deficient in essential protein.  
 IV. Occurs in those countries where the staple diet is polished rice.  
 V. The symptoms are pain from neuritis, paralysis, muscle wasting, progressive oedema, mental deterioration and finally heart failure.  
 a) I, II and IV                                      b) II, III and V                                      c) I,III and V                                      d) II, IV and V
192. Which of the following diseases is caused due to allergic reaction?  
 a) Leprosy                                      b) Typhoid                                      c) Asthma                                      d) Tetanus
193. Which of the following is a pair of viral diseases?  
 a) Ringworm, AIDS                                      b) Common cold, AIDS  
 c) Dysentery, common cold                                      d) Typhoid, tuberculosis
194. 'Lock jaw' is another name of  
 a) Malaria                                      b) Kala-azar                                      c) Tetanus                                      d) Diphtheria
195. Choose the wrong statement regarding AIDS.  
 a) AIDS is an immunodeficiency disease  
 b) It is caused by the retrovirus HIV  
 c) HIV selectively infects and kills B-lymphocytes  
 d) Retroviruses have RNA genomes that replicate *via* DNA intermediate

196. Osteomalacia is a deficiency disease of  
 a) Infants due to protein energy malnutrition      b) adults due to protein energy malnutrition  
 c) Adults due to vitamin-D deficiency      d) Infants due to vitamin-K deficiency
197. Study the following sentences.  
 I. The cells of malignant tumours divide erratically.  
 II. They are malignant tumours of epithelial cells.  
 III. They are malignant tumours of organs that originate from mesoderm.  
 IV. These tumours are found in organs such as spleen and lymph nodes.  
 Which of the above are true for angiosarcoma?  
 a) I and II      b) II and IV      c) I and III      d) II and III
198. Spleen is a storage site for  
 a) Erythrocytes      b) Basophils      c) Platelets      d) Neutrophils
199. Tobacco contains  
 a) Nicotine      b) Amphetamines      c) Carbon monoxide      d) Both (a) and (c)
200. The best HLA(Human Leucocyte Antigen) match for transplants in order of preference is  
 a) Parent>sibling>twin>unrelated donor      b) Sibling> twin> Parent> unrelated donor  
 c) twin> unrelated donor> parent> sibling      d) Twin> sibling> Parent> unrelated donor
201. Quinine is obtained from  
 a) Bark of *Cinchona*      b) Root of *Cinchona*      c) Wood of *Cinchona*      d) Leaves of *Cinchona*
202. Antigen binds to antibody. The binding is result of  
 a) Electrostatic interactions      b) Covalent bonds  
 c) Disulphide bridges      d) Amide formation
203. The process of introduction of weakened inactivated pathogen into human body is called  
 a) Immunization      b) Vaccination      c) Attenuation      d) None of these
204. Female infanticide is commonly reported from  
 a) Usalampatti      b) Madurai      c) Kanyakumari      d) Rajasthan
205. Which of the following disease is caused by the member of retrovirus group?  
 a) Cancer      b) AIDS      c) Dengue      d) Common cold
206. The term 'antibiotic' was coined by  
 a) Selman Waksman      b) Alexander Fleming      c) Edward Jenner      d) Louis Pasteur
207. All of the following are examples of mucosa associated lymphoid tissue except  
 a) Appendix      b) Peyer's patches      c) Tonsils      d) Liver
208. Give the name of two helminthes, which causes ascariasis and filariasis respectively  
 a) *Ascaris* and *Wuchereria*      b) *Wuchereria* and *Ascaris*  
 c) Roundworm and Flatworm      d) *Plasmodium* and *Wuchereria*
209. Sir Godfery Hounsfield developed the diagnostic technique of  
 a) CT scanning      b) MRI      c) Endoscopy      d) Bronchoscopy
210. Hypersensitivity to an allergen is due to  
 a) Aberrant function of immune system      b) Food habits  
 c) Increase in humidity      d) Increase in temperature
211. The following table shows certain diseases, their causative organisms and symptoms

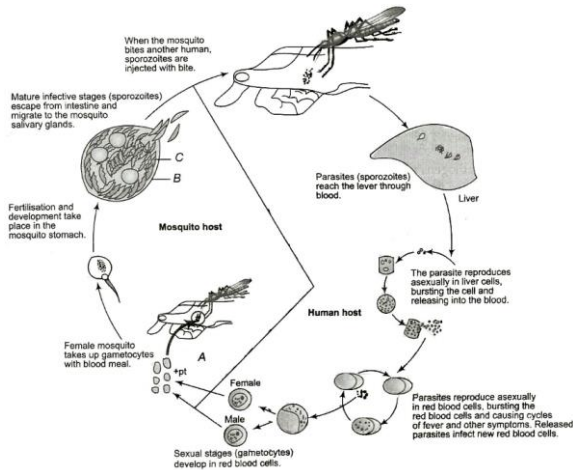
Diseases	Causative Organisms	Symptoms
I. Filariasis	<i>A</i>	Inflammation
II. Typhoid	<i>B</i>	High fever stomach pain
III. <i>C</i>	Rhinoviruses	Nasal congestion and

		discharge
IV. Ascariasis	<i>Ascaris</i>	<i>D</i>

The correct option regarding A, B, C and D is

- a) A- *Wuchereria*, B- *Salmonella typhi*, C- Common cold, D- Internal bleeding, fever, anaemia  
 b) A- *Salmonella typhi*, B- *Ascaris*, C- Typhoid, D- Stomach pain headache  
 c) A- *Ascaris*, B- *Entamoeba histolytica*, C- Pneumonia, D- Constipation, fever  
 d) A- *Entamoeba histolytica*, B- *Salmonella typhi*, C- Common cold, D- Nasal discharge, high fever
212. Which part of the brain is affected first in a drunk person?  
 a) Cerebrum                      b) Olfactory lobe                      c) Cerebellum                      d) Medulla oblongata
213. African sleeping sickness is caused by  
 a) *Trypanosoma*                      b) *Leishmania*                      c) *Latimeria*                      d) *Plasmodium*
214. Cocaine, an alkaloid is obtained from the leaves of  
 a) *Erythroxylon coca*                      b) *Ephedra* sp.  
 c) *Digitalis purpurea*                      d) *Papaver somniferum*
215. Fungi belonging to genera *Mircoporum*, *Trichophyton* and *Epidermophyton* are responsible for  
 a) Ringworm                      b) Skin allergy                      c) Amoebiasis                      d) Measles
216. A localized inflammatory response appears at the site of infection causes redness, swelling, pain and heat due to certain chemicals, they are  
 a) Histamine and prostaglandins                      b) Cerumen and mucus  
 c) Histamine and cerumen                      d) Prostaglandins and cerumen
217. A drug called morphine is obtained from  
 a) *Rauwolfia serpentina*                      b) *Cannabis sativa*  
 c) *Cajanus cajan*                      d) *Papaver somniferum*
218. Scientists were able to pinpoint the location of colour processing centers in the visual cortex of the brain by means of  
 a) PET                      b) NMR                      c) CT-scan                      d) X-ray
219. Interferon –  $\beta$  is also termed as  
 a) Immune interferon                      b) Fibroblast interferon  
 c) Leucocyte interferon                      d) Anti-immune interferon
220. The disease caused by virus, which is 42 nm in size and contains double stranded DNA is  
 a) Hepatitis-A                      b) AIDS                      c) Hepatitis-B                      d) Leprosy
221. Smoking causes  
 a) Heart disease                      b) Gastric ulcer                      c) Bronchitis                      d) All of these
222. A person is suffering from frequent episodes of nasal discharge, nasal congestion, reddening of eyes and watery eyes. These are the symptoms of  
 a) Cyanosis                      b) Bronchitis  
 c) Rhinitis                      d) Bronchial carcinoma
223. Which of the following is a viral disease?  
 a) Typhoid                      b) Polio                      c) TB                      d) Leprosy
224. Immunodeficiency makes a person highly susceptible to infection. It is caused by  
 a) Lack of B-cells                      b) Lack of T-cells                      c) Both (a) and (b)                      d) None of the above
225. The causative agent of filaria is  
 a) *Wuchereria bancrofti*  
 b) *Leishmania donovani*  
 c) *Plasmodium vivax*  
 d) *Trypanosoma gambiens*
226. Chemical carcinogens present in smoke have been identified as a major cause of  
 a) Lung cancer                      b) Liver cancer                      c) Oral cancer                      d) None of these
227. The cancer of the epithelial cells is called  
 a) Leukaemia                      b) Lipoma                      c) Sarcoma                      d) Carcinoma

228. Cell-mediated immunity is responsible for  
 a) Graft rejection      b) Passive immunity      c) Organ surgery      d) Innate immunity
229. Physiological barrier which prevents entry of microorganism in our body is/are  
 a) Acid in the stomach      b) Saliva in the mouth      c) Tears from eyes      d) All of these
230. Antiviral substances, produced by many vertebrates in response to viral infections for resisting the multiplication of viruses as known as  
 a) Viroid      b) Interferon      c) Antivirin      d) Antigen
231. Study the given diagram and name the labelled A, B and C



- a) A-Gametocytes, B-Salivary glands, C-Sporozoites  
 b) A-Sporozoites, B-Salivary glands, C-Gametocytes  
 c) A-Salivary glands, B-Sporozoites, C-Gametocytes  
 d) A-Salivary glands, B-Gametocytes, C-Sporozoites
232. Who developed vaccine against smallpox?  
 a) Lousi Pasteur      b) Selman Waksman  
 c) Edward Jenner      d) Alexander Flemming
233. The main reason, why antibiotics could not solve all the problems of bacterial disease, is  
 a) Inactivation of antibiotics by bacterial enzyme  
 b) Decreased efficiency of the immune system  
 c) The development of mutant strains resistant to antibiotics  
 d) Insensitivity of the individual following long exposure to antibiotics
234. ELISA assay  
 a) Use complement mediated cells lysis  
 b) User a radiobelled second antibody  
 c) Involves addition of substrate which is converted into coloured end product  
 d) Requires red blood cells
235. Cross sectional image of internal body structure can be obtained by using which medical technique?  
 a) ECG - Electro Cardio Graph      b) EEG - Electro Encephalo Graph  
 c) CAT - Computerized Axial Tomography      d) PET - Positron Emission Tomography
236. Communicable disease means  
 a) The disease transmitted from man to man      b) The disease caused by biological agents  
 c) Both (a) and (b)      d) Present from birth or inherited
237. The infectious form (after entering into human blood) of malarial parasite migrate to the  
 a) Erythrocytes of human      b) Liver cells of human  
 c) Stomach of mosquito      d) Salivary gland of mosquito
238. *Entamoeba histolytica* is a  
 a) Viral parasite      b) Bacterial parasite      c) Protozoan parasite      d) Fungal parasite
239. Virus-infected cells secrete proteins called  
 a) Enzyme      b) Interferon      c) Hormone      d) Antibody



240. World health organization has started a number of programmes to prevent spreading of HIV infection  
 Few such steps include  
 I. ensuring use of disposable needles and syringes  
 II. free distribution of condoms  
 III. advocating safe sex  
 IV. controlling drug abuse  
 Which of the steps given above are correct?  
 a) I and II                      b) III and IV                      c) II, III and IV                      d) I, II, III and IV
241. Colostrum  
 a) Can be synthesized by the new born baby  
 b) Is a natural source of antibodies that secreted from the breast for the first few days after birth  
 c) Contain primarily fat  
 d) Is a enzyme involved in stimulating lactation
242. Large group of lymphoid tissue in respiratory, digestive and urogenital tract are collectively called  
 a) MALT                      b) Peyer's patches                      c) Mucosa lymph nodes                      d)  $\alpha$ -globulins
243. Select the true statement  
 I. AIDS has no cure, prevention is the best option  
 II. During HIV infection, the person suffers from fever, weight loss and diarrhoea  
 III. HIV is a retrovirus, which means its genetic material is DNA  
 a) I and II                      b) I and III                      c) II and III                      d) None of these
244. Diacetyl morphine is commonly known as  
 a) Morphine                      b) *Cannabis*                      c) heroin                      d) cocaine
245. Reasons for alcohol abuse in adolescents are  
 I. social pressure  
 II. curiosity and need for adventure, excitement and experiment  
 III. to escape from stress, depression and frustration  
 IV. to overcome hardships of daily life  
 Which of the statements given above are correct?  
 a) I, II and III                      b) I, III and IV                      c) II, III and IV                      d) I, II, III and IV
246. A disease which can easily transmit from one person to another is called  
 a) Non-infectious disease                      b) Infectious disease  
 c) Viral disease                      d) Bacterial disease
247. The name of Mary Mallon is related with the disease  
 a) Typhoid                      b) Pneumonia                      c) Dengue                      d) AIDS
248. The organ related with immunity is  
 a) Liver                      b) Parathyroid                      c) Thymus                      d) Pineal
249. Tiny lesions of multiple sclerosis on brain and spinal tissue can be observed by  
 a) Magnetic resonance imaging                      b) Position emission tomography  
 c) X-rays radiography                      d) Digital subtraction angiography
250. Genetic material found in Human Immunodeficiency Virus(HIV) is  
 a) Double stranded RNA                      b) Single stranded RNA  
 c) Double stranded DNA                      d) Single stranded DNA
251. A major benefit of breast feeding for the new born infant is  
 a) Low lactose content                      b) The high casein content  
 c) Passive immunity                      d) *E. coli* factor
252. The uncontrolled proliferation of cancerous cells produces masses of cells, called  
 a) Tumour                      b) Multiplication                      c) Protooncomass                      d) None of the above
253. Characters of acquired immunity are  
 a) Specificity                      b) Difference between self and non- self  
 c) Retains memory                      d) All of the above
254. A damaging immune response by the body to a substance is called

- a) Immunity                      b) Allergy                      c) Passive immunity                      d) None of these
255. T-lymphocyte is produced in  
a) Bone marrow                      b) Spleen                      c) Pancreas                      d) Thymus
256. Ginseng is an important drug of  
a) America                      b) Egypt                      c) India                      d) China
257. An antibody is a  
a) White corpuscle, which attacks invading bacteria  
b) Molecule that specifically inactivate an antigen  
c) Component of the blood  
d) Secretion of mammalian erythrocyte
258. Blood circulation was discovered by  
a) William Harvey                      b) Hippocrates                      c) Karl Landsteiner                      d) Paul Ehrlich
259. Cancerous cells spread through  
a) Lymph                      b) Blood  
c) Secondary growths of malignant tumour                      d) All of the above
260. Consider the following statements  
I. People should get vaccination to avoid infection  
II. Vaccination is available against polio, cholera, typhoid, tuberculosis and many other disease  
III. Eradication of vectors are necessary in diseases like malaria and filariasis  
IV. Dengue and chikengunya, both are spread by *Culex* mosquitoes  
Which of the statements given above are correct?  
a) I, II and III                      b) I, II and IV                      c) I, III and IV                      d) III and IV
261. Vaccines, when introduced into the body, stimulates the production of  
a) Antigen                      b) Antibody                      c) Natural killer cells                      d) Macrophage
262. Benign tumour is the one, which  
a) Shows metastasis                      b) Is differentiated and capsulated  
c) Is undifferentiated and noncapsulated                      d) Is differentiated and noncapsulated
263. Antibodies are  
a) Lipids                      b) Carbohydrates                      c) Immunoglobulins                      d) Antiviral particles
264. Cancer causing viruses are called  
a) Oncogenic viruses                      b) Retroviruses                      c) Adenoviruses                      d) Poxviruses
265. Drugs that cause malformations in embryo during pregnancy are called  
a) Tranquilizer                      b) Teratogens                      c) Alcoholic beverages                      d) Nicotine
266. Consider the statements given below regarding contraception and answer as directed thereafter  
I. Medical Termination of Pregnancy (MTP) during first trimester is generally safe.  
II. Generally, chances of conception are nil until mother breast-feeds the infant upto two year.  
III. Intrauterine devices like copper-T are effective contraceptives.  
IV. Contraception pills may be taken upto one week after coitus to prevent conception.  
Which two of the above statements are correct?  
a) II, III                      b) III, IV                      c) I, III                      d) I, II
267. Use of anti-histamines and steroids give a quick relief form  
a) Allergy                      b) Nausea                      c) Cough                      d) Headache
268. In recent years, which disease of digestive system in Indian has received great attention and against that active vaccination is being done even in schools?  
a) Poliomyelitis                      b) hepatitis                      c) Jaundice                      d) Enterocolitis
269. A condition that occurs when the immune system mistakenly attacks and destroys healthy body tissue is called  
a) Auto-immunity                      b) Immunization                      c) Allergy                      d) Immunodeficiency
270. The primary function of the lymphoid system is  
a) Circulatory of nutrients  
b) Transport of hormones

- c) Production, maintenance and distribution of lymphocytes  
d) Production, maintenance and distribution of plasma
271. Cell division or mitosis is normal process in a living cell, but sudden and abnormal mitosis in an organ will frequently result in  
a) Zygote                                      b) Cancer                                      c) New organ                                      d) Gastrula
272. Surgical removal of thymus of a new born shall result in the failure to produce  
a) Basophils                                      b) Neutrophils                                      c) B-lymphocyte                                      d) T-lymphocyte
273. Broad spectrum antibiotic  
a) Acts on all bacteria and virus                                      b) Is effective in very small amount  
c) Acts on both pathogen and host                                      d) Acts on a variety of pathogenic microorganisms
274. If a person shows production of interferons in his body, the chances are that he got an infection of  
a) Malaria                                      b) Measles                                      c) Typhoid                                      d) Tetanus
275. The organism, which causes pneumonia in human beings is  
a) Atrichous                                      b) Monotrichous                                      c) Amphitrichous                                      d) peritrichous
276. If you suspect major deficiency of antibodies in a person, to which of the following would you look for confirmatory evidence?  
a) Serum albumins                                      b) Serum globulins  
c) Fibrinogen in the plasma                                      d) Haemocytes
277. The immunoglobulin abundant in colostrums is  
a) IgG                                      b) IgM                                      c) IgD                                      d) IgA
278. Cocaine is the native to  
a) North America                                      b) South America                                      c) India                                      d) China
279. Globulins contained in human blood plasma are primarily involved in  
a) Defence mechanisms of body                                      b) Osmotic balance of body fluids  
c) Oxygen transport in the blood                                      d) Clotting of blood
280. The person showing unpredictable moods, outbursts of emotions, quarrelsome behaviour and conflicts with others is suffering from  
a) Schizophrenia                                      b) Borderline personality disorder(BPD)  
c) Mood disorders                                      d) Addictive disorders
281. Identify the wrong statements  
I. The tumour of haematopoietic cells is called leukaemia.  
II. Cancer arising from the epithelial tissues of internal organs and glands is referred as melanoma.  
III. Sarcoma is a type of cancer where bone and cartilages are involved.  
IV. Only benign tumours are called as true cancer or neoplasm.  
a) I and II only                                      b) II and III only                                      c) II and IV only                                      d) I and III only
282. Harmful effect of cigarette smoking is  
a) Baldness                                      b) Yellowing of eyes                                      c) Lung cancer                                      d) None of these
283. Cell mediated immunity is mainly a function of  
a) B-cells                                      b) T-cells                                      c) Macrophages                                      d) Interferons
284. Which of the following diseases is caused due to helminth infection?  
a) Ascariasis                                      b) Wuchereriasis                                      c) Both (a) and (b)                                      d) None of these
285. Infective stage of *Plasmodium* for men is  
a) Merozoites                                      b) Ookinetes                                      c) Sporozoites                                      d) None of these
286. Infection of pneumonia occurs due to  
a) Droplets released from an infected person                                      b) Released droplets inhaled by healthy person  
c) Sharing contaminated objects such as glasses and utensils with an infected person                                      d) All of the above
287. Those who take drugs intravenously develop a risk of  
a) AIDS                                      b) Hepatitis-B                                      c) Both (a) and (b)                                      d) Malaria
288. Disease caused by deficiency of vitamin-C is  
a) beri beri                                      b) Scurvy                                      c) Pellagra                                      d) Night blindness

289. Humoral immunity is mediated by  
 a) B-cells                      b) T-cells                      c) Macrophages                      d) Monocytes
290. Minamata disease is caused due to presence of .....in water.  
 a) Cadmium                      b) Lead                      c) Arsenic                      d) Mercury
291. Both sickle cell anaemia and Huntington's chorea are  
 a) Bacteria-related diseases                      b) Congenital disorders  
 c) Pollutant-induced disorders                      d) Virus-related diseases
292. Rabies is caused by  
 a) Virus                      b) Bacteria                      c) Protozoa                      d) All of these
293. Some diseases are transmitted through contaminated articles. The method is called  
 a) Vehicle transmission                      b) Vector transmission  
 c) Air borne method                      d) Fomite borne method
294. Disease associated with secretion of toxin is  
 a) Tetanus                      b) Tuberculosis                      c) Food poisoning                      d) AIDS
295. The spleen  
 I. is a large bean-shaped organ  
 II. mainly contains lymphocytes and phagocytes  
 III. acts as a filter of the blood by trapping blood-borne microorganisms  
 Which of the statements given above are correct?  
 a) I and II                      b) I and III                      c) II and III                      d) I, II and III
296. Necessary steps for achieving good health are  
 I. awareness about disease  
 II. vaccination  
 III. proper disposal of wastes  
 IV. maintenance of hygienic food and water resources  
 V. Water resources  
 The correct combination having necessary steps is  
 a) I, II and III                      b) II, III and IV                      c) I, III and IV                      d) I, II, III and IV
297. Tumour viruses or cancer causing viruses called ...A... have ...B... Here A and B refers to  
 a) A-oncogenic bacteria; B-bacterial oncogenes  
 b) A-oncogenic viruses, B-viral oncogenes  
 c) A-oncogenic protozoan; B-protozoan oncogenes  
 d) None of the above
298. Hybridomas are the fusion product of  
 a) Normal antibody producing cell with myeloma  
 b) Abnormal antibody producing cell with myeloma  
 c) Sex cells with myeloma  
 d) Bone cells with myeloma
299. Which one of the following is a stimulant?  
 a) LSD                      b) Cocaine                      c) Opium                      d) Heroin
300. Resistance against pathogens is due to  
 a) Antibodies                      b) RBCs                      c) Haemoglobin                      d) None of these
301. Primary lymphoid organs among the following are  
 a) Bone marrow                      b) Thymus                      c) Both (a) and (b)                      d) Thyroid of thymus
302. Widal test is used for the diagnosis of  
 a) Malaria                      b) Pneumonia                      c) Tuberculosis                      d) Typhoid
303. An insect bite may result in inflammation of that spot. That is triggered by the alarm chemicals such as  
 a) Histamine and dopamine                      b) Histamine and kinins  
 c) Interferons and opsonin                      d) Interferons and histones
304. Defect in amino acid metabolism may result in  
 a) Albinism                      b) Porphyria                      c) Wilson's disease                      d) Phenylketonuria

305. The pathogen of typhoid is directly transmitted through  
 a) Urine                                      b) Water                                      c) Blood                                      d) Hormone
306. The Philadelphia chromosome is found in the patients suffering from  
 a) Albinism                                      b) Hepatitis                                      c) Insomnia                                      d) Leukaemia
307. Which of the following disorders can be regarded as madness?  
 a) Psychosis                                      b) Epilepsy                                      c) Insomnia                                      d) Parkinsonism
308. Nicotine intake stimulates the ...A... to release ...B... and ...C... into blood circulation. This lead to increase in ...D... and an increase ...E... .  
 Here A and E refers to  
 a) A-adrenal gland, B-adrenaline, C-nor-adrenaline, D-blood pressure, E-heart rate  
 b) A-thyroid gland, B-thyroxine, C-parathyroxine, D-blood pressure, E-heart rate  
 c) A-adrenal gland, B-thyroxine, C-nor-adrenaline, D-blood pressure, E-heart rate  
 d) A-gonads, B-adrenaline, C-nor-adrenaline, D-blood pressure, E-heart rate
309. Allergy involves  
 a) IgE                                      b) IgG                                      c) IgA                                      d) IgM
310. Which of the following body systems is responsible for allergic reaction?  
 a) Lymph                                      b) Immune                                      c) Circulatory                                      d) All of these
311. The process of removal and replacement of the damaged tissues or organs like heart, eye, liver, kidney with healthy ones from a donar is called as  
 a) Transplantation                                      b) Repair and replacement  
 c) Replacement therapy                                      d) Transformation
312. Which of the following is the correct matching of a disease with its causative organism and mode of infection?

Diseas -es	Causativ -e Organis- ms	Modes of Infection
a) Pneu- monia	<i>Streptoc -occus pneumo nia</i>	Droplet infection
b) Typho -id	<i>Salmon -ella typhi</i>	With inspired air
c) Malari -a	<i>Plasmod -ium vivax</i>	Bite of infected male <i>Anophel- es</i> mosquit o-o
d) Eleph- antiasi s	<i>Wuchere -ria bancrofti</i>	With contami- nated food and water

313. Secondary lymphoid organs include  
 a) Spleen                                      b) Tonsils                                      c) Both (a) and (b)                                      d) None of these
314. In which of the following, optical fibres are used?  
 a) Sonography                                      b) Endoscopy                                      c) MRI                                      d) CT-scan

315. Electron beam therapy is a kind of radiation therapy to treat
- Enlarged prostate gland
  - Gall bladder stones by breaking them
  - Certain types of cancer
  - Kidney stones
316. Antivenom is used for the treatment of snake bite. The treatment of snake bite by antivenom is an example of
- Passive immunisation
  - Active immunization
  - Autoimmunization
  - Innate immunization
317. Rhinovirus causes
- Common cold
  - Malaria
  - AIDS
  - Pneumonia
318. Which of the following protozoans attack gums in man?
- Entamoeba gingivalis*
  - Trichomonas*
  - Giardia*
  - All of these
319. Heroin is also known by the name of
- Hemp
  - Smack
  - Coke
  - Bhang
320. Female *Anopheles* mosquito is a vector of
- Filaria
  - Malaria
  - Typhoid
  - AIDS
321. *Wuchereria bancrofti* is
- A Platyhelminthes
  - Only host in man
  - Causing blockage of lymphatic vessel
  - None of the above
322. The confirmatory test used to diagnose AIDS is
- ELISA
  - Schick
  - WIDAL
  - None of these
323. Hepatitis-B is also called
- Epidemic jaundice
  - Serum jaundice
  - Catarrhal jaundice
  - None of these
324. Plants with hallucinogenic properties are
- Atropa belladonna*
  - Datura*
  - Both (a) and (b)
  - Papaver*
325. Malignant malaria is caused by
- Plasmodium falciparum*
  - Plasmodium ovale*
  - Plasmodium vivax*
  - Plasmodium malariae*
326. In ultrasonography
- Antigen-antibody interaction occur
  - High frequency sound waves are used
  - Magnetic waves are used
  - None of the above
327. Lung cancer is caused by
- Tabacco smoke
  - X-rays
  - UR rays
  - Vehicle smoke
328. Which one of the following pairs of diseases are viral as well as transmitted by mosquitoes?
- Elephantiasis and dengue
  - Malaria and yellow fever
  - Ringworm and dengue
  - Yellow fever and dengue
329. Ringworm is a
- Air borne disease
  - Infectious disease
  - Non-infectious disease
  - None of these
330. Which of these may cause hypothermia in humans?
- Smoking
  - LSD
  - Dopamine
  - Alcohol consumption
331. Transformation of normal cell cancerous cell is induced by
- Carcinogens
  - UV-rays
  - Neoplastic cells
  - Mutagens
332. Drugs, that are normally used as medicines to help the patients cope with mental illness are
- Barbiturates
  - Amphetamines
  - Lysergic acid diethyl amides
  - All of the above
333. The foetus receives immunoglobulin from their mother, through
- Placenta
  - Skin
  - Mouth
  - None of these
334. Measures for personal hygiene include
- Intake of clean drinking water
  - Keeping the body clean
  - Disinfection of water resources

- Which of the statements given above are correct?
- a) I and II                      b) I and III                      c) II and III                      d) I, II and III
335. Which of the following cells are involved in defence mechanism of the body?  
a) Macrophages                      b) Neutrophils                      c) Lymphocytes                      d) All of these
336. If a certain patient is suspected to be suffering from typhoid. Which diagnostic technique will you recommend for its detection?  
a) ELISA                      b) WIDAL                      c) MRI                      d) CT scan
337. Consider the following statements about biomedical technologies.  
I. During open heart surgery, blood is circulated in the heart-lung machine.  
II. Blockage in coronary arteries is removed by angiography.  
III. Computerised Axial Tomography (CAT) shows detailed internal structure as seen in a section of body.  
IV. X-ray provides clear and detailed images of organs like prostate glands and lungs.  
Which two of the above statements are correct?  
a) II and IV                      b) III and IV                      c) I and III                      d) I and II
338. The intermediate host of the parasite that causes Tashkent ulcers is  
a) *Glossina palpalis*                      b) *Phlebotomus argentipes*  
c) *Phlebotomus papatasi*                      d) *Triatoma infestans*
339. The major phagocytic cells are  
a) Antibody                      b) Antigen                      c) Lymphocytes                      d) Macrophages
340. Stomach clear out pathogens with the help of  
a) Secreting HCl                      b) Secreting hormone                      c) Both (a) and (b)                      d) None of these
341. Full form MALT is  
a) Mucosal Associated Lymphoid Tissue                      b) Memory Associated Lymphoid Tissue  
c) Memory Associated Lymphocyte Tissue                      d) Mucosa Associated Lymphocyte Tissue
342. Ishihara chart is used to detect  
a) TB                      b) Eye sight                      c) Colour blindness                      d) diabetes
343. Mast cell is a cell of ...A... of vertebrate animals. Mast cells mediate inflammatory responses such as ...B.....  
. Mast cells store a number of different chemical mediators including ...C... and ...D... . Here A to D refers to  
a) A-immune system, B-allergic reactions, C-histamine, D-serotonin                      b) A-bone marrow, B-allergic reactions, C-mucous, D-cerumen  
c) A-thymus, B-allergic reactions, C-histamine, D-cerumen                      d) A-immune system, B-allergic reactions, C-cerumen, D-serotonin
344. HIV is a ...A... , which means it has genes composed of ...B... like all viruses, HIV replicates inside the host cells. Its considered a retrovirus because it uses an enzymes, ...C..., to convert ...D..... into ...E... . Here A to E refers to  
a) A-retrovirus, B-RNA, C-reverse transcriptase, D-RNA, E-DNA  
b) A-retroviral, B-DNA, C-reverse transcriptase, D-DNA, E-RNA  
c) A-rhinovirus, B-DNA, C-reverse transcriptase, D-DNA, E-RNA  
d) A-adenovirus, B-RNA, C-reverse transcriptase, D-RNA, E-DNA
345. The specific parts of the antibody molecule that binds the antigen are called  
a) Heavy chain  
b) Small chain  
c) Antigen binding site  
d) Antibody bindings side
346. Candom(nirodh) is formed by  
a) Hindustan Liver Ltd                      b) Hindustan Latex Ltd                      c) Both (a) and (b)                      d) None of these
347. Interferon is a type of protein, which is used to cure  
a) Homeostatic disorder                      b) Hepatitis caused by virus  
c) Common cold caused by virus                      d) Both (b) and (c)
348. Chancroid is a sexually transmitted disease caused by  
a) *Treponema*                      b) *Haemphilus*                      c) *Neisseria*                      d) *Chlamydia*

349. Antiviral substances are  
 a) Antibiotics                      b) Antibodies                      c) Interferons                      d) Vaccines
350. Which one of the following statements is correct with respect to AIDS?  
 a) The HIV can be transmitted through eating food together with an infected person  
 b) Drug addicts are least susceptible to HIV infection  
 c) AIDS patients are being fully cured cent per cent with proper care and nutrition  
 d) The causative HIV retrovirus enters helper T-lymphocytes thus, reducing their numbers
351. An autoimmune disease where the body's own antibodies attack the cells of the thyroid is called  
 a) Hyperthyroidism                      b) Hashimoto's disease  
 c) Grave's disease                      d) Turner's syndrome
352. A sexually transmitted disease, symptomized by the development of ulcers on the genitals, is caused by the infection of  
 a) *Treponema pallidum*                      b) *Neisseria gonorrhoeae*  
 c) Human Immunodeficiency Virus                      d) Hepatitis-B virus
353. Smoking addiction is harmful because it produces polycyclic aromatic hydrocarbons, which cause  
 a) Reduction in oxygen transport                      b) Increase in blood pressure  
 c) Cancer                      d) Retardation of growth of foetus
354. The process, in which antibody comes in contact with antigen and convert them in harmless insoluble matter, is called  
 a) Activation                      b) Agglutination                      c) Neutralization                      d) Opsonization
355. Which one of the following diseases is caused by virus?  
 a) Cholera                      b) Diphtheria                      c) Measles                      d) Whooping cough
356. In India, there is decline in female population as compared to males, this is because of  
 a) Less female reach reproductive age  
 b) Number of female children are born less as there is more chance of prenatal death in case of female child  
 c) Female infanticide  
 d) All of the above
357. Hepatitis is a  
 a) Viral diseases                      b) Bacterial diseases                      c) Fungal diseases                      d) Protozoan diseases
358. Nicotine is  
 a) An alkaloid                      b) Steroid                      c) Stimulant                      d) Both (a) and (c)
359. Physical carcinogen, e. g., UV-ray, X-ray and  $\gamma$ -rays causes  
 a) DNA damage                      b) RNA damage                      c) Both (a) and (b)                      d) Protein damage
360. Critical state of disease is called  
 a) Acme                      b) Acromion                      c) Acholin                      d) None of these
361. Who among the following established the scientific basis of vaccination?  
 a) Edward Jenner                      b) George Kohler                      c) Louis Pasteur                      d) Von Behring
362. The first antibiotic was discovered by  
 a) A Fleming                      b) W Flemming                      c) R Koch                      d) Louis Pasteur
363. Malaria is caused by  
 a) *Plasmodium vivax*                      b) *Plasmodium malariae*  
 c) *Plasmodium falciparum*                      d) All of these
364. AIDS stands for  
 a) Acquired Immuno Deficiency Syndrome                      b) Acquired Immuno Deficiency Sign  
 c) Acquired Immuno Deficiency System                      d) Acquired Immuno Deficiency Structure
365. Which of the following is the most sparsely populated satate of India?  
 a) Manipur                      b) Rajasthan                      c) Meghalaya                      d) Arunachal Pradesh
366. In ECG, what does T-wave represent?  
 a) Diastole of auricles                      b) Diastole of ventricles  
 c) Systole of ventricles                      d) Diastole of auricles and ventricles



367. Marriageable age of girl and boys is  
 a) 21 and 24                      b) 18 and 21                      c) 15 and 18                      d) 18 and 24
368. Which cell secretes antibody?  
 a) Lymphocytes                      b) Monocytes                      c) Eosinophils                      d) Neutrophils
369. Which one of the following diseases causes dry, scaly lesions on skin, nails and scalp?  
 a) Ringworm                      b) Skin allergy                      c) Botulism                      d) None of these
370. The invasion of cancerous cells from one part of the body to another of body is called  
 a) Contact inhibition                      b) Metastasis                      c) Benign tumour                      d) Tumour
371. Malignant tumours are  
 I. mass of neoplastic cells  
 II. cells that grow very rapidly and damaging the surrounding normal tissue  
 III. cells that show the property of metastasis  
 Which of the statements given above are correct?  
 a) I and II                      b) I and III                      c) II and III                      d) All of these
372. An example of innate immunity is  
 a) PMNL- neutrophils                      b) T- lymphocytes  
 c) B-lymphocytes                      d) T<sub>H</sub> - cells
373. Lung tuberculosis is caused by  
 a) *Pseudomonas aeruginosa*                      b) *Mycobacterium tuberculosis*  
 c) *Streptococcus pneumoniae*                      d) *Escherichia coli*
374. Which one of the following is not correctly matched?  
 a) *Glossina palpalis* - Sleeping sickness  
 b) *Culex* - Filariasis  
 c) *Aedes aegypti* - Yellow fever  
 d) *Anopheles culifacies* - Leishmaniasis
375. HIV virus affect..... In AIDS patient.  
 a) Cytotoxic T-cell                      b) M-N cell                      c) Suppressor cell                      d) Helper T-cell
376. A person likely to develop tetanus is immunized by administering  
 a) Dead germs                      b) Performed antibodies  
 c) Wide spectrum antibiotics                      d) Weakened germs
377. Your immune system helps to protect you against viruses and bacteria that can cause sickness. Which cells are part of the immune system?  
 a) White blood cells                      b) Red blood cells                      c) Nerve cells                      d) None of these
378. Consider the following statements  
 I. The property of metastasis is shown by malignant tumours  
 II. Carcinogens are the agents that causes cancer  
 III. Benign tumour causes little damage to body cells  
 Which of the statements given above are correct?  
 a) I and II                      b) I and III                      c) II and III                      d) I, II and III
379. Gonorrhoea is caused by  
 a) *Treponema pallidum*                      b) *Entamoeba gingivalis*  
 c) *Mycobacterium leprae*                      d) *Neisseria gonorrhoeae*
380. To obtain a standard ECG, a patient is connected to the machine with three electrodes  
 a) One to each wrist and to left ankle                      b) One to each ankle and the left wrist  
 c) One to each wrist and to the left chest region                      d) One to each ankle and to the left chest region
381. Typhoid is caused by  
 a) Bacteria                      b) Virus                      c) Protozoa                      d) Fungus
382. X-rays are used in  
 a) ECG                      b) EEG                      c) CT-scan                      d) Endoscopy
383. Penicillin was used in  
 a) First world war                      b) second world war                      c) Both (a) and (b)                      d) None of these

384. Side effects of anabolic steroids in females include  
 I. masculinization  
 II. aggressiveness  
 III. mood swings, depression  
 IV. abnormal menstrual cycle  
 V. excessive facial and body hair  
 Choose the correct option  
 a) I, II and III                      b) I, II, III and IV                      c) II, III, IV and V                      d) I, II, III, IV and V
385. Amphetamines are the drugs of  
 a) Narcotics                      b) Sedatives                      c) Stimulants                      d) hallucinogens
386. Which of the following birth control measure can be considered as the safest?  
 a) The rhythm method                      b) The use of physical barriers  
 c) Termination of unwanted pregnancy                      d) Sterilization techniques
387. Aspirin is a/an  
 a) Antibiotic                      b) Antipyretic                      c) Antiseptic                      d) None of these
388. Flemming, Chain and Florey were awarded the Nobel Prize in 1945 for the discovery of  
 a) HIV                      b) CT scan                      c) Penicillin                      d) *Staphylococcus*
389. Heroin is obtained from plant of family  
 a) Papaveraceae                      b) Leguminosae                      c) Cruciferae                      d) Liliaceae
390. The combination of surgery, radiotherapy and chemotherapy can help to treat  
 a) Cancer                      b) AIDS                      c) both (a) and (b)                      d) None of these
391. Rejection of tissue or graft transplants is brought about mainly by  
 a) Cytotoxic T-cells                      b) Suppressor T-cells                      c) B-cells                      d) Macrophages
392. Each antibody has ...A... polypeptide chains, ...B... small chains called ....C... chains and ...D... longer chains called ...E... chains  
 The antibody, therefore, is represented as ...F...  
 Here A to F refers to  
 a) A-four, B-two, C-light, D-two, E-heavy, F-H<sub>2</sub>L<sub>2</sub>  
 b) A-six, B-three, C-light, D-three, E-heavy, F-H<sub>3</sub>L<sub>2</sub>  
 c) A-two, B-one, C-light, D-one, E-heavy, F-H<sub>1</sub>L<sub>1</sub>  
 d) A-five, B-two, C-light, D-three, E-heavy, F-H<sub>2</sub>L<sub>2</sub>
393. Antibodies are produced by  
 a) Leucocytes                      b) Lymphocytes                      c) Erythrocytes                      d) None of these
394. The test, which is misused for identification of an unborn baby is  
 a) Clotting test                      b) Amniocentesis                      c) Erythroblastosis                      d) aniogram
395. Heroin  
 a) Is a depressant                      b) Slows down body functions  
 c) As commonly called smack                      d) All of the above
396. Which of the following is used in eye inflammation and for curing night blindness?  
 a) *Atropa belladonna*                      b) *Cichorium intybus*  
 c) *Eclipta alba*                      d) *Emilia sonchifolia*
397. Transmission of HIV infection from infected mother to her child occurs through  
 a) Liver                      b) Placenta                      c) Skin                      d) None of these
398. Metastasis is associated with  
 a) Malignant tumours                      b) Benign tumours                      c) Both (a) and (b)                      d) Crown gall tumour
399. Bone marrow is the site for the development and maturation of  
 a) B-lymphocyte                      b) T-lymphocyte                      c) Both (a) and (b)                      d) T-helper cells
400. Smack is a drug obtained from the  
 a) Latex of *Papaver somniferum*                      b) Leaves of *Cannabis sativa*  
 c) Flowers of *Datura*                      d) Fruits of *Erythroxylum coca*
401. Maurer's dots are observed in the erythrocytes of man if these are infected with

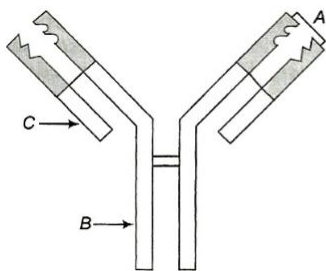


- a) Immunoglobulins      b) Interferons      c) Antitoxins      d) Lipoproteins
419. In the metropolitan cities of India, many children are suffering from allergy or asthma. What are the main causes of this problem?
- I. Due to sensitivity to the environment  
 II. Because of the protected environment provided early in life  
 III. Modern-day life style
- a) I and II      b) I and III      c) II and III      d) I, II and III
420. Which one of the following is the correct statement regarding the particular psychotropic drug specified?
- a) Hashish causes alter through perception and hallucinations  
 b) Opium stimulates nervous system and causes hallucinations  
 c) Morphine leads to delusions and disturbed emotions  
 d) Barbiturates cause relaxation and temporary euphoria
421. When the infection occurs in the alveoli (microscopic air sacs in the lungs) they fill the fluid. When the alveoli don't work efficiency, the lungs are less able to extract oxygen from the air. This causes the feeling of being short of breath, which is one of the most common symptoms of pneumonia  
 The above paragraph is
- a) True  
 b) False  
 c) Sometimes (a) and sometimes (b)  
 d) Neither (a) nor (b)
422. To confirm ELISA for AIDS, we used
- a) Western blotting      b) Northern blotting      c) Southern blotting      d) Eastern blotting
423. Which is not cancer?
- a) Leukaemia      b) Trachoma      c) Carcinoma      d) Sarcoma
424. DTP vaccine is given for
- a) Tetanus, polio, plague      b) Diphtheria, whooping cough and leprosy  
 c) Diphtheria, pneumonia, tetanus      d) Diphtheria, whooping cough, tetanus
425. Sickle cell anaemia has not been eliminated from the African population because
- a) It is controlled by recessive genes      b) It is not a fatal disease  
 c) It provides immunity against malaria      d) It is controlled by dominant genes
426. Thymus is the site for the development and maturation of
- a) T-lymphocyte      b) B-lymphocyte      c) Both (a) and (b)      d) Antibodies
427. A person is injected with globulin against hepatitis. This is
- a) Artificially acquired passive immunity      b) Artificially acquired active immunity  
 c) Naturally acquired active immunity      d) Naturally acquired passive immunity
428. An alkaloid called 'Reserpine' is extracted from
- a) Leaves of ashwagandha      b) Roots of sarpagandha  
 c) Leaves of sarpagandha      d) Roots of ashwagandha
429. Human immunodeficiency virus causes
- a) Acquired immuno deficiency syndrome      b) Anthrax  
 c) Tuberculosis      d) Polio
430. In heavy smokers, the alveoil of the lungs are enlarged and damaged, which reduces the surface area for the exchange of respiratory gases. The condition is called
- a) Asthma      b) Silicosis      c) Emphysema      d) Insomnia
431. *Entamoeba histolytica* feeds on
- a) Liver      b) Small intestine      c) Large intestine      d) WBCs
432. Identify the wrongly matched pair.
- a) Typhoid      - Widal test  
 b) Plague      - Viral disease  
 c) Malignant malaria - *Plasmodium falciparum*  
 d) Common cold      - Rhinovirus

433. At which stage of HIV infection does one usually shows symptoms of AIDS?
- When viral DNA is produced by reverse transcriptase
  - When HIV replicates rapidly in helper T-lymphocytes and damages large number of these
  - With 15 days of sexual contact with an infected person
  - When the infecting retrovirus enters host cells
434. Consider the following statements
- Dead cells of the skin prevents pathogen entry
  - Skin secretes oil that makes skin surface acidic
  - Skin secretes sweat that makes surface acidic
- Which of the statement given above are correct?
- I and II
  - I and III
  - II and III
  - I, II and III
435. Symptoms of allergic reaction includes
- Watery eyes
  - Running nose
  - Respiratory complaints
  - All of these
436. A person has developed interferon in his body. He seems to carry an infection of
- Typhoid
  - Filariasis
  - Malaria
  - Measles
437. Spread of AIDS is due to
- Infected needles and syringes
  - Sexual contact with infected person
  - Both (a) and (b)
  - Sharing public toilet
438. Human population growth is
- Lag
  - Stationary
  - Exponential
  - None of these
439. Malarial parasite is introduced into the blood of man as a
- Metacystozoite
  - Schizont
  - Oocyte
  - Sporozoite
440. Expanded form of ELISA is
- Enzyme Linked Immuno Sorbent Assay
  - Enzyme Linked Ion Sorbent Assay
  - Enzyme Linked Inductive Assay
  - None of the above
441. Elephantiasis causing organism belong to
- Aschelminthes
  - Platyhelminthes
  - Cnidaria
  - Porifera
442. Vaccination provides
- Natural immunity
  - Passive immunity
  - Both (a) and (b)
  - Active immunity
443. Which of the following is not hallucinogen?
- Heroin
  - LSD
  - Marijuana
  - Charas
444. Which one of the following acts as a physiological barrier to the entry of microorganisms in human body?
- Tears
  - Monocytes
  - Skin
  - Epithelium of urogenital tract
445. The truck drivers usually take
- Amphetamines
  - LSD
  - Caffeine
  - morphine
446. Short lived immunity acquired from mother to foetus across placenta or through mother's milk to the infant is categorized as
- Active immunity
  - Passive immunity
  - Cellular immunity
  - Innate or non-specific immunity
447. Cancer cells are more easily damaged by radiation than normal cells because they are
- Starved of mutation
  - Undergoing rapid division
  - Different in structure
  - Non-dividing
448. Cattle fed with spoiled hay to sweet clover, which contains dicumarol
- are healthier due to good diet
  - Catch infections easily
  - May suffer with vitamin-K deficiency and prolonged bleeding
  - May suffer from beri-beri due to deficiency of vitamin-B
449. Which of the following are the reasons for rheumatoid arthritis? Choose the correct option
- Lymphocytes become more active

- II. Body attacks self cells  
 III. More antibodies are produced in the body  
 IV. The ability to differentiate pathogens or foreign molecules from self cells is lost
- a) I and II                      b) II and IV                      c) III and IV                      d) I and III
450. In which of the following disorders, person will become hypersensitive about ones look?  
 a) Hypochondria                      b) Anxiety                      c) Mood                      d) Phobia
451. Warning signs of drug and alcohol abuse includes  
 I. Drop in academic performance  
 II. Absence from school/college  
 III. Lack of interest in personal hygiene  
 IV. Isolation, depression, fatigue, aggressive and rebellious behavior
- a) I, II and III                      b) I, III and IV                      c) II, III and IV                      d) I, II, III and IV
452. How does antigen-determinant differ from antigen binding site?  
 a) By its structure                      b) By its location                      c) By its function                      d) All of these
453. Infective stage to man of the parasite that causes haematuria is  
 a) Miracidium                      b) Redia                      c) Microfilaria                      d) Cercaria
454. Health is affected by  
 I. genetic disorders  
 II. infections  
 III. life style
- Which of the key words given above are correct?  
 a) I and II                      b) I and III                      c) II and III                      d) I, II and III
455. Normal cell have genes called ...A... which are present in inactivated state but under certain conditions like ...B... they get transformed to ...C... Here A, B and C refers to  
 a) A-cellular oncogenes, B-mutation, C-cancer causing oncogenes  
 b) A-proto-oncogenes, B-mutation, C-disease causing genes  
 c) A-viral oncogenes, B-mutation, C-tumour causing genes  
 d) None of the above
456. Purified antibiotic penicillin of *Penicillium notatum* was discovered by  
 a) Alexander Fleming                      b) Howard Floxy                      c) Robert Hooke                      d) Carolus Linnaeus
457. Amoebiasis is caused by  
 a) *Plasmodium*                      b) *Entamoeba histolytica*  
 c) House flies                      d) Contaminated food and water
458. Which of the following drugs can be used to reduce allergic reaction due to unavoidable substances?  
 I. Anti-histamine  
 II. Adrenaline  
 III. Steroids
- a) I and II                      b) I and III                      c) II and III                      d) I, II and III
459. Thymus is ...A... at the time puberty but it ...B... with age. Here A and B refers to  
 a) A-large; B-reducing                      b) A-small; B-increasing  
 c) A-large; B-disappear                      d) A-not present; B-appears
460. Which one is not a symptom of disease caused by *E. histolytica*?  
 a) Stools with excess mucous                      b) Constipation  
 c) Abdominal pain                      d) Nasal discharge
461. Choose the wrong statement  
 a) HIV has RNA as its genetic material  
 b) HIV replicates in T<sub>H</sub>-lymphocytes  
 c) Antiretroviral drugs are partially effective for AIDS treatment  
 d) The time-lag between the infection and appearance of AIDS symptoms may vary from few hours to a week
462. Human health can be maintained by

- a) Balanced diet                      b) Personal hygiene                      c) Regular exercise                      d) All of these
463. Genetic counsellors can identify heterozygous individuals by  
 a) Height of individuals                      b) Colour of individuals  
 c) Screening procedures                      d) All of the above
464. Electric potential of the brain is recorded by  
 a) CT scan                      b) Sphygmomanometer  
 c) ECG                      d) EEG
465. Jaundice is a disease of  
 a) Pancreas                      b) Kidney                      c) Liver                      d) Duodenum
466. T-lymphocytes differentiate and matured in  
 a) Bone marrow                      b) Kidneys                      c) Liver                      d) Thymus gland
467. Fever in malaria is due to  
 a) Release of merozoites from RBCs                      b) Entry of sporozoites into blood capillaries  
 c) Entry of cryptomerozoites into RBCs                      d) Entry of merozoites into liver cells
468. The figure given below shows an antibody molecule. Name the parts *A*, *B* and *C*



- a) A-Antigen binding site, B-Heavy chain, C-Light chain  
 b) A-Antibody binding site, B-Light chain, C-Heavy chain  
 c) A-Antigen binding site, B-Short chain, C-Long chain  
 d) A-Antibody binding site, B-Long chain, C-Short chain
469. A vaccine meant for protection against tuberculosis is  
 a) BCG                      b) DPT                      c) TT                      d) BGC
470. Which one of the following pairs is not correctly matched?  
 a) Vitamin-B<sub>12</sub> \_\_\_\_\_ Pernicious anaemia                      b) Vitamin-B<sub>6</sub> \_\_\_\_\_ Loss of appetite  
 c) Vitamin-B<sub>1</sub> \_\_\_\_\_ Beri-beri                      d) Vitamin-B<sub>2</sub> \_\_\_\_\_ Pellagar
471. An example of liquid tumour is  
 a) Glioblastoma                      b) Adenocarcinoma  
 c) Chondrosarcoma                      d) Myelocytic leukaemia
472. The drug 'cyclosporin' used for organ transplant patients is obtained from a  
 a) Bacterium                      b) Fungus                      c) Virus                      d) Plant
473. Sand fly spreads a particular type of disease by its  
 a) proboscis                      b) Mandible                      c) Salivary gland                      d) None of these
474. Which of the following disease caused internal bleeding, muscular pain, fever, anaemia and blockage of the intestinal passage?  
 a) Ascariasis                      b) Filariasis                      c) Amoebiasis                      d) Trypanosomiasis
475. Which of the following statement is not true about HIV/AIDS?  
 a) HIV is a contagious disease  
 b) HIV weakened and destroy the immune system  
 c) Attack the T-cytotoxic cells of immune system  
 d) AIDS was first reported in 1981
476. Ascariasis is caused by an endoparasite of human ...A... commonly called ...B... . Here A and B refers to  
 a) A-*Ascaris suum*; B-tapeworm                      b) A-*Ascaris lumbricoides*; B-roundworm  
 c) A-*Ascaris* worm; B-flatworm                      d) A-*Ascaris secernentea*; B-liver worm
477. *Aedes aegypti* is a vector for

- a) Both dengue and yellow fever  
c) Yellow fever
478. Mainly allergic reactions occur in  
a) Metro cities                      b) Urban areas                      c) Rural areas                      d) None of these
479. Which one of the following non-infectious disease is the major cause of death in humans?  
a) Cancer                      b) AIDS                      c) Asthma                      d) Typhoid
480. Which is correct pair of pathogen and its vector?  
a) *Plasmodium and Anopheles*                      b) *Plasmodium and culex*  
c) *Virus and Anopheles*                      d) Protozoan and *Aedes*
481. Haemozoin is released into blood during the infection of *Plasmodium vivax* at every  
a) 24 h                      b) 48 h                      c) 72 h                      d) 12 h
482. The opposite to acquired immunity is  
a) Active immunity                      b) Passive immunity                      c) Innate immunity                      d) B-cell immunity
483. Hepatitis-B vaccine is produced from  
a) Yeast                      b) Bacteriophage                      c) Bacteria                      d) All of these
484. Sphygmomanometer measures  
a) Nerve conduction rate                      b) Heart beat rate  
c) Blood pressure                      d) Pulse rate
485. Take the odd one out.  
a) Rabies, influenza, AIDS                      b) Amoebiasis, giardiasis, trypanosomiasis  
c) Taeniasis, ascariasis, elephantiasis                      d) Cancer, tuberculosis, tetanus
486. The drug useful to increase cardiovascular effects in human beings is  
a) Cocaine                      b) Barbiturate                      c) Benzodiazepine                      d) Insulin
487. Magic bullets are the  
a) Recombinant vaccines                      b) Monoclonal antibodies  
c) Chemotherapy drugs for cancer                      d) Anabolic steroids
488. Your immune system helps to protect you against viruses and bacteria that can cause sickness. Which cell is a part of immune system?  
a) White memory                      b) Red blood T-cells                      c) Nerve cells B-cells                      d) All of the above
489. Which one of the following is correct matching of a vitamin, its nature and its deficiency disease?  
a) Vitamin-A-Fat soluble-Night blindness                      b) Vitamin-K- Fat soluble- Beri beri  
c) Vitamin-A- Fat soluble-Beri beri                      d) Vitamin-K- Water soluble-Pellagra
490. In India, AIDS was reported in  
a) 1932                      b) 1986                      c) 1990                      d) 1992
491. Immunological destruction of body tissue or its products due to antibodies reacting with it as foreign antigen is called  
a) Immunodeficiency disease                      b) Auto-immune disease  
c) Prophylaxis                      d) None of the above
492. Consider the following statements about ascariasis  
I. Eggs of parasite are excreted along with contaminated water, soil and plants  
II. Infection takes place through contaminated vegetable fruits and water  
Choose the correct combination  
a) I-True; II-True                      b) I-False; II-False                      c) I-True; II-False                      d) I-False; II-True
493. Anaemia is due to deficiency of  
a) Ca                      b) Fe                      c) Mg                      d) P
494. Which of the following diseases is spread by housefly?  
a) Dengue fever                      b) Encephalitis                      c) Filariasis                      d) Typhoid
495. HIV belongs to which of the following families of viruses?  
a) Retrovirus                      b) Togavirus                      c) Adenovirus                      d) Lentivirus
496. Neurasthenia refers to  
a) Undue concern about health



- b) Traumatic experience like rape  
 c) Disorder of sensory perception  
 d) Mental inability to concentrate on or enjoy things
497. Grafting of tissue or organ between individuals of different species is called  
 a) Autograft                      b) Isograft                      c) Xenograft                      d) Allograft
498. Passive immunization include  
 a) Transfer of lymphocyte directly                      b) Transfer of maternal antibodies across placenta to the foetus  
 c) Introduction of antibodies                      d) Both (b) and (c)
499. Ultrasound of how much frequency is beamed into human body for sonography?  
 a) 30-45 MHz                      b) 15-30 MHz                      c) 1-15 MHz                      d) 45-70 MHz
500. The tests that are used in the diagnosis of AIDS are  
 a) ELISA and immunoblot                      b) Northern blot and ELISA  
 c) ELISA and southern blot                      d) Western blot and ELISA
501. The complexes formed during immune complex mediated hypersensitivity are removed by  
 a) Eosinophils and T<sub>c</sub> cells                      b) Monocytes and B-lymopocytes  
 c) Eosinophils and monocytes                      d) Eosinophils and basophils
502. If a person is feeding only on meat, egg and milk then he will suffer from  
 a) Nightblindness                      b) Scurvy                      c) Rickets                      d) Beri-beri
503. *Plasmodium* life cycle is  
 a) Digenetic                      b) Monogenetic                      c) Both (a) and (b)                      d) None of these
504. The method , which yields the best pictorial from and does not expose the patient to potentially harmful ionizing radiations is  
 a) X-ray radiography                      b) Angiography  
 c) Computed tomography                      d) Magnetic resonance imaging
505. Human Immunodeficiency Virus (HIV)  
 I. belongs to the group retrovirus  
 II. has RNA genome enclosed in an envelope  
 Which of the statements given above are correct?  
 a) Only I                      b) Only II                      c) I and II                      d) None of these
506. Physical carcinogens are  
 a) UV-rays                      b) X-rays                      c)  $\gamma$ -rays                      d) All of these
507. Immunity gained after an infection is called  
 a) Active immunity                      b) Innate immunity                      c) Passive immunity                      d) None of these
508. Which of the following method is used for detection of antibodies?  
 a) Competitive ELISA                      b) Indirect or sandwich ELISA  
 c) Antibody class captive ELISA                      d) All of the above
509. Antibody production is assisted by  
 a) Monocytes                      b) Natural killer cells                      c) T-lymphocytes                      d) Phagocyte
510. Which of the following substances can cure Parkinson's disease?  
 a) GABA                      b) Acetylcholine                      c) Dopamine                      d) Glutamic acid
511. Tetunas disease is caused by  
 a) Virus                      b) Bacteria                      c) Fungi                      d) Mycoplasma
512. Interferon is a type of  
 a) Anti-bacterial protein                      b) Anti-viral protein  
 c) Complex protein                      d) Anti-clotting protein
513. Humoral immunity is also called as  
 a) Antibody mediate immunity                      b) Non-specific immune response  
 c) Antigen mediated immunity                      d) None of the above
514. Select the true statements  
 I. Cancer can be detected by the use of antibodies against cancer specific antigens for certain type of cancer

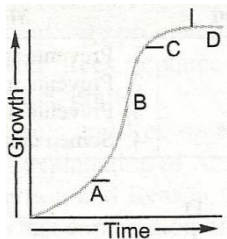
- II. The tumour cells are surgically removed to reduce the load of cancerous cells  
 III. Certain chemotherapeutic drugs are used to kill the cancerous cells, but majority of the drugs have side effects like hair loss, anaemia, etc.
- a) I and II                      b) I and III                      c) II and III                      d) I, II and III
515. The type of antibody present in colostrum secreted by mammary gland during the initial days of lactation is  
 a) IgA                              b) IgM                              c) IgG                              d) IgE
516. Increased asthmatic attacks in certain seasons are related to  
 a) Hot and humid environment                      b) Eating fruits preserved in tin containers  
 c) Inhalation of seasonal pollen                      d) Low temperature
517. Intermediate host of *Wuchereria* is  
 a) Female *Anopheles*                      b) Female *Aedes*                      c) Female *Culex*                      d) None of these
518. First line of defence include  
 a) Skin                              b) Mucous coating  
 c) Lysozyme secretion from eyes                      d) All of the above
519. If a quick immune response is needed as in tetanus infection, preformed antibodies or antitoxin is injected into the patient body. This type of immunization is called.....  
 a) Active immunization                      b) Passive immunisation  
 c) Innate immunity                      d) Humoral immunity
520. The full form of SCID is  
 a) Secondary communicable Internal Disease                      b) Secondary communicable Infectious Disease  
 c) Severe Communicable Immuno Deficiency                      d) Severe Communicable Infectious Disease
521. Which of the following is STD?  
 a) Cancer                              b) Malaria                              c) Pneumonia                              d) Trichomoniasis
522. Common symptoms of amoebiasis are  
 a) Constipation, stool with blood clots                      b) Abdominal pain and cramp  
 c) Weakness                              d) All of the above
523. Foetal abnormalities are caused by  
 a) LSD                              b) Opium                              c) Nicotine                              d) Alcohol
524. Activity of brain is recorded by  
 a) ECG                              b) EEG                              c) MET                              d) CT
525. MRI is not allowed in the following conditions except one. Identify the exception  
 a) Presence of pace-maker in the body  
 b) Pregnant women  
 c) Person suffering from stroke  
 d) Presence of metallic plate in the body from treatment of broken bones
526. Antibody  
 a) Induce formation of antigen                      b) Helps in production of WBCs  
 c) Is formed by WBC                      d) None of the above
527. The AIDS virus spreads by decreasing  
 a) Killer T-cells                      b) Helper T-cells                      c) Suppressor T-cells                      d) Carrier T-cells
528. Which one of the following disease is sexually transmitted disease  
 a) Cancer                              b) Syphilis                              c) Diphtheria                              d) Myocarditis
529. Consider the following statements  
 I. Cocaine interferes with the transport of the neurotransmitter dopamine  
 II. It is usually taken by sniffing and snorting  
 III. It has a potential stimulating action on the central nervous system  
 Which of the statements given above are correct?  
 a) I and II                              b) I and III                              c) II and III                              d) I, II and III
530. Which of the following disease is caused by bacteria *Salmonella typhi*?  
 a) Typhoid                              b) Pneumonia                              c) Malaria                              d) Cold

531. Which one of the following is used for external application in the cure of leprosy?  
 a) Rice bran oil                      b) Neem seed oil                      c) Cotton seed oil                      d) Groundnut oil
532. Incubation period of *Plasmodium vivax* is  
 a) 14 days                      b) 30 days                      c) 40 days                      d) 32 days
533. The antibody dependent cytotoxicity is seen in  
 a) Generalized anaphylaxis                      b) Local anaphylaxis  
 c) Non-compatible blood transfusion                      d) Immune complex reaction
534. The letter T in T-lymphocyte refers to  
 a) Thyroid                      b) Thalamus                      c) Tonsil                      d) Thymus
535. Which of the following pairs is correct?  
 a) *E. coli* - *Entamoeba histolytica*                      b) *Culex* - Elephantiasis  
 c) Bed bug - Kala-azar                      d) *Plasmodium* - sleeping sickness
536. Which of the following are symptoms of radiation disease?  
 a) Red and ulcered skin                      b) Nausea and loss of hair  
 c) Nausea and anaemia                      d) Ulcered skin, anaemia, nausea and loss of hair
537. Amniocentesis detects  
 a) Deformity in brain                      b) Deformity in heart                      c) Hereditary diseases                      d) All of these
538. Removal or absence of thymus in early life shall bring about  
 a) Lack of lymphocytes                      b) Lack of antibodies  
 c) Lack of lymph nodes                      d) All of these
539. Which of the following is an opiate narcotic?  
 a) Morphine                      b) LSD                      c) Amphetamines                      d) Barbiturates
540. Ultrasound is produced by  
 a) Lead bead                      b) Lead zirconate                      c) Lithium chloride                      d) None of these
541. The gland often referred in relation to AIDS is  
 a) Adrenal                      b) Thyroid                      c) Thymus                      d) Pituitary
542. LSD is derived from  
 a) *Claviceps purpurea*                      b) *Pseudomonas putida*                      c) *Cannabis indica*                      d) *Cannabis sativa*
543. Which among the following is an autoimmune disease?  
 a) Rheumatoid arthritis  
 b) AIDS  
 c) Hepatitis-B  
 d) Swine flue
544. Which of the following disorders is not hereditary?  
 a) Haemophilia                      b) Cataract                      c) Sickle cell anaemia                      d) Colour blindness
545. Which of the following diseases is not caused by virus?  
 a) Mumps                      b) Rabies                      c) AIDS                      d) Tuberculosis
546. Which of the following provides immunity to digestive tract against antigen?  
 a) IgA                      b) IgD                      c) IgG                      d) IgE
547. The group of diseases carried (transmitted) by insects is  
 a) Typhoid, jaundice, tuberculosis                      b) Mumps, measles, smallpox  
 c) Scrabies, ringworm, swine flu                      d) Malaria, filaria, yellow fever
548. Which one of the following diseases is communicable?  
 a) Rickets                      b) Amoebiasis                      c) Diabetes                      d) Cancer
549. *Plasmodium* completes its life cycle in  
 a) One host                      b) Two host                      c) Multiple host                      d) None of these
550. 'Mammalian thymus' is mainly concerned with  
 a) Regulation of body temperature                      b) Regulation of body growth  
 c) Immunological functions                      d) Secretion of thyrotropin
551. Match the correct combination  
 a) *Leishmania donovani* \_\_\_\_ Sleeping sickness                      b) *Wuchereria bancrofti* \_\_\_\_ Filariasis

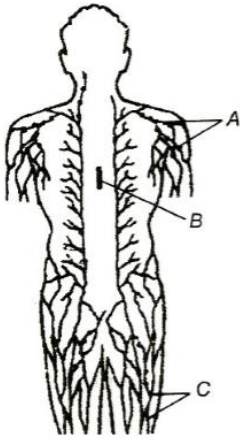
- c) *Amoeba proteus* \_\_\_\_\_ Kala-azar
- d) *Anopheles maculipennis* \_\_\_\_ Malaria
552. Transmission of HIV occurs by
- I. sexual contact with infected person
  - II. transfusion of contaminated blood
  - III. sharing infected needles
  - IV. from infected mother to her baby through placenta
- Which of the statements given above are correct?
- a) I and II                      b) I and III                      c) II, III and IV                      d) I, II, III and IV
553. Which of the following is a viral disease?
- a) TB                      b) Diphtheria                      c) Small pox                      d) All of these
554. Cirrhosis is
- a) Alcohol related disease
  - b) Smoke related disease
  - c) Junk food related disease
  - d) Polluted air related disease
555. Identify the hepatitis virus, which cannot survive independently and requires another hepatitis virus for its multiplication.
- a) Hepatitis-A virus
  - b) Hepatitis-B virus
  - c) Hepatitis-C virus
  - d) Hepatitis-D virus
556. Excessive dosage of cocaine causes
- a) Hallucination
  - b) Respiratory disorders
  - c) Cardiovascular failure
  - d) All of these
557. The disease elephantiasis is caused by
- a) Protozoan
  - b) Bacteria
  - c) Virus
  - d) Worm
558. Which of the following causes cancer of vagina?
- a) Cadmium oxide
  - b) Diethyl stilbestrol
  - c) Aflatoxin
  - d) Vinyl chloride
559. Cyclosporin A, which is used as an immunosuppressive agent, is produced by
- a) *Aspergillus*
  - b) *Clostridium*
  - c) *Saccharomyces*
  - d) *Trichoderma*
560. AIDS virus contains
- a) RNA with protein
  - b) RNA with protein
  - c) DNA without protein
  - d) DNA only
561. In a graph of population, on x-axis time and on y-axis population is plotted. A parallel line to x-axis shows
- a) Natality increases mortality decreases
  - b) Natality equal to mortality
  - c) Natality decreases mortality increases
  - d) Natality constant mortality increases
562. Antipoison against snake venom contains
- a) Antigen
  - b) Antibody
  - c) Hormone
  - d) Enzyme substrate complex
563. Which one of the following is a bacterial disease?
- a) Measles
  - b) Chicken pox
  - c) Rabies
  - d) Tuberculosis
564. Where will you look for the sporozoites of the malarial parasite?
- a) RBCs of humans suffering from malaria
  - b) Spleen of infected person
  - c) Salivary glands of freshly moulted female *Anopheles* mosquito
  - d) Saliva of infected female *Anopheles* mosquito
565. The lymph nodes
- I. are small solid structures throughout the body
  - II. filter lymph fluid as it flows through them, trapping bacteria, viruses and other antigens, which are then destroyed by lymphocytes
- Which of the statements given above is/are correct?
- a) Only I                      b) Only II                      c) I and II                      d) None of these
566. Active immunity may be acquired by
- a) Natural infection
  - b) Vaccines
  - c) Toxoids
  - d) All of these
567. Which of the following is used in analysis of metabolic and physiological process of tissue?
- a) Sonography
  - b) CT-Scan
  - c) NMR
  - d) ECG
568. Smokeless tobacco causes

- a) Oral cancer                      b) Lung cancer                      c) Bronchitis                      d) Heart disease
569. The treatment of snake-bite by antivenin is an example of  
 a) Artificially acquired active immunity                      b) Artificially acquired passive immunity  
 c) Naturally acquired passive immunity                      d) Specific natural immunity
570. ECG is a measure of  
 a) Rate of heart beat                      b) Difference in electric potential  
 c) Volume of blood pumped                      d) Ventricular contraction
571. Which of the following property is possessed by cancerous cell?  
 a) A new blood vessels formation                      b) Uncontrolled cell division  
 c) Both (a) and (b)                      d) Controlled cell division
572. The carnivorous fish used for eradication of mosquito larva in stagnated water is  
 a) *Gambusia*                      b) *Anabas*                      c) Rohu                      d) *Catla catla*
573. Which of the following options is not appropriate for anxiety disorder?  
 a) Perspiration occurs  
 b) Distorted thoughts  
 c) In this condition, person reacts very strongly to any situation of stress  
 d) Heart beats increase
574. The intermediate host of *Schistosoma* is  
 a) Snail                      b) Mosquito                      c) Housefly                      d) Sheep
575. A male showing aggressiveness, mood swings, depression, reduction of size of the testicles, decreased sperm production, breast enlargement premature baldness. Possibly he is taking  
 a) Anabolic steroids                      b) Heroin                      c) Marijuana                      d) Morphine
576. Alteration of which genes leads to cancer?  
 a) Cell proliferation gene(proto-oncogenes)                      b) Tumour suppressor gene  
 c) Tumour virus gene                      d) All of the above
577. Which one of the following can help in the diagnosis of a genetical disorder?  
 a) ELISA                      b) ABO blood group                      c) PCR                      d) NMR
578. Cells involved in immune system is/are  
 a) Leukocytes                      b) Blood platelets                      c) Thrombocytes                      d) All of these
579. Vaccine for tuberculosis is known as  
 a) PAS vaccine                      b) BCG vaccine                      c) OPV                      d) DPT
580. Smoking causes many types of cancer including cancer of  
 a) Lungs                      b) Urinary bladder                      c) Throat                      d) All of these
581. Which of the following disease is caused by protozoan and transmitted by mosquito?  
 a) Pneumonia                      b) Malaria                      c) Filariasis                      d) Typhoid
582. In India, the population control programme launched in  
 a) 1955                      b) 1976                      c) 1901                      d) 1987
583. Pathogenicity of bacteria causing tuberculosis and leprosy is due to  
 a) Cholesterol                      b) Ergosterol                      c) Prostaglandins                      d) Wax-D
584. Hela cells used in cell biology are  
 a) Cancerous cells grown in cancer research laboratory  
 b) Cervical cancer cell derivatives  
 c) Both (a) and (b)  
 d) None of the above
585. *Plasmodium*, a small protozoan causes  
 a) Malaria                      b) Filariasis                      c) Amoebiasis                      d) Typhoid
586. A non-communicable disease is  
 a) Measles                      b) Rabies                      c) Diphtheria                      d) Diabetes
587. Innate immunity is also called  
 a) Familial                      b) Inborn                      c) Genetic                      d) All of these
588. HIV affects ..... in AIDS patients

- a) Cytotoxic cells                      b) Killer T-cells                      c) Suppressor cell                      d) Helper T-cell
589. VCRC stands for  
 a) Vaccine Creation Research Center                      b) Vector Control Research Center  
 c) Venum Control Research Center                      d) Vital Chemical ReleaseC
590. Quinine used for treatment of malarial fever, is extracted form  
 a) *Atropa belladonna*                      b) *Cinchona officinalis*  
 c) *Aconitum napellus*                      d) *Rauwolfia serpentina*
591. Which of the following is an example of carcinoma?  
 a) Melanoma cancer of skin                      b) Cancer of lymph gland  
 c) Cancer of muscle                      d) Cancer of blood
592. Which Ig is produced in primary immune response?  
 a) IgA                      b) IgE                      c) IgG                      d) IgM
593. Peyer's patches are found in  
 a) Liver                      b) Small intestine                      c) Large intestine                      d) Spleen
594. The filariasis pathogens are transmitted to a healthy person through the bite of  
 a) Female mosquito                      b) Housefly                      c) Cockroach                      d) None of these
595. Biolistic technique is used in  
 a) Tissue culture process                      b) Gene transfer process  
 c) Hybridization process                      d) Germplasm conservation process
596. Which one of the following is protozoan disease?  
 a) Polio                      b) AIDS                      c) Taeniasis                      d) Malaria
597. Consider the following statements about AIDS.  
 I. AIDS patient become easily infected by bacteria, viruses and even parasites  
 II. The person is unable to protect himself against any infection  
 III. National AIDS Control Organisation (NACO) and non-governmental organization are trying their best to educate people about AIDS  
 Which of the statements given above are correct?  
 a) I and II                      b) I and III                      c) II and III                      d) I, II and III
598. A certain patient is suspected to be suffering from acquired immuno deficiency syndrome. Which diagnostic technique will you recommend for its detection  
 a) MIRI                      b) Ultra Sound                      c) WIDAL                      d) ELISA
599. The causative agent of mad-cow disease is a  
 a) Bacterium                      b) Prion                      c) Worm                      d) Virus
600. Which one of the following is not the property of cancerous cells?  
 a) They do not require extracellular growth factors                      b) They do not remain confined in the area of formation  
 c) They show contact inhibition                      d) They divide in an uncontrolled manner
601. Regarding lymphocytes consider the following statement  
 I. The T-lymphocytes form Cell Mediated Immune System (CMIS)  
 II. The T-lymphocytes cells do not secrete antibodies but help the B-lymphocyte cell to produce them  
 Which of the statement given above is/are correct?  
 a) Only I                      b) Only II                      c) I and II                      d) None of these
602. HIV was reported in 1981 and isolated by  
 a) Pasteur                      b) Mantagnier                      c) Robert Hook                      d) Hansen
603. In the sigmoid curve of growth, the alphabets indicate the sequence of events. Choose the correct option where the alphabet specifies the event.



- a) A-Phase of slow growth  
 B- Phase of exponential growth  
 C- Phase of diminishing growth  
 D-Stationary phase
- b) A- Phase of rapid growth  
 B- Phase of diminishing growth  
 C- Stationary phase  
 D- Phase of slow growth
- c) A- Diminishing growth  
 B- exponential growth  
 C- Slow growth  
 D- Stationary phase
- d) A- Stationary phase  
 B- Phase of slow growth  
 C- Phase of rapid growth  
 D- Phase of diminishing growth
604. *Ascaris* is also known as  
 a) Roundworm                      b) Flatworm                      c) Tapeworm                      d) Liverworm
605. Which of the following helps in differentiation of cells of the immune system  
 a) Thymosin                      b) Thyroxine                      c) Cortisol                      d) Steroid
606. Common symptoms of typhoid are  
 a) High fever and weakness                      b) Stomach pain and constipation  
 c) Headache and loss of appetite                      d) All of the above
607. The immune system may at times reject certain tissues of a person's own body as 'non-self'. This breakdown of the body's self-recognition system is called ...A... The auto-immune reactions cause a variety of diseases known as ....B.... ....C... is an autoimmune disease. The most appropriate option providing A, B and C correctly is  
 a) A-autoimmunity, B-autoimmune disease, C-rheumatoid arthritis  
 b) A-immunodeficiency, B-immunodeficiency disease, C-AIDS  
 c) A-severe combined immunodeficiency, B-congenital disease, C-Addison's disease  
 d) A-autoimmunity, B-secondary immunodeficiency disease, C-diabetes
608. The word NACO stands for  
 a) National AIDS Control Organisation  
 b) Non-Governmental AIDS Control Organisation  
 c) National Agrochemical Organisation  
 d) Both (b) and (c)
609. Ringworm is caused by  
 a) Bacteria                      b) Virus                      c) Protozoa                      d) Fungi
610. Given below the diagrammatic representation of lymph nodes



Label A, B and C

- a) A-Lymph nodes, B-Thymus, C-Lymphatic vessels
- b) A-Lymphatic vessels, B-Thyroid, C-Lymph nodes
- c) A-Tonsils, B-Peyer's patches, C-Lymphatic vessels
- d) A-Tonsils, B-Thymus, C-Peyer's patches

611. Consider the following four statements (I-IV) regarding kidney transplant and select the two correct ones out of these.

I. Even if a kidney transplant is proper the recipient may need to take immuno-suppressants for a long time.

II. The cell-mediated immune response is responsible for the graft rejection.

III. The B-lymphocytes are responsible for rejection of the graft.

IV. The acceptance or rejection of a kidney transplant depends on specific interferons.

The two correct statements are

- a) II and III
- b) III and IV
- c) I and III
- d) I and II

612. The rejection of organ transplanting in humans is prevented by using

- a) Aspirin
- b) Cyclosporine
- c) Calcitonin
- d) Thrombin

613. Examination of blood of a person suspected of having anaemia, shows large, immature, nucleated erythrocytes without haemoglobin. Supplementing his diet with which of the following, is likely to alleviate his symptoms?

- a) Thiamine
- b) Folic acid and cobalamine
- c) Riboflavin
- d) Iron compounds

614. The inability to distinguish between self cells and non-self cells may lead to

- a) Hypersensitivity
- b) Immunodeficiency
- c) Autoimmune disease
- d) Allergy

615. What is the most abundant and fastest chemical released by mast cell?

- a) Histamine
- b) Serotonin
- c) Both (a) and (b)
- d) Cytokine



# HUMAN HEALTH AND DISEASE

## BIOLOGY

### : ANSWER KEY :

1)	c	2)	a	3)	d	4)	c	173)	c	174)	d	175)	c	176)	d
5)	a	6)	a	7)	c	8)	b	177)	a	178)	c	179)	a	180)	c
9)	b	10)	a	11)	c	12)	c	181)	c	182)	a	183)	c	184)	c
13)	a	14)	b	15)	c	16)	d	185)	d	186)	c	187)	d	188)	c
17)	b	18)	a	19)	a	20)	b	189)	a	190)	c	191)	d	192)	c
21)	c	22)	c	23)	a	24)	c	193)	b	194)	c	195)	c	196)	c
25)	a	26)	b	27)	c	28)	c	197)	c	198)	a	199)	a	200)	d
29)	a	30)	c	31)	a	32)	b	201)	a	202)	a	203)	b	204)	a
33)	a	34)	a	35)	d	36)	c	205)	b	206)	a	207)	d	208)	a
37)	d	38)	b	39)	d	40)	c	209)	a	210)	a	211)	a	212)	c
41)	a	42)	a	43)	c	44)	d	213)	a	214)	a	215)	a	216)	a
45)	a	46)	a	47)	c	48)	c	217)	d	218)	a	219)	a	220)	c
49)	a	50)	a	51)	d	52)	c	221)	d	222)	c	223)	b	224)	c
53)	d	54)	a	55)	d	56)	b	225)	a	226)	a	227)	d	228)	a
57)	a	58)	d	59)	c	60)	b	229)	d	230)	b	231)	a	232)	d
61)	c	62)	d	63)	b	64)	a	233)	c	234)	c	235)	c	236)	c
65)	d	66)	d	67)	c	68)	d	237)	b	238)	c	239)	b	240)	d
69)	c	70)	c	71)	a	72)	d	241)	b	242)	a	243)	a	244)	c
73)	c	74)	d	75)	b	76)	b	245)	d	246)	b	247)	a	248)	c
77)	c	78)	c	79)	c	80)	d	249)	a	250)	b	251)	c	252)	a
81)	b	82)	c	83)	d	84)	d	253)	d	254)	b	255)	a	256)	d
85)	c	86)	a	87)	c	88)	d	257)	d	258)	a	259)	d	260)	a
89)	b	90)	c	91)	b	92)	b	261)	b	262)	b	263)	c	264)	a
93)	d	94)	d	95)	c	96)	c	265)	b	266)	c	267)	a	268)	b
97)	a	98)	d	99)	a	100)	c	269)	a	270)	c	271)	b	272)	d
101)	c	102)	c	103)	a	104)	b	273)	d	274)	b	275)	a	276)	b
105)	a	106)	c	107)	c	108)	c	277)	d	278)	b	279)	a	280)	a
109)	d	110)	c	111)	a	112)	b	281)	c	282)	c	283)	b	284)	c
113)	a	114)	a	115)	a	116)	a	285)	c	286)	d	287)	c	288)	b
117)	c	118)	c	119)	c	120)	a	289)	a	290)	d	291)	b	292)	a
121)	d	122)	a	123)	c	124)	d	293)	d	294)	a	295)	d	296)	d
125)	b	126)	a	127)	b	128)	b	297)	b	298)	a	299)	b	300)	a
129)	c	130)	b	131)	d	132)	a	301)	c	302)	d	303)	b	304)	d
133)	a	134)	c	135)	a	136)	a	305)	b	306)	d	307)	a	308)	a
137)	a	138)	b	139)	a	140)	d	309)	a	310)	b	311)	a	312)	a
141)	b	142)	d	143)	d	144)	c	313)	c	314)	b	315)	c	316)	a
145)	d	146)	d	147)	a	148)	a	317)	a	318)	a	319)	b	320)	b
149)	d	150)	d	151)	a	152)	c	321)	c	322)	a	323)	b	324)	c
153)	a	154)	d	155)	c	156)	b	325)	a	326)	b	327)	a	328)	d
157)	a	158)	a	159)	a	160)	b	329)	b	330)	d	331)	a	332)	d
161)	b	162)	d	163)	b	164)	a	333)	a	334)	c	335)	d	336)	b
165)	b	166)	b	167)	a	168)	b	337)	c	338)	c	339)	d	340)	a
169)	d	170)	d	171)	b	172)	d	341)	a	342)	c	343)	a	344)	a

345) c	346) b	347) d	348) b	549) b	550) c	551) b	552) d
349) c	350) d	351) b	352) a	553) c	554) a	555) d	556) d
353) c	354) b	355) c	356) c	557) d	558) b	559) d	560) c
357) a	358) a	359) a	360) a	561) b	562) b	563) d	564) d
361) a	362) a	363) d	364) a	565) c	566) d	567) c	568) a
365) d	366) b	367) b	368) a	569) b	570) a	571) b	572) a
369) a	370) b	371) d	372) a	573) a	574) a	575) a	576) b
373) b	374) d	375) d	376) b	577) c	578) a	579) b	580) d
377) a	378) d	379) d	380) d	581) b	582) b	583) d	584) c
381) a	382) c	383) b	384) d	585) a	586) d	587) d	588) d
385) c	386) d	387) b	388) c	589) b	590) b	591) a	592) d
389) a	390) a	391) a	392) a	593) b	594) a	595) b	596) d
393) b	394) b	395) d	396) d	597) d	598) d	599) b	600) c
397) b	398) c	399) a	400) a	601) c	602) b	603) b	604) a
401) c	402) c	403) d	404) c	605) a	606) d	607) a	608) a
405) b	406) c	407) d	408) b	609) d	610) a	611) d	612) b
409) a	410) d	411) a	412) c	613) d	614) c	615) c	
413) b	414) b	415) a	416) a				
417) d	418) b	419) d	420) a				
421) a	422) a	423) b	424) d				
425) c	426) a	427) a	428) b				
429) a	430) c	431) c	432) b				
433) b	434) d	435) d	436) a				
437) a	438) c	439) d	440) a				
441) a	442) d	443) a	444) a				
445) a	446) b	447) b	448) c				
449) b	450) a	451) d	452) d				
453) d	454) d	455) a	456) a				
457) b	458) d	459) a	460) d				
461) d	462) d	463) c	464) d				
465) c	466) d	467) a	468) a				
469) b	470) d	471) d	472) b				
473) a	474) a	475) c	476) b				
477) a	478) a	479) a	480) a				
481) b	482) c	483) a	484) b				
485) d	486) a	487) b	488) a				
489) a	490) b	491) b	492) a				
493) b	494) d	495) a	496) d				
497) c	498) d	499) c	500) d				
501) a	502) c	503) a	504) d				
505) c	506) d	507) a	508) d				
509) c	510) c	511) b	512) b				
513) a	514) d	515) a	516) c				
517) c	518) d	519) b	520) c				
521) d	522) d	523) a	524) b				
525) a	526) c	527) c	528) b				
529) d	530) a	531) b	532) a				
533) c	534) d	535) b	536) d				
537) d	538) c	539) a	540) b				
541) c	542) a	543) a	544) b				
545) d	546) a	547) d	548) b				

# HUMAN HEALTH AND DISEASE

## BIOLOGY

### : HINTS AND SOLUTIONS :

1 (c)  
The flower tops leaves and the resin of the plant *Cannabis sativa* are used in various combinations to produce marijuana, hashish, charas and ganja. Generally taken by inhalation and oral ingestion, these are known for their effect on cardiovascular system of the body. A group of chemicals **cannabinoids** interact with cannabinoid receptors present principally in the brain. Natural cannabinoids are obtained from the inflorescence of the plant *Cannabis sativa*.

2 (a)  
Typhoid is caused by pathogenic bacterium *Salmonella typhi*. It is spread by contaminated food and water.  
Pneumonia is caused by bacteria *Streptococcus pneumoniae* and *Haemophilus influenzae*. It is spread by inhaling droplets/aerosol from infected persons and sharing glasses and utensils with an infected person

3 (d)  
Malaria, amoebiasis and sleeping sickness all are protozoan diseases caused by the protozoans *Plasmodium*, *Amoeba* and *Trypanosoma* respectively.

4 (c)  
Antibody is connected with immune system. B-lymphocytes or B-cells produce an army of proteins called antibodies in blood, in response to pathogens

5 (a)  
Vaccination schedule for babies (for first six months) comprises-

Age	Vaccination	Three Dose
Birth-12 months	DTP-Hib (diphtheria, whooping cough/pertussis and tetanus) and Haemophilus influenzae type-B Polio Hepatitis-B and A	$1\frac{1}{1}, 2\frac{2}{2}, 3\frac{1}{2}$ months  $1\frac{1}{2}, 2\frac{1}{2}, 3\frac{1}{2}$ months  Birth, 1

BCG against TB (Bacillus Calmette Guerin)	month, 6 months  One dose
---	---------------------------------

- 6 (a)  
Interferons block viral reproduction in healthy cells
- 7 (c)  
Histamine is released from mast cells during allergic reactions. Histamine can occur in various tissues but is concentrated in connective tissue. It is formed from the amino acids histidine. It causes dilation and increases permeability of small blood vessels, which results in such symptoms as localised swelling, itching, sneezing and runny eyes and nose.
- 8 (b)  
The acquisition of the antibodies in colostrum by an infant is an example of (naturally acquired) passive immunity. The yellowish fluid colostrum secreted by mother during the initial days of lactation has abundant antibodies (IgA) to protect the infant
- 9 (b)  
IgA.  
IgA antibody is secretory antibody and is present abundantly in mucous linings of gastrointestinal, respiratory and genitourinary tracts, tears, colostrum and saliva. Thus, secretory IgA contributes to the humoral defense mechanism against the pathogens on mucosal surfaces
- 10 (a)  
Mast cells are involved in inflammatory reactions and immediate sensitivity allergic reactions because immunoglobulins IgE is found to the surface of mast cells and release histamine.
- 11 (c)  
The enzymes used for labelling in ELISA include horse radish peroxidase, alkaline phosphatase,  $\beta$ -galactosidase, lactoperoxidase, etc.
- 12 (c)  
The symptoms of pneumonia includes fever, chills, cough and headache. In severe cases, the lips and finger nails may turn gray to bluish in

- colour
- 13 **(a)**  
Blood cells are made in the bone marrow. Erythrocytes or red blood cells, are constantly being produced and released from marrow tissue. Leukocytes or white blood cells are also produced in the bone marrow. B-cells are leukocytes that are made and mature in the bone marrow while T-cells mature in thymus
- 14 **(b)**  
The tendency of the body to manifest a characteristic and unpleasant withdrawal syndrome on abrupt discontinuation of regular dose of drugs/alcohol is called dependence
- 15 **(c)**  
Rhinovirus represents one such group of viruses, which causes one of the most infectious human ailments- the common cold. They infect the nose and respiratory passage. Symptoms of common cold are nasal congestion and discharge, sore throat, hoarseness, cough, headache, tiredness, etc.
- 16 **(d)**  
Mast cells play a critical role in allergy and inflammation. Allergy is due to the release of chemicals like histamine and serotonin from the mast cells
- 17 **(b)**  
The term humor refers to plasma and lymph. **B-lymphocytes** mature within the bone marrow. The progeny of B-cells differentiate into memory B-cells and effector B-cells called plasma cells. A single plasma cell can secrete more than 2000 molecule of antibody per second. Secreted antibodies are major effector molecules of humoral immunity.
- 18 **(a)**  
The second line of non-specific defence is primarily dependent upon neutrophils and macrophages, phagocytic white cells (phagocytes) in blood and lymph. Natural killer cells (NK-cells) also participate in it. The temperature response results in a fever that stimulates phagocytosis, inhibits microbial growth and reduces blood iron levels.
- 19 **(a)**  
BCG vaccine is used against TB (tuberculosis), which is a bacterial disease caused by *Mycobacterium tuberculosis*. BCG vaccine was developed by **Calmette** and **Guerin**.
- 20 **(b)**  
Allergens are non-infections foreign substances that cause allergic reaction. The common allergens are dust, pollen, mould spores, fabrics, lipsticks, nailpaints, fur, heat, bacteria, etc. Allergy involves mainly the secretion of IgE antibodies and histamine. The allergy causes marked dilation of all the peripheral blood vessels.
- 21 **(c)**  
A-Carbon monoxide; B-Oxygen. Smoking increases carbon monoxide (CO) content in the blood and reduces the concentration of haembound oxygen. This causes oxygen deficiency in the body
- 22 **(c)**  
The function of T-cells is to provide immunity (cellular type) and not to scavenge damaged cells and cells and cell debris. These are produced in bone marrow and mature in thymus. Hence, the only true statement is that there are three types of T-cells, i.e., cytotoxic, helper and suppressor.
- 23 **(a)**  
The thymus is a lobed organ located near the heart and beneath the breast bone, consisting mainly of lymphatic tissue and serving as the site of T-cell differentiation
- 24 **(c)**  
Pathogenic bacteria cause illness by producing toxins. These toxins (poisons) are of two types **exotoxins** and **endotoxins**. Exotoxins are proteins secreted by the bacterial cells, they are sensitive to chemical, light and heat, e.g., **Tetanus** and **Diphtheria** causing bacteria
- 25 **(a)**  
Pertussis (whooping cough) is caused by bacterium *Bordetella Pertussis*, (whooping cough) is caused by bacterium *Bordetella pertussis*, a rod shaped Gram(-)ve bacterium. It is the most dangerous disease of childhood, and affects respiratory passage resulting in there inflammation in association with cold cough, etc.
- 26 **(b)**  
Amoebiasis is an infection of intestine caused by the parasite *Entamoeba histolytica*
- 27 **(c)**  
Nervous system and endocrine system directly influence our immune system. Our immune system have three line of defence when it comes to fighting illnesses and infectious diseases

- 28 (c) Magnetic Resonance Imaging (MRI) technique was developed by **Felix Block** and **Edward M Purcell**. This technique relies on the Nuclear Magnetic Resonance (NMR). MRI detects water because it focuses on the behaviour of hydrogen atoms in water molecule. It is especially useful in studying brain and spinal cord. Scapula and canine are osteocytic structures with negligible water content so, they do not appear in MRI
- 29 (a) The primary lymphoid organs are bone marrow and thymus. The secondary lymphoid organs are spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix
- 30 (c) The chemical compounds which are produced as by-products of cellular metabolism and are not essential for the survival and growth of organisms, which produce them are called secondary metabolite, *e.g.*, alkaloids, steroids, tannins, resins, antibiotics, etc.
- 31 (a) Morphine is a potent opiate analgesic drug that is used to relieve severe pain. Morphine is the most abundant opiate found in opium, the dried latex extracted by shallowly slicing the unripe seed pods of the *Papaver somniferum* poppy
- 32 (b) Recombinant DNA technology has allowed the production of antigenic polypeptides of pathogen in bacteria or yeast. Vaccines produced using this approach in bacteria or yeast, allow large scale production and hence greater availability for immunization, *e.g.*, hepatitis-B vaccine produced from yeast
- 33 (a) For determining the cause of allergy, the patient is exposed to or injected with very small doses of possible allergens, and the reactions studied
- 34 (a) Tunnel vision is associated with alcoholism. Tunnel vision is the loss of peripheral vision with retention of central vision resulting in a constructed circular tunnel like field of vision.
- 35 (d) Liver is not a part of the secondary lymphatic system. The secondary lymphoid organs are spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix
- 36 (c) Release of a toxic substance, haemozoin is responsible for chill and high malarial fever
- 37 (d) Bombykol or gyplure is a insect pheromone.
- 38 (b) Antibiotic is a substance produced by microorganism that even in low concentration can inhibit or kill other microorganism, *e.g.*, penicillin produced by the fungus *Penicillium chrysogenum* prevents the reproduction of many bacteria by preventing cell wall synthesis.
- 39 (d) **Carcinoma** is a malignant or metastatic tumour. It can extend to the neighbouring cells, this process is called as metastasis. These tumours are generally located in epithelial tissue and glands, *e.g.*, breast cancer, skin cancer, stomach cancer, lung cancer, pancreas cancer, etc.
- 40 (c) **Edward Jenner** is recognized as father of Immunology.
- Louis Pasteur** is recognized as father of Microbiology.
- Robert Koch** is considered as father of Bacteriology.
- 41 (a) Heroin or smack is obtained by acetylation of morphine as a white, odourless, bitter, crystalline compound
- 42 (a) During organ transplantation, to prevent rejection of donor organ, the recipient is given immunosuppressant drugs having challenging  $\beta$  – cells (plasma cells.). These antibodies are called monoclonal antibodies.
- 43 (c) Innate immunity is present from the birth and it is inherited from parents. It is non-specific
- 44 (d) Techniques like radiography (use of X-rays). CT (Computed Tomography) and MRI (Magnetic Resonance Imaging) are very useful to detect cancers of the internal organs. Computed tomography uses X-rays to generate a three-dimensional image of the internals of an object MRI uses strong magnetic fields and non-ionising radiations to accurately detect pathological and physiological changes in the living tissues

- 45 (a) Polymorpho-nuclear leukocytes
- 46 (a) Night blindness (nyctalopia) is caused due o deficiency of vitamin-A. The parent substance of vitamin-A is  $\beta$ -carotene, which is called a provitamin. It is obtained from fish, liver, oils, milk, carrot, spinach, tomatoes, etc.
- 47 (c) **Malaria** is widely known human disease caused by infection with pathogenic protozoan, the *Plasmodium*. Female *Anopheles* mosquitoes transmit *Plasmodium* from person to person.
- 48 (c) Physiological barriers like body temperature, pH of the body fluid and various body **secretion** (saliva, tears) prevent the growth of many disease causing microorganisms.
- 49 (a) Alcoholism is dependency of a person on regular consumption of alcohol. In this cerebellum becomes affected which results the loss of muscle coordination so, affected person shows staggering gait and incoherent speech.
- 50 (a) Cancer is defined as an uncontrolled division or proliferation of cells without any differentiation
- 51 (d) HIV is Human Immunodeficiency virus, HTLV-III is human T-Lymphotropic Virus type-III, LAV is Lymphadenopathy Associated virus. All are the name of AIDS virus.
- 52 (c) Opioids are the drugs, which binds to specific opioid receptors present in our central nervous system and gastro intestinal tract
- 53 (d) *Serratia* is a harmful human pathogen, which has been known to cause urinary tract infections, wound infections, pneumonia.
- 54 (a) Cocaine is a crystalline alkaloid that is obtained from the leaves of the coca plant (*Erythroxylum coca*)
- 55 (d) An antibody molecule has four peptide chains, two small called light chains and two longer, called heavy chains. Hence, an antibody is represented as  $H_2C_2$ .
- 56 (b) Incubation period of hepatitis-B virus is form 30 to 180 days.
- 57 (a) Skin on our body is the main barrier, which prevents entry of the microorganisms. Mucous coating of the epithelium lining the respiratory, gastrointestinal and urogenital tracts also help in trapping microbes entering our body
- 58 (d) *Plasmodium* is protozoan parasite, which causes malaria in human beings. The primary host of it is female *Anopheles* mosquito.
- 59 (c) The treatment of inherited diseases by introducing wild type copies of the defective gene is called gene therapy, for example, introduction of gene for adenosine deaminase in person suffering from Severe Combined Immuno-deficiency (SCID).
- 60 (b) ECG (Electro Cardiograph) is a record of difference in electric potential during the working of heart. Human ECG is recorded as PQRST.
- 61 (c) A pathogen is a microorganisms, such as a virus, bacteria, fungus that causes disease in its host. These pathogens multiply in our body and interfere with the normal vital activities, resulting in morphological and functional damage
- 62 (d) **Mescaline** is a water soluble, alkaloid, obtained from the crowns of cactus *Lophophora (Echinococcus) williamsii*. These dried crown or **mescal buttons** cause hallucinations, when chewed.
- 63 (b) Active immunity development is related to memory cells, when B-cells and T-cells are activated by a pathogen, memory B-cells and T-cells develop
- 64 (a) House flies act as mechanical carriers and serve to transmit the parasite of amoebiasis from faeces of infected person to food and food products
- 65 (d) All of these.  
Certain types of leukocytes (WBC) of our body like Polymorpho-Nuclear Leukocytes (PMNL-neutrophils), monocytes and natural killer (type of lymphocytes) in the blood as well as

- macrophages in tissues can phagocytose and destroy microbes. These all are cellular barriers
- 66 **(d)**  
**Barry J Marshall** and **Robin warren** got Noble Prize in 2005 for discovery of the bacterium *Helicobacter pylori* and its role in gastritis and peptic ulcers.
- 67 **(c)**  
 The granules of mast cells are loaded with histamine. Histamine increases the blood flow to the area and the leakage of fluid and proteins from the blood into the tissue space. Thus, the quick release of histamine produces the redness and swelling associated with inflammation
- 68 **(d)**  
 Health is a state of complete physical, mental and social well being. Health increases the longevity of people and reduces infant and maternal mortality rate
- 69 **(c)**  
 Bubonic plague (black death) is caused by *Yersinia pestis* (formerly *Pasteurella pastis*) bacteria.
- 70 **(c)**  
 Modern-day lifestyle has resulted in lowering of immunity and more sensitivity to allergens. More and more children in metro cities of India suffer from allergies and asthma due to sensitivity to the environment
- 71 **(a)**  
 Products from plants like *Datura* sp. are hallucinogens, Hallucinogens are a diverse group of drugs that cause an alteration in perception, thought or mood
- 72 **(d)**  
 The christmas disease patient lacks anti-haemophilic factor-IX.
- 73 **(c)**  
 The resistance that an individual acquires during life is called **acquired immunity**. Two major group of cells, *i.e.*, lymphocytes (B and T-lymphocytes) and antigen presenting cells are involved in acquired immunity.
- 74 **(d)**  
 The human immune system consists of lymphoid organs, lymphoid tissues, immune cells and soluble molecules like antibodies
- 75 **(b)**  
 AIDS day is 1st December
- 76 **(b)**  
 Antibodies are protein molecules called immunoglobulins and are of five types. *i.e.*, IgA, IgM, IgE, IgG and IgD
- 77 **(c)**  
 The type of antibody present in colostrum secreted by mammary gland during the initial days of lactation is IgA. The acquisition of the antibodies in colostrum by an infant is an example of (naturally acquired) passive immunity
- 78 **(c)**  
 The virus that causes acquired immune deficiency syndrome parasitizes in helper T-cells. These virus reduces the number of helper T-cells
- 79 **(c)**  
 A typical antibody monomer has four protien chains, *i.e.*, two identical light (L) chains and two identical heavy (H) chains. The chains are joined by disulphide links and other bonds to form a Y-shaped structure. Both the heavy (H) and light (L) chains have variable regions at the ends of Y arms. The variable region from one light chain (L) and one heavy chain (H) form one antigen binding site. Hence, each antibody has two antigen binding sites.
- 80 **(d)**  
 The flower tops, leaves and the resin of *Cannabis sativa* are used to produce marijuana, hashish, charas and ganja
- 81 **(b)**  
 Chagas disease (American Trypanosomiasis) is caused by *Trypanosoma cruzi* and spreads by assain or kissing bug (*Panstrongilus* sp, *Triatoma* sp.)
- 82 **(c)**  
 Dipsomania is a historically term describing a medical condition involving severe abdiction to alcohol. The term was coined by the German physician **CW Hufeland** 1819.
- 83 **(d)**  
 Myeloma is a type of cancer that develops from plasma cells occurring in the bone marrow. It may develop wherever the plasma cells occur.
- 84 **(d)**  
 Opioids are the drugs, which bind to opioid receptors in the central nervous system and gastrointestinal tract. Drugs derived from the extract of *Opium poppy*, *e. g.*, morphine, heroin, brown sugar, etc. Heroin, commonly called smack is chemically diacetylmorphine, which is a white, odourless, bitter, crystalline compound. This is

obtained by acetylation of morphine, which is extracted from the latex of poppy plant *Papaver somniferum*

85 (c)

Basically, each antibody molecule is Y-shaped protein molecule which has identical halves. Each half contains a heavy and a light chain, which are connected to each other by disulphide bonds, ie, S is important element to maintain structure of immunoglobulin.

86 (a)

Neoplasm	Malignant tumour
Benign tumour	Initiation of new tumour
Carcinoma	Cancer of epithelial tissues
Sarcoma	Bone, cartilage tissue, cancer
Lymphoma	Haematopoietic cell tumour

87 (c)

Viroids are the smallest known disease causing agents. They are small, low molecular weight RNA particles. They lack proteinaceous capsid. These are single stranded circle which due to internal base pairing assume a nearly double helical structure.

88 (d)

Mosquitoes are carriers of malaria, filaria and yellow fever.

Malaria \_\_\_\_\_ *Anopheles* mosquito (female)

Filaria \_\_\_\_\_ *Culex* (female)

Yellow fever \_\_\_\_\_ *Aedes* (female)

89 (b)

The study of body's natural defence mechanism against, pathogens and toxic molecules is known as immunology

90 (c)

**Temin** and **Baltimore** (1970) independently discovered enzyme reverse transcriptase in retroviruses (RNA containing viruses). This enzyme can be used to construct a DNA copy, called complementary DNA (cDNA), of any RNA. Thus, this technique can be used in identification of disease causing infectious microbe.

91 (b)

**Disease**                      **Causative Organism**

Syphilis \_\_\_\_\_ *Treponema pallidum*

AIDS \_\_\_\_\_ HIV

Gonorrhoea \_\_\_\_\_ *Neisseria gonorrhoeae*

Pyrrhoea \_\_\_\_\_ *Entamoeba gingivalis*

Anthrax \_\_\_\_\_ *Bacillus anthracis*

Uretheritis \_\_\_\_\_ Inflammation of the urethra by bacteria

92 (b)

When a specific allergen (penicillin) is injected directly into the circulation, the allergen can react with basophils of the blood and mast cells in the tissues located immediately outside the small blood vessels, if the basophils and mast cells have been sensitized by attachment of IgE region. This is called **anaphylactic shock**. An occasional person who experiences this reaction dies of circulatory shock within a few minutes unless treated with epinephrine to oppose the effects of histamine.

93 (d)

Passive immunity results when antibodies are produced by one individual and then acquired by another

94 (d)

Malignant tumour first grows slowly. No symptoms are noticed. This stage is called the latent stage. The tumour later grows quickly. The cancer cells go beyond adjacent tissue and enter the blood and lymph. Once this happens, they migrate to many other sites in the body, where the cancer cells continue to divide. It is metastasis. Only malignant tumours are properly designated as cancer.

95 (c)

Reverse transcriptase is basically a DNA polymerase enzyme, which transcribes single stranded RNA into double stranded DNA

96 (c)

Animal reservoir of the small pox does not exist

97 (a)

ELISA stands for Enzyme Linked Immuno Sorbent Assay. The presence of HIV or AIDS virus is confirmed by ELISA test. It is used to isolate viral RNA.

98 (d)

*Yersinia pestis* (*Pasturella pestis*) is the causative agent of plague. It is transmitted by rats and other rodents and its vector is a flea (*Xenopsylla cheopis*) which feeds on infected rodents and may bite man. Similarly, *Leishmania donovani* (a protozoan) causes Kala-azar or visceral leishmaniasis and transmitted by bite of sand fly- *Phlebotomus*.

99 (a)



AIDS is a viral infection. HIV (Human Immunodeficiency Virus) was first discovered in 1981 in a remote areas of central Africa

100 (c)

The humoral immune system protects against bacteria and virus are present in the fluids (blood and lymph) of the body

101 (c)

Ground water contaminated with arsenic cause black-foot disease. Black foot disease is a severe form of peripheral vascular diseases in which the blood vessels in the lower limbs are severely damaged, resulting eventually in progressive gangrene

102 (c)

Drugs like barbiturates, amphetamines, benzodiazepines, Lysergic Acid Diethylamides (LSD), and other similar drugs, that are normally used as medicines to help patient cope with mental illnesses like depression and insomnia, are often abused. Several plants, fruits and seeds having hallucinogenic properties have been used for hundreds of years in folk- medicine, religious ceremonies and rituals all over the globe

103 (a)

Nicotine.

Tobacco contains large number of chemical substances including nicotine, an alkaloid. Nicotine stimulates adrenal gland to release adrenaline and nor-adrenaline into blood circulation, both of which raise blood pressure and increases the heart rate

104 (b)

Alcoholism is a chronic often progressive disease in which a person craves alcohol and drinks despite repeated alcohol related problems. It involved a physical dependence on alcohol. It may lead to liver cirrhosis. Cirrhosis is build up of scar tissue that changes the structure of the liver and blocks blood flow. Cirrhosis can varicose veins, which can repture and potentially triggering internal bleeding.

105 (a)

Disease like whooping cough (pertussis), diphtheria and tetanus (lock jaw) can be prevented by immunizing all infants with triple vaccine-DTP (*i.e., diphtheria, pertussis, tetanus vaccine*). Typhoid, caused by bacterium *Salmonella typhi*, cannot be cure with triple vaccine but typhoid did vaccine is available.

106 (c)

SCID (**Severe Combined Immunodeficiency**

**Disease**) is a congenital disease in which bone marrow stem cells are absent. Immunodeficiency affects both B and T-lymphocytes. It is caused by defective gene coding for the enzyme **adenosine deaminase**.

107 (c)

The flower tops, leaves and the resin of cannabis plant are used in various combination to produce marijuana, hashish, charas and ganja. Generally taken by inhalation and oral ingestion these are known for their effects on cardiovascular system of the body

108 (c)

Rat carries rat fleas, which causes bubonic plague and bite of rat causes rat fever.

109 (d)

This parasite can infect food and water so safety is of paramount importance. There are a few measures you can put in place to reduce the risk of amoebiasis, *which includes*

(i) Boiling untreated water especially when travelling or comping

(ii) Washing fruit and vegetables before eating them

(iii) Washing your hands, utensils and kitchen worktops before and after food preparation

(iv) Ensuring that all food is cooked at the correct temperature

(v) Washing your hands everytime you visit the toilet or after you have been in contact with an infected animal

(vi) Ensuring that any cooked food is covered when left out to cool down

110 (c)

Morphine is a very effective sedative and painkiller and is very useful in patients who have undergone surgery

111 (a)

Hydrogen sulphide is released into the atmosphere from industries and causes irritation of respiratory passage, paralysis and asphyxia in man.

112 (b)

Vaccines are made from microbes that are dead or inactive so that they are unable to cause the disease. The antigen in the vaccine is the same as the antigen on the surface of the disease-causing microbe. The vaccine stimulates the body to produce antibodies against the vaccine

113 (a)

- In alcoholic person, some part of alcohol is changed into acetaldehyde, which stimulates the formation of fat. This fat is deposited over the wall of arteries and also accumulates in liver cells. Due to which liver gets failed and there is very little regulation of carbohydrate, protein and fat metabolism. This disorder is known as fatty liver syndrome. Latter on, the liver gets turned into solid, hard, fibrous organ causing liver cirrhosis.
- 114 (a) AIDS is a viral infection. HIV (Human Immunodeficiency Virus), the virus that causes AIDS, was first discovered in 1981 in a remote area of central Africa
- 115 (a) Each antibody molecule has four peptide chains, two small called light chains and two long called heavy chains. Hence, an antibody is represented as  $H_2L_2$
- 116 (a) A-*Opium poppy*, B-*Cannabis sativa*, C-*Datura*
- 117 (c) Opium is the dried latex obtained from unripe capsules of *Papaver somniferum* (poppy). Morphine and codeine are the alkaloids formed from this dried latex and have the pain relieving property.
- 118 (c) DDT (Dichloro Diphenyl Trichloroethane) is an organochlorine compound. These compounds are lipophilic and show much affinity for the fatty tissue of animals.
- 119 (c) Benign tumour is a non-cancerous Tumour. It does not show metastasis and is non-invasive. It is less fatal to the body
- 120 (a) *Entamoeba Histolytica* is a parasite of the human large intestine, commonly contracted by ingesting contaminated water or food
- 121 (d) The substance, which produces immune response in an individual are called allergens, e. g., pollen grains, animal dander, dust, feathers, drugs like penicillin, etc.
- 122 (a) A-Diacetyl morphine; B-Acetylation of morphine
- 123 (c) *Microsporum* is a genus of fungi that causes tinea capitis, tinea corpus, ringworm, and other dermatophytoses (fungal infections of the skin)
- 124 (d) Genes that induce cellular proliferation are called proto-oncogenes. The proto- oncogenes encode for growth factors, growth factor receptors, transcription factors, etc. They change into **oncogene** or cancer genes.
- 126 (a) **Malthus** calculate that though the number of organisms can increase geometrically (1, 2, 4, 8, 16,.....), their food supply increases arithmetically (1, 2, 3, 4,.....).
- 127 (b) Immunosuppressants are the drugs capable of inhibiting the body's immune system, e, g, cyclosporine and endosporins, which cause suppression of body's T-lymphocytes.
- 128 (b) *Emphysema* is a chronic disease in which alveolar walls are damaged due to which respiratory surface is decreased. One of the major causes of this is cigarette smoking. Emphysema is included in a group of diseases called **chronic obstructive pulmonary disease** (COPD) pulmonary to lungs.
- 129 (c) Tumour cells have been shown to avoid detection and destruction by immune system. Therefore the patients are given substances called biological response modifiers such as  $\alpha$ -**interferon**, which activates their immune system and helps in destroying the tumours
- 130 (b) In MRI, the body's water molecules are used for the base of images.
- 131 (d) At the tip of each arm of the Y-shaped molecule is an area called the antigen binding site, which is formed by a portion of the heavy and light chains. Every immunoglobulin molecule has at least two of these sites, which are identical to one another
- 132 (a) True. Amoebiasis infection is typically caused by the organism *Entamoeba hitolytica*, by ingesting food or water contaminated by infected faeces
- 133 (a) The synthetics drugs structurally similar to adrenaline are amphetamines. These are synthetic drugs and act as strong stimulants. These are generally taken by truck drivers and night workers.

- 134 (c) The B-lymphocytes produce an army of proteins in response to pathogens into our blood to fight them. These proteins are called antibodies. The T-cells themselves do not secrete antibodies but help B-cells to produce them
- 135 (a) Cannabinoids can be extracted from the dried, seedless inflorescence of female *Cannabis* plants
- 136 (a) An allergen is any substance (antigen), most often eaten or inhaled, that is recognized by the immune system and causes an allergic reaction
- 137 (a) Immunoglobulin G (IgG) is the most abundant class of antibodies found in blood serum and lymph and active against bacteria, fungi, viruses and foreign particles. The basic structure of all Ig is same, *i. e.*, made up of light and heavy polypeptide chains, still they behave differently in similar physiological system. IgG possesses four polypeptide chains linked by disulphide bonds.
- 138 (b) *Leishmania donovani* is an intracellular parasite in leucocytes or cells of liver, spleen, bone marrow, lymphatic glands, etc. It causes a serious oriental disease known as 'Kala-azar' accompanied by –swellings, fever, enlargement of liver and spleen, the skin colour turning black.
- 139 (a) Cell-mediated immune response is mediated by T-lymphocytes. It is responsible for graft rejection in organs transplant because of its ability to differentiate between 'self' and 'non-self'
- 140 (d) **Epilepsy** is second common neurological disorder. A number of tests to confirm the diagnosis of epilepsy are electroencephalography, brain imaging like CT-scan, MRI, PET and blood tests.
- 141 (b) Oriental sores or skin boils or Delhi boils is a skin disease caused by a protozoan *Leishmania orientalis* (or *L. tropica*). It is spread by sand fly.
- 142 (d) A graphic record of spread of the cardiac impulse through the heart is called electrocardiogram. The machine by which the electrocardiogram is recorded is known as **cardiograph Willen Einthoven** (1903) is considered 'Father of Electrocardiography'.
- 143 (d) Physical barriers: skin on our body is the main barrier, which prevents entry of the microorganisms. Mucous coating of the epithelium lining in the respiratory, gastrointestinal and urogenital tracts also helps in trapping the microbes entering our body
- 144 (c) Powder cocaine (also called coke) and crack are all powerful stimulants, with short-lived effects. They temporarily speed up the way your mind and body work, but the effects are short-lived
- 145 (d) Immunity is the state of living beings having sufficient biological defences to avoid infections, diseases or other unwanted biological invasion
- 146 (d) In ECG, **P-wave** indicates impulse of contraction generated by SA-node and it spreads in atria causing atrial depolarisation. **T-wave** is the most constant and conspicuous wave having the tallest amplitude. It is the first positive deflection during ventricular depolarization. **S-wave** is the next downward deflection constant but often inconspicuous. **T-wave** is repolarization wave of ventricular relaxation.
- 147 (a) Thymus is the "seedbed" of thymic lymphocytes (T-lymphocytes). Some stem cells in the bone marrow give rise to immature lymphocytes. These lymphocytes migrate *via* the blood to the thymus, where they mature as T-lymphocytes, and produce cell-mediated immunity. Thus, damage to thymus in a child may lead to loss of cell-mediated immunity.
- 148 (a) **Tubectomy** is the method of female sterilization, which involves cutting and tying (tubal ligation) of fallopian tubes. It prevents fertilization.
- 149 (d) **Antibodies** are the proteins (**glycoproteins**) called immunoglobulins. These are produced by the lymphocytes in response to entry of a foreign substance or antigen into the body.
- 150 (d) T-lymphocytes are involved in cell mediated immunity. T-cells largely recognize proteins that have been processed within antigen presenting cells and presented on the cell surface in a form that is bound to a molecule known as **Major**

- HistocompatibilityComplex(MHC).**
- 151 (a) Cancer cells do not respond to control mechanisms and do not show contact inhibition (differing surface proteins.).These cells proliferate in an unregulated manner and form clones of cells which can expand irregularly.
- 152 (c) Heroin is a white or brown powder, odourless, bitter, crystalline compound. It can be mixed with water and injected with a needle. Heroin can also be smoked or snorted up the nose
- 153 (a) **Stimulants** are also known as mood elevators. They increase nerve activity in the brain by initiating the release of noradrenaline, e.g., amphetamines, caffeine, cocaine, etc.
- 154 (d) The drugs, which are commonly abused are opioids, cannabinoids and coca alkaloids LSD. Majority of these are obtained from flowering plants. Some are obtained from fungi
- 155 (c) The primary lymphoid organs are bone marrow and thymus where immature lymphocytes differentiate into antigen-sensitive lymphocytes. After maturation the lymphocytes migrate to secondary lymphoid organs like spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix. The secondary lymphoid organs provide the sites for interaction of lymphocytes with the antigen, which then proliferate to become effector cells
- 156 (b) Hippocrates is known as the father of medicine because many of the things he discovered are still practiced today
- 157 (a) Brain is not involved in the elicitation of immune response, it is a part of central nervous system.
- 158 (a) Vaccine is a preparation containing dead or inactivated viruses or other microorganisms that on introduction in human body stimulate the formation of antibodies to fight against disease. First vaccine was prepared by Edward Jenner against cowpox.
- 159 (a) Tuberculosis, commonly called TB is caused by a rod-shaped bacterium named *Mycobacterium tuberculosis*.
- 160 (b) Amoebic dysentery is caused by an intestinal endoparasite, *Entamoeba histolytica*, found in large intestine of humans. Infection takes place through contaminated food and water
- 161 (b) Leprosy is a bacterial disease, which is caused by *Mycobacterium leprae*.
- 162 (d) Excessive doses of drugs may lead to coma and death due to respiratory failure, heat failure, cerebral hemorrhage, etc.
- 164 (a) Hodgkins disease is a cancer of lymphoid tissue.
- 165 (b) Interferons are the glycoproteins with low molecular weight that are effective against most of the viruses. These are naturally produced by virus infected cells. These proteins interact with adjacent cells and make them resistant to virus attack. Now-a-days, interferons are also being manufactured through genetic engineering and are used in many antiviral drugs.
- 166 (b) Species of *Lactobacillus streptococcus*, *Micrococcus* and *Proteus* are responsible for spoilage of milk products. The exotoxins produced by these bacteria causes food poisoning.
- 167 (a) Acquired immunity is not present from the birth and develops during the individual's lifetime. It is pathogen specific
- 168 (b) Immunoglobulins are present in serum and provide immunity to body against diseases. Each immunoglobulin is made up of four polypeptide chains-two heavy weight chains and two light weight chains. These chains are joined to each other by disulphide bonds.
- 169 (d) AIDS is diagnosed by ELISA test – Enzyme – Linked Immuno Sorbant Assay test
- 170 (d) Transgenic animals that produce useful biological products can be created by the introduction of the portion of DNA (or genes) which codes for a particular product such as human protein,  $\alpha$  – 1 – antitrypsin. The protein is used to treat emphysema.
- 171 (b)

Acquired immunity is specialized immunity that forms antibodies and activated lymphocytes that attacks and destroys the specific organism. These are of two type, *i.e.*, humoral immunity and cell mediated immunity. Humoral system involves antibodies and cell mediated system involves T-cells.

172 (d)

Myasthenia gravis is an autoimmune disease characterized by the chronic fatigability and weakness of muscles, especially in the face and throat, as result of defect in the conduction of nerve impulses at the myoneural junction.

173 (c)

In AIDS, HIV (Human Immunodeficiency Virus) attacks the cells of the immune system. The immune system weakens so that the body cannot defend against various bacteria, viruses and other germs

174 (d)

Immuno-modulators are natural or synthetic substances that help to regulate or normalize the immune system. There are two types of immuno-modulators *viz*, immuno-suppressants, which cause immuno-suppression of the immune system and immuno-stimulants (immuno-stimulators) which stimulate immune system by including or increasing activity of any of its components.

175 (c)

The disease filaria (elephantiasis) is transmitted by *Culex* mosquito (female). *Wuchereria bancrofti* causes filariasis.

176 (d)

Immune system is unique in the sense that it recognizes foreign antigens, responds to these and remembers them. The immune system also plays an important role in allergic reactions, auto-immune diseases and organ transplantation

177 (a)

The most important antigens for causing graft rejection are a complex called HLA Human Leucocyte Antigen (protein). The HLA occur on the white blood cells as well as on the tissue cells.

178 (c)

The juice of roasted leaves of *Aloe vera* taken with honey is good to cure cough and cold.

179 (a)

When a host is exposed to antigens which may be in form of living or proteins, antibodies are produced in the host body. This type of immunity

is called active immunity

180 (c)

Measles is a viral disease caused by rubeola virus. Interferons are proteins that increase the resistance of a cell to attack by viruses by unmasking genes that synthesize antiviral proteins. Thus, person suffering from measles shows the production of interferons in his body.

181 (c)

NMR scanning is based on magnetic resonance.

182 (a)

Human Immunodeficiency Virus (HIV) has three transmission.

(i) Through sexual intercourse (65%).

(ii) Transmission through blood transfusion, blood products and contaminated equipments (10%).

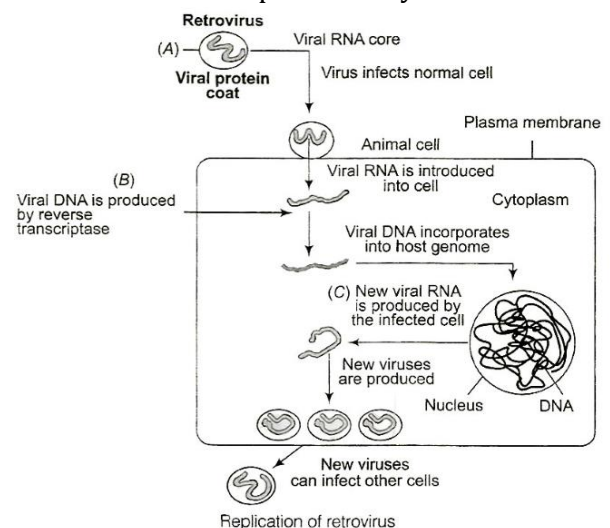
(iii) Transmission from mother to baby (25%).

183 (c)

Amniocentesis is one way to obtain foetal cells for testing of chromosomal abnormalities and genetic disorders. It is the process to determine any hereditary diseases in the embryo.

184 (c)

A-Reverse transcriptase, B-Viral DNA is produced, C-New viral RNA is produced by the infected cell



185 (d)

Oral contraceptives or contraceptive pills are taken to control fertility. Each pill contains a mixture of oestrogen and progesterone or only the pure synthetic progesterone which prevent ovulation.

186 (c)

Benign tumour is a tumour that lacks all three of the malignant properties of cancer. A benign tumour does not grow in an unlimited,

- aggressive manner, does not invade surrounding tissues and does not metastasize.
- 187 **(d)**  
Protein deficiency causes both Kwashiorkor and marasmus. **Kwashiorkor** is characterized by wasted muscles, thin limbs, retarded growth of body and brain, oedema, pot belly and diarrhea. **Marasmus** is characterized by impaired growth and replacement of tissue proteins, thin limbs and prominent ribs, dry, wrinkled and thin skin and diarrhea.
- 188 **(c)**  
An HIV infection damages the immune system, *i.e.*, your body's defense system that fight against diseases and infections
- 189 **(a)**  
Cannabinoid are a group of chemicals, which interact with cannabinoid receptors present principally in the brain
- 190 **(c)**  
Mast cells play a critical role in allergy and inflammation. Allergy is due to the release of chemicals like histamine and serotonin from the mast cells
- 191 **(d)**  
Statements II, IV and V are correct regarding beri-beri disease.
- 192 **(c)**  
Most common allergen for asthma is house dust, pollen grains, smoke, etc. Asthma is characterized by narrowing and inflammation of bronchi, bronchospasm and difficulty in breathing.
- 193 **(b)**  
Common cold and AIDS are viral diseases, occur due to Myxo virus and Human Immunodeficiency virus (HIV) respectively.  
  
The causative agents of ringworm disease are fungi *Trichophyton* and *Microsporum*. Typhoid and tuberculosis are bacterial diseases caused by *Salmonella typhi* and *Mycobacterium tuberculosis* respectively.
- 194 **(c)**  
Tetanus is also known as 'lock jaw' disease. It is caused by the bacteria *Clostridium tetani*.
- 195 **(c)**  
AIDS (Acquired Immuno Deficiency Syndrome) is caused by HIV (Human Immunodeficiency Virus). This virus selectively infects and kills the helper T-lymphocytes. Hence, the disease is characterized by reduction in the number of helper T-lymphocytes and breakdown of the immune system of the body.
- 196 **(c)**  
Deficiency of vitamin-D causes weak bones, bone deformities, rickets in children and osteomalacia in adults. Marasmus is caused due to protein energy malnutrition.
- 197 **(c)**  
Tumour that spreads and eventually caused ill health and death are described as malignant results from a breakdown of the regulatory mechanisms that govern normal cell behaviour. Sarcoma is a cancer of primitive mesoderm tissue and involves malignant tumours the cells of which divide erratically.
- 198 **(a)**  
Spleen is a large reservoir of erythrocytes. The spleen is a large bean-shaped organ. It mainly contains lymphocytes and phagocytes
- 199 **(a)**  
*Tobacco contains a large number of chemical substances including nicotine, an alkaloid*  
Tobacco contains large number of chemical substances including nicotine, an alkaloid. Nicotine stimulates adrenal gland to release adrenaline and nor-adrenaline into blood circulation, both of which raise blood pressure and increases the heart rate
- 200 **(d)**  
The best HLA match for transplants in order of preference is as follows:  
Identical twins>sibling(brother and sister)>parent>unrelated donor
- 201 **(a)**  
The drug quinine is obtained from the bark of *Cinchona*.
- 202 **(a)**  
Antigen-antibody binding is electrostatic, *i.e.*, non-covalent hydrophobic, van der Waal's ionic, etc.
- 203 **(b)**  
In vaccination pathogens are introduced into the body in a weakened form. The process causes the body to produce enough antibodies to protect against the pathogens, while not getting diseased
- 204 **(a)**  
Female infanticide means murder of female infant. It is commonly reported from Usalampatti.
- 205 **(b)**  
AIDS disease is caused by the member of retrovirus group. Human immunodeficiency Virus

- (HIV) is a lentivirus (slowly replicating retrovirus) that causes Acquired Immuno Deficiency Syndrome (AIDS)
- 206 (a) The term 'antibiotics' was first time used by **S A Waksman** in 1945. Antibiotics are the substances which are produced by microorganisms such as fungi or bacteria. These substances are harmful to the growth of the microorganisms, *e.g.*, penicillin, streptomycin, chloramphenicol, etc.
- 207 (d) Liver is not a lymphoid tissue. The liver is a vital organ present in vertebrates and some other animals. It has a wide range of functions, including detoxification, protein synthesis, and production of biochemical necessary for digestion
- 208 (a) Ascariasis is caused by an intestinal endoparasite or human. '*Ascaris lumbricoides*', commonly called roundworm.  
Filariasis is caused by filarial worms, *Wuchereria bancrofti* and *Wuchereria malayi*
- 209 (a) **Sir Godfrey Newbold Hounsfield**, an English electrical engineer who shared the 1979 Noble Prize for Physiology or Medicine with **Allan MacLeod Cormak** for his part in developing diagnostic technique of X-ray computed tomography (CT scanning). He died in August 2004.
- 210 (a) The exaggerated response of the immune system to certain antigens present in the environment is called allergy
- 211 (a) A- *Wuchereria*, B- *Salmonella typhi*, C- Common cold, D- Internal bleeding, fever and anaemia
- 212 (c) Cerebellum is concerned with balance of body. It receives information from the organ of balance in the ears and controls all the movements involving voluntary muscles. It is the part of brain affected first in a drunk person.
- 213 (a) African sleeping sickness or African trypanomiasis is a disease of tropical Africa. It is caused by the blood parasitic Protozoa, *Trypanosoma gambiense*.
- 214 (a) Cocaine is an alkaloid obtained from the leaves of *Erythroxylon coca* of family- Erthroxylaceae. It is used as local anaesthetic as well as stimulant for the digestive and nervous system.
- 215 (a) A fungus parasitic upon the skin, usually a species of *Microsporum*, *Epidermophyton* or *Trichophyton* is responsible for ringworm. They are also called cutaneous fungus
- 217 (d) The drug morphine is obtained from *P. somniferum*.
- 218 (a) ELISA (Enzyme Linked Immune Sorbent Assay) is used for detection of AIDS, virus and antibodies. It is a standard test for detecting the presence of antibody directed against HIV. ELISA is well used for detection of viruses, fungi, bacteria, etc.
- 219 (a) Interferon- $\beta$  is also termed as immune interferon.
- 220 (c) Hepatitis-B virus contains double stranded DNA, while Hepatitis-C, Hepatitis-E, Hepatitis-A and HIV contain single stranded RNA
- 221 (d) Smoking increases the chances of lung cancer, bronchitis, emphysema, coronary heart diseases, cancer of throat, gastric ulcer, cancer of urinary bladder, etc.
- 222 (c) Rhinitis, commonly known as runny nose, is the medical term describing irritation and inflammation of some internal areas of the nose. The primary symptom of rhinitis is nasal dripping. It is caused by chronic or acute inflammation of the mucous membrane of the nose due to viruses, bacteria or irritants. Rhinitis affects an individual's nose, throat or eyes and cause an increase in fluid production within these areas.
- 223 (b) Polio or polio myelitis is an infective viral disease infants and childrens. It is caused by small RNA virus (polio virus or enterovirus).
- 224 (c) The B-cells and T-cells are produced in bone marrow.  
The T-cells (T-helper cells) stimulate B-cells to produce antibodies. Antibodies are the main component of immune system. Immunodeficiency is characterized by a very low number of circulating lymphocytes (B and T-cells) and the

- affected persons usually die at an early stage.
- 225 (a) Filariasis is also known as elephantiasis as the legs become very heavy, stouts and elephant-like. This disease is caused by *Wuchereria bancrofti* or filarial worm, which invades in lymphatic or connective tissues. It spreads by the bite of *Culex* mosquitoes.
- 226 (a) Chemical carcinogens present in smoke have been identified as a major cause of lung cancer
- 227 (d) The cancer of epithelial cells is called carcinoma. It is a tumour that arises in the tissue that line the body's organ like the nose, the colon, the penis, breast, etc. About 80% of all cancers are carcinomas. Leukaemia are cancers of blood or blood forming organ. Sarcoma originates in mesodermal tissue like bone, connective tissue muscle, cartilage, fibrous tissue or fat.
- 228 (a) Transplant rejection is caused by the body's immune response to foreign material. Cell-mediated immunity is responsible for graft rejection
- 229 (d) **Physiological barriers** Acid in the stomach, saliva in the mouth, tears from eyes all prevent microbial growth
- 230 (b) Interferons.  
Virus infected cells secrete proteins called interferons, which protect non-infected cells from further viral infection
- 231 (a) A-Gametocytes, B-Salivary glands, C-Sporozoites
- 232 (d) Smallpox is an acute, highly communicable disease caused by variola virus. It has now been largely controlled through vaccination. Smallpox vaccine was first prepared by **Edward Jenner** in 1798.
- 233 (c) Antibodies could not solve all the problems of bacterial disease due to development of mutant strains resistant to antibodies.
- 234 (c) In ELISA (Enzyme Linked Immuno Sorbent Assay), the antibody is bound to an inert polymer support than exposed to the sample. The second antibody used is one that has an enzyme attached to it that converts a colourless or nonfluorescent substrate into a coloured or fluorescent product.
- 235 (c) Computerized axial tomography (CAT) is specialized technique for study of various parts inside the skull and location of any pathological condition.
- 237 (b) A mosquito causes infection by taking a blood meal. First, sporozoites enter the bloodstream, and migrate to the liver of man
- 238 (c) *Entamoeba histolytica* is gastrointestinal protozoan parasite that possess a serious health problem, with 50 million annual infections throughout the world
- 239 (b) Interferon.  
Interferons block viral reproduction in healthy cells
- 240 (d) *World Health Organisation has started a number of programmes to prevent the spreading of HIV infection that includes*  
(i) making blood from blood banks safe from HIV  
(ii) ensuring the use of only disposal needles and syringes  
(iii) free distribution of condoms  
(iv) controlling drug abuse  
(v) advocating safe sex and promoting regular check-ups
- 241 (b) Colostrum is the first fluid secreted by the mammary glands after childbirth. Although deficient in many nutrients found in milk, colostrum contains large quantities of antibodies that cross the intestinal mucosa and enter the infant's blood
- 242 (a) There is lymphoid tissue also located within the lining of the major tracts (respiratory, digestive and urogenital tracts) called Mucosa Associated Lymphoid Tissue (MALT). It constitutes about 50% of the lymphoid tissue in human body
- 243 (a) All the groups of viruses contains RNA and reverse transcriptase, including the virus that causes AIDS
- 244 (c) Diacetyl morphine is commonly known as heroin.



- 245 **(d)**  
Curiosity, need for adventure and excitement, and experimentation, social pressure, constitute common causes, which motivate youngsters towards drug and alcohol use. Thus, the first use of drugs or alcohol may be out of curiosity or experimentation, but later the child starts using these to escape facing problems. Of late, stress, from pressures to excel in academics or examinations, has played a significant role in persuading the youngsters to try alcohol and drugs
- 246 **(b)**  
A disease, which can be easily transmitted from one person to another is called infectious disease. Infectious diseases are also known as transmissible disease or communicable disease
- 247 **(a)**  
Mary Mallon (Nicked name typhoid Mary born on September 23, 1869, Cookstown County Tyrone, Ireland) Famous typhoid carrier who allegedly gave rise to multiple outbreaks of typhoid fever
- 248 **(c)**  
Thymus is essential in neonatal infant and postnatal child for normal development of lymphoid organs and cellular immunity. Thymus is the seedbed of T-lymphocytes (T-cell). T-cells generate cell mediated immunity.
- 249 **(a)**  
Magnetic Resonance Imaging (MRI) is a non-invasive technique, capable to map internal tissues, highlight pathological changes and study tissue metabolism with the help of spectroscopy. This technique is largely used to observe the tiny lesions of multiple sclerosis on brain and spinal tissue.
- 250 **(b)**  
Human immunodeficiency Virus (HIV) is causal organism of AIDS (Acquired Immuno Deficiency Syndrome). It is a retrovirus belonging to the family-Retroviridae. The core of HIV contains two molecules of single standard RNA (as genetic material) and reverse transcriptase.
- 251 **(c)**  
The major benefit of breast feeding for the newborn infant is passive immunity. The acquisition of the antibodies in colostrum by an infant is an example of (naturally acquired) passive immunity
- 252 **(a)**  
The uncontrolled proliferation of cancerous cells produces masses of cells, called tumours. Tumours are of two types : benign and malignant
- 253 **(d)**  
In acquired immunity, amongst a number of pathogens, a specific one is identified and tried to be eliminated, *i.e.*, **pathogen specificity**. The cells involved in immunity, retain memory of pathogen. Pathogen can identify self and non-self kind of cells.
- 254 **(b)**  
The damaging immune response by the body to substance is called allergy. An allergy is a hypersensitivity disorder of the immune system
- 255 **(a)**  
T-lymphocytes develop in bone marrow from lymphatic stem cells and then young lymphocytes migrate in the thymus. Afterwards, they pass on to all the lymphoid tissue of the body and get lodged there.
- 256 **(d)**  
Ginseng is obtained from *Panax schinseng* of family-Araliaceae. It is very important drug plant of China.
- 257 **(d)**  
Antibodies are  $\gamma$ - (gamma) globulins, which are produced in response to allergens (antigens) in our body. Specific antibodies are present in some vaccines.
- 258 **(a)**  
The circulation of the blood in the body was discovered by **William Harvey**
- 259 **(d)**  
Lymph, blood and secondary growth of malignant tumour spread cancerous cells.
- 260 **(a)**  
Dengue and chikengunya both are spread by *Aedes* mosquitoes
- 261 **(b)**  
The vaccines also generate memory B and T-cells that recognize the pathogen quickly on subsequent exposure and over the invaders with a massive production of antibodies
- 262 **(b)**  
Benign tumours are the non-malignant, non-cancerous tumours which remain confined to the site of origin and do not spread to the other parts of the body as these remain capsulated and are differentiated.
- 263 **(c)**  
**Antibodies** are gamma-globulins present in blood

plasma and provide immunity against a pathogen so, they are gamma-immunoglobulins. Antibodies are made up of glycoproteins.

264 (a)

An oncogene is a gene that has the potential to cause cancer. In tumour cells, they are often mutated or expressed at high levels. Tumour virus or cancer causing viruses are called oncogenic viruses

265 (b)

Teratogens are substance or chemical compounds that cross the placenta and damage the developing foetus and cause malformations in embryo, *e.g.*, thalidomide.

266 (c)

Statements I and III are correct.

267 (a)

Allergy is the hypersensitiveness of a person to some foreign substances coming in contact with or entering the body. The common allergens are dust, pollen mould, spores, fabricates, bacteria, etc. During allergic reaction, there is increased release of histamine from mast cells. Use of anti-histamines and steroids give a quick relief from allergy.

268 (b)

Hepatitis –B is a matter of great attention in India for the last 3 to 4 years. It is caused by a circular dsDNA virus HBV (Hepatitis-B virus). In India, it is generally transmitted from mother to baby and also through moist kissing, contaminated needles, syringes, nose and ear piercing instruments.

269 (a)

Auto-immunity is the failure of an organism in recognising its own constituent parts as self, which allows an immune response against its own cells and tissues

270 (c)

The primary lymphoid organs are bone marrow and thymus, where immature lymphocytes differentiates into antigen sensitive lymphocytes. After maturation the lymphocytes migrate to secondary lymphoid organs. Production, maintenance and distribution of lymphocytes takes place in secondary lymphoid organs

271 (b)

In our body, cell growth and differentiation is highly controlled and regulated. In cancer cells, there is breakdown of these regulatory mechanisms. Normal cells show a property called

contact inhibition by virtue of which Contact with other cells inhibits their uncontrolled growth. Cancer cells have lost this property and continue to divide giving rise to masses of cells called **tumour**.

272 (d)

Surgical removal of thymus of a new born shall result in failure to produce T-lymphocyte. Thymus provides the micro-environment for the development and maturation of T-lymphocytes

273 (d)

Antibiotics are the life saving drugs. A broad spectrum antibiotic is one which acts upon a variety of microorganisms and destroy them.

274 (b)

Interferons are produced in response of viral infection and measles is a viral disease.

275 (a)

*Diplococcus pneumoniae* bacterium is a causative agent of pneumonia disease in human beings. This is a spherical shaped (coccoid) bacterium. Generally, coccoid bacterium does not contain flagella, this condition is known atrichous.

276 (b)

To detect deficiency of antibodies, serum globulins should be look for confirmatory evidence.

277 (d)

IgA is predominantly found in seromucous secretions such as colostrum milk, saliva, tear etc. Breast milk contains IgA, which protects new born babies against various infections and provide him a strong defence and protection.

278 (b)

Cocaine in its various forms is derived from the coca plant, which is native to the high mountain ranges of South America

279 (a)

Globulins are soluble in salt solutions of strong acids and bases. These are coagulated by heat and insoluble in pure water and moderately concentrated salt solutions. Globulins contained in human blood plasma are primarily involved in defence mechanisms of the body. Some examples are –Rabies immune globulin, RhO(D) immune globulin, specific immune globulin, tetanus immune globulin, etc.

280 (a)

**Schizophrenia** is any of a group of severe mental disorders that have in common, symptoms are hallucinations, delusions, blunted emotions,

disordered thinking and a withdrawal from reality. Schizophrenia can be caused by excessive dopamine production alteration in neuropeptides, increased ventricular brain ratios and decreased frontal lobe activity.

281 (c)

Cancer arising from the epithelial tissues of internal organs and glands is referred as **carcinomas**, while cancerous growth of melanocytes (a type of skin cells) is called **melanomas**.

Neoplasm is new abnormal tissue capable of continued growth forming tumours and disrupting normal cells, while benign tumours are encapsulated localized mass of abnormal tissue which does not infiltrate to adjacent tissues.

282 (c)

95% cases of lung cancer are due to smoking. Benzopyrene present in tobacco smoke is carcinogenic.

283 (b)

The T-lymphocytes mediate Cell Mediated Immunity (CMI). It is generally initiated by antigen recognition by T-cells

284 (c)

*Ascaris* (the common roundworm) and *Wuchereria* (the filarial worm), are some of the helminths which are known to be pathogenic to man. *Ascaris*, an intestinal parasite causes ascariasis and *Wucheria* causes filariasis

285 (c)

Infective stage of malaria is sporozoite, *Plasmodium* enters the human body as sporozoites (infectious form) through the bite of infected female *Anopheles* mosquito

286 (d)

A healthy person acquires the pneumonia infection by inhaling the droplets/aerosols released by an infected person or even by sharing glasses and utensils with an infected person

287 (c)

Those who take drugs intravenously (direct injection into the vein using a needle and syringe), are much more likely to acquire serious infections like AIDS and hepatitis-B. The viruses, which are responsible for these diseases, are transferred from one person to another by sharing of infected needles and syringes

288 (b)

Vitamins	Disaeses Caused by Vitamin Deficiency
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Vitamin-C (ascorbic acid)	Scurvy
Vitamin-B <sub>1</sub> (thiamine)	Beri-beri
Vitamin-B <sub>3</sub> (niacin)	Pellagra
Vitamin-A (retinol)	Night blindness (nyctalopia)

289 (a)

*Humoral immunity is the aspect of specific immunity which*

(i) is mediated by B-lymphocytes

(ii) involves the binding of antibodies to antigens

290 (d)

In water mercury gets changed into water soluble dimethyl form and enters the food chain accompanied by biological amplification. It develops a crippling deformity called **Minamata disease**.

291 (b)

Both sickle cell anaemia and Huntington's chorea are congenital genetic disorders. Sickle cell anaemia was first reported by James Herrick (1904). In this disease, the patient's haemoglobin level reduced to half of the normal and the RBCs become sickle shaped. A single mutation in a gene can cause sickle cell anaemia. Huntington's chorea is caused by autosomal mutation, which is dominant. The gene is present on 4-chromosome numbers.

292 (a)

**Rabies** (hydrophobia) is a 100% fatal disease. It is caused by a rabies virus. The **virus** enters the human body with saliva of an infected (rabid) animal, generally by the bite of a dog but also of cat. It leads to encephalitis, fear of water, high fever severe headache, spasm of throat and chest leading to death.

293 (d)

In fomite borne method, the pathogens are spread through contaminated articles like toys, door handles, handkerchiefs, towels, etc.

294 (a)

Tetanus is caused by toxin from anaerobic, spore producing bacterium *Clostridium tetani*. It is also called 'lock-jaw' disease because increasing muscle spasm make opening of jaw difficult.

295 (d)

The spleen is a large bean-shaped organ. It mainly contains lymphocytes and phagocytes. It acts as a

filter of the blood by trapping blood-borne microorganisms. Spleen is a reservoir of erythrocytes

296 (d)

Good health is maintained by balanced diet, personal hygiene, regular exercises, awareness about disease, vaccination against infectious diseases, proper disposal of wastes, control of vectors and maintenance of hygienic food and water resources

297 (b)

Tumour viruses or cancer causing viruses called oncogenic viruses, have viral oncogenes

298 (a)

Hybridoma is technique of producing monoclonal antibodies by fusing normal antibody producing cells with myeloma (cancerous cells).

299 (b)

Stimulant drugs increase the excitement, self confidence and mental alertness temporarily. Stimulants include all the drugs that stimulate the nervous system such as caffeine, cocaine and amphetamines.

300 (a)

Resistance against pathogens is due to antibodies. Antibody is a blood protein produced in response to and counteracting a specific antigen.

301 (c)

Lymphoid organs are categorized as primary and secondary lymphoid organs. The primary lymphoid organs are bone marrow and thymus where immature lymphocytes differentiate into antigen-sensitive lymphocytes. After maturation the lymphocytes migrate to secondary lymphoid organs like spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix

302 (d)

Widal test is bacterial agglutination test, originally introduced by Widal for the diagnosis of typhoid fever.

303 (b)

An insect bite may result in inflammation of that spot. This is triggered by the alarm chemicals such as histamine and kinins.

304 (d)

Disease	Due to
Albinism	Deficiency of enzyme <b>tyrosinase</b> , which is involved in pigment melanin synthesis

Porphyria	Defect in degradation of haemoglobin
Wilson's disease	Defect in copper metabolism
Phenylketonuria	Defect in enzyme which involves conversion of amino acid phenylalanine to tyrosine

305 (b)

The pathogen of the typhoid is directly transmitted through water. Typhoid is caused by pathogenic bacterium *Salmonella typhi*

306 (d)

Leukaemia is blood cancer. It is characterized by abnormal increase of White Blood Corpuscles (WBCs) count due to their increased formation in the bone marrow. Philadelphia chromosome is found in patients suffering from leukaemia.

307 (a)

Psychosis is mental illness characterized by loss of perceptions about realities of life. It is caused by brain disorders, TB, diabetes, hypertension, etc. The psychic is generally not aware of his illness and even refuses to undergo treatment, such persons are commonly called mad.

308 (a)

A-Adrenal gland, B-Adrenaline, C-Nor-adrenaline, D-Blood pressure, E-Heart rate.

Tobacco contains a large number of chemical substances including nicotine, an alkaloid. Nicotine stimulates adrenal gland to release adrenaline and nor-adrenaline into blood circulation, both of which raise blood pressure and increase heart rate. Smoking is associated with increased incidence of cancers of lung, urinary bladder and throat, bronchitis, emphysema, coronary heart diseases, gastric ulcer, etc.

309 (a)

Allergy is the hypersensitiveness of a person to some foreign substances coming in contact with or entering in the body. **IgE** constitute about .002% of the total serum antibodies. **IgE** molecules bind tightly by their  $F_c$  end to receptor on mast cells and basophils, which are specialized cells that participate in allergic reactions.

310 (b)

An allergy occurs when your immune system responds aggressively to a harmless environmental substances

- 311 (a) The process of removal and replacement of damaged tissue or organs like heart, eye, liver, kidney with healthy ones from a donor is called as transplantation
- 312 (a) Bacteria like *Streptococcus pneumonia* and *Haemophilus influenza* are responsible for the disease pneumonia in humans. A healthy person acquires the infection by inhaling the droplets released by an infected person
- 313 (c) Spleen and tonsils, are called secondary lymphoid organs. Lymphoid organs are categorized as primary and secondary lymphoid organs. The primary lymphoid organs are bone marrow and thymus where immature lymphocytes differentiate into antigen-sensitive lymphocytes. After maturation the lymphocytes migrate to secondary lymphoid organs like spleen, lymph nodes, tonsils, Peyer's patches of small intestine and appendix
- 314 (b) **Endoscopy** is a visual inspection and carrying out minor operations without cutting. It is done by instrument called **endoscope**. Its endoscope tube has optical fibres for transmitting light, an array of light sensitive cells that are called **Charge Coupled Devices (CCD)**, at the tip of the tube and distant operated miniature surgical instruments.
- 315 (c) Electron beam therapy is a kind of radiation therapy, which involves the use of radioactive wave to treat certain types of cancer.
- 317 (a) Rhinoviruses represent one such group of viruses, which causes one of the most infectious human ailments-the common cold
- 318 (a) *Entamoeba gingivalis* attacks on gums of man.
- 319 (b) *Some slang names for heroin are* Smack, junk, H, black tar, horse, etc.
- 320 (b) Female *Anopheles* mosquito is a vector of malaria
- 321 (c) *Wuchereria bancrofti* is causes blockage of lymphatic vessel.
- 322 (a) Diagnosis of AIDS is done by Enzyme Linked Immuno Sorbent Assay (ELISA)
- 323 (b) Hepatitis-B is also called serum jaundice or transfusion hepatitis, while Hepatitis-A is called infectious epidemic hepatitis.
- 324 (c) Excessive dosage of cocaine causes hallucinations. Other well-known plants with hallucinogenic properties are *Atropa balladona* and *Datura*
- 325 (a) Malignant tertian/irregular/quotidian (cerebral malaria) is caused by *Plasmodium falciparum*, which is tropical in distribution.
- 326 (b) Ultrasonography is also called sonography or ultrasound imaging. It is the use of high frequency sound waves are produce images of structures within the human body. These waves are produced by the electrical stimulation of electric crystal.
- 327 (a) The carcinogens present in tobacco smoke have been identified as a major cause of lung cancer
- 328 (d) Yellow fever and dengue both are viral diseases as well as transmitted by mosquitoes
- 329 (b) Ringworm is a infectious disease. Ringworm is a skin infection caused by fungus that can affect the scalp, skin, fingers, toe, nails or foot
- 330 (d) Alcohol consumption dilates blood vessels causing an increased loss of body heat from the skin and may causes a life threatening decrease in core temperature of body called **hypothermia**.
- 331 (a) A carcinogen is any substance, radionuclide, or radiation that is directly involved in causing cancer
- 332 (d) Drugs like barbiturates, amphetamines, benzodiazepines, Lysergic Acid Diethyl (LSD) amides and other similar drugs, that are normally used as medicines to help patients cope with mental illnesses like depression and insomnia, are often abused
- 333 (a) The foetus receives immunoglobulin from their mother, through placental. Passive immunity can occur naturally, when maternal antibodies are transferred to the foetus through the placental

- 334 (c) Maintenance of personal hygiene by keeping the body clean, consuming clean drinking water, food, vegetables and fruits
- 335 (d) Certain types of leukocytes (WBC) of our body like Polymorpho-Nuclear Leukocytes (PMNL-neutrophils), monocytes and natural killer (type of lymphocytes) in the blood as well as macrophages in tissues can phagocytose and destroy microbes. These all are cellular barriers
- 336 (b) The WIDAL test is one of the most utilized diagnostic tests for typhoid fever
- 337 (c) Concern to biomedical technologies, the given statements I and III are correct.
- 338 (c) *P. papatassi* is an intermediate host, causes Tashkent-ulcers.
- 339 (d) The major phagocytic cells are macrophages. Phagocytosis is the process of engulfing a solid particle by a phagocyte
- 340 (a) Stomach clear out pathogen with the help of secreting HCl. Natural stomach's hydrochloric acid stimulates phagocytes
- 341 (a) Mucosal Associated Lymphoid Tissue (MALT)
- 342 (c) Ishihara chart is used to detect colour blindness.
- 343 (a) A-Immune system, B-Allergic reactions, C-Histamine, D-Serotonin
- 344 (a) A-Retrovirus, B-RNA, C-reverse transcriptase, D-RNA, E-DNA
- 345 (c) Antigen binding site.  
At the tip of each arm of the Y-shaped molecule is an area called the antigen binding site, which is formed by a portion of the heavy and light chains. Every immunoglobulin molecule has at least two of these sites, which are identical to one another
- 346 (b) Condom(Nirodh) is formed by Hindustan Latex Ltd.
- 347 (d) Interferon (a kind of protein) is a polypeptide produced by a T-cell infected with a virus that

diffuses to surrounding cells and stimulates them to manufacture bio-chemicals that harm viral replication.

348 (b)

Genital herpes	Herpes simplex virus
Syphilis	<i>Treponema pallidum</i>
Chancroid	<i>Haemophilus ducreyi</i>
Genital warts	Human papilloma virus (HPV)

349 (c)

Interferons.

Interferons block viral reproduction in healthy cells

350 (d)

In AIDS patients, the virus attacks on CD<sub>4</sub> + T-cells (helper T-lymphocytes responsible for the coordination of the entire immune system), infecting and killing them until none are left. Without these crucial immune system cells, the body cannot mould a defence against invading bacteria or viruses.

351 (b)

In Hashimoto's disease, all the aspects of thyroid function are impaired. It is an autoimmune disease, in which the thyroid gland is destroyed by autoimmunity.

352 (a)

Syphilis is caused by *Treponema pallidum*, a spirochaete and spread by sexual contact. The symptoms include sores or painless ulcers on lips, fingers, nipples, penis, and vagina, etc. It is highly infectious.

353 (c)

Polycyclic aromatic hydrocarbons are carcinogenic and thus, cause cancer.

354 (b)

When a particulate antigen is mixed with its antibody in the presence of electrolytes at a suitable temperature and pH are converted into a mass of harmless, insoluble matter is known as **agglutination**.

355 (c)

Measles is a viral disease while diphtheria, cholera and whooping cough are bacterial diseases.

356 (c)

Female infanticide is the main cause of decline in female population in India. In 1979, the pregnancy test was advertised. In Amritsar alone, during 1979-82 roughly 78,000 fetuses were

- aborted. In 1989-90 more than 7000 females were recorded to have been destroyed in Bombay alone. The figure in whole country is quite alarming.
- 357 (a) Hepatitis is a viral infection of liver causing their inflammation. It is accompanied by loss of appetite, nausea, whitish stool, but orange brown urine and jaundice.
- 358 (a) Tobacco contains large number of chemical substances including nicotine, an alkaloid. Nicotine stimulates adrenal gland to release adrenaline and nor-adrenaline into blood circulation, both of which raise blood pressure and increases the heart rate
- 359 (a) Transformation of normal cells into cancerous neoplastic cells may be induced by physical, chemical or biological agents. These agents are called carcinogens. Ionizing radiations like X-rays and gamma rays and non-ionizing radiations like UV rays causes DNA damage leading to neoplastic transformation
- 360 (a) Critical state of disease caused is called **acme**.
- 361 (a) **Edward Jenner** (1796), an English physician prepared the first vaccine when he injected the fluid from the sore of milkmaid suffering from cowpox into the body of a healthy boy which when exposed later to smallpox, exhibited resistance to the disease.  
**Louis Pasteur** (1879) found that ageing cultures of cholera bacteria were too weak to cause disease, when injected into chickens. But chickens injected with these cultures became immune of fowl-cholera. By using this method, Pasteur developed a vaccine against rabies in 1885.
- 362 (a) First antibiotic (penicillin) was discovered by **Sir Alexander Fleming** in 1928 when was working with bacterium *Staphylococcus aureus* and a fungal contamination apparently inhibited such bacteria.
- 363 (d) Different species of Plasmodium (*P. vivax*, *P. malariae*, *P. falciparum* and *P. ovale*) are responsible for different types of malaria
- 364 (a) Acquired Immuno Deficiency Syndrome
- 365 (d) The population density of Arunachal Pradesh is minimum, *i.e.*, 13/km<sup>2</sup> (2001 census) and the population density of west Bengal is maximum in India states, *i.e.*, 1072/ km<sup>2</sup>. Therefore, Arunachal Pradesh is the sparsely populated state of India.
- 366 (b) MRI yields the best pictorial from and does not expose the patient to potentially harmful ionizing radiations.
- 367 (b) In India, marriageable age for girls is 18 years and for boys is 21 years.
- 368 (a) **Lymphocytes** are the agranular leucocytes. They manufacture the serum globin and secrete antibodies. They play a key role in immunological reactions.
- 369 (a) *Symptoms of ringworm disease are*  
(i) Dry and scaly lesions on skin, nails and scalp  
(ii) Lesions are accompanied by intense itching
- 370 (b) The invasion of cancerous cells from one part to the other part by body fluid is called metastasis
- 371 (d) The malignant tumours, is a mass of proliferating cells called neoplastic or tumour cells. These cells grow very rapidly, invading and damaging the surrounding normal tissues. As these cells actively divide and grow, they also starve the normal cells by competing for vital nutrients. Cells sloughed from such tumours reach distant sites through blood, and wherever they get lodged in the body, they start a new tumour there. This property called metastasis is the most feared property of malignant tumours
- 372 (a) Innate immunity is inherited by the organisms from their parents and protects it from birth to throughout life. PMNL-neutrophils are example of innate immunity.
- 374 (d) Leishmaniasis or Kala-azar is caused by *Leishmania donovani*. It spreads by sand fly. It is also known as dum-dum fever.
- 376 (b) In passive immunity, the antibodies are produced in some other organisms (e.g., horse) in response to the given antigen. These antibodies are then

- injected into the human body at the time of need. This is known as inoculation, *e.g.*, persons infected by tetanus, rabies, *Salmonella* and snake venom are given the sufficient amount of antibodies, so that they can survive.
- 377 (a) White blood corpuscles are rounded or amoeboid nucleated non-pigment cells. These cells involved in immune response of the body against disease.
- 378 (d) Malignant Tumour is a cancerous Tumour. It shows metastasis and thus invades other body parts  
The cancer causing agents are called carcinogens, *e. g.*, Chemical agents – Aniline dyes  
Physical agents – X-rays, Y-rays, UV-rays  
Biological agents – Oncogenic viruses  
Benign tumour is non-cancerous tumour. It is less fatal to the body
- 379 (d) Gonorrhoea is caused by *Neisseria gonorrhoeae*, a coccus Gram negative bacterium and spreads by sexual contact. Symptoms of gonorrhoea are fever, headache and general feeling of illness. Antibiotics like penicillin, streptomycin, etc, are effective against infection.
- 380 (d) **Electrocardiogram** is the instrument used to record potential differences of heart muscles. To make an ECG recording, the patient lies quietly on his/her back on a table. Lead is placed on certain spots on the patient's chest. It is generally performed with six leads placed over the heart and three leads placed at certain points (one on each upper arm and one below a knee is common).
- 381 (a) Typhoid fever is caused by a type of bacteria called *Salmonella typhi*. It is spread by contaminated food and water
- 382 (c) X-rays are used in **CT-scan** (computed tomographic scanning). It uses X-rays but employs a computer for reconstructing the image instead of directly recording it on a photographic film.
- 383 (b) Penicillin was discovered by **Alexander Fleming**. It was first anti-bacterial antibiotic, which is the product of *Penicillium notatum* and *P. chrysogenum*. It was widely used in second world war.
- 384 (d) The side-effects of the use of anabolic steroids in females include masculinization (features like males), increased aggressiveness, mood swings, depression, abnormal menstrual cycles, excessive hair growth on the face and body; enlargement of clitoris, deepening of voice
- 385 (c) Amphetamines (alpha methyl phenyl ethyl amines) are the synthetic stimulant drugs, which act as an activator of sympathetic nerves bringing about increased activity and alertness. These drugs are popular as peppy pills or antisleep kills and are addictive, *e.g.*, methedrine, benzedrine, dexedrine, etc
- 386 (d) Sterilization techniques of birth control are considered safest as these protect from infection also.
- 387 (b) Aspirin is an antipyretic drug.
- 388 (c) Alexander Fleming discovered the first antibiotic, penicillin while working, on *Staphylococcus* bacteria. However its full potential as in effective antibiotic was established much later by Ernst Chain and Howard Florey. They were awarded the Nobel Prize in 1945 for this discovery.
- 389 (a) Opium is the extract from the unripe capsules of poppy plant (*Papaver somniferum*) belongs to family-Papaveraceae. Its derivatives are morphine, codeine and heroin.
- 390 (a) Most cancers are treated by combination of surgery, radiotherapy and chemotherapy
- 391 (a) Cytotoxic T-cells cause the rejection of tissue and organ transplants. Killer T-cells, also called cytotoxic T-lymphocytes (CTLs)
- 392 (a) A-Four, B-Two, C-Light, D-Two, E-Heavy, F-H<sub>2</sub>L<sub>2</sub>
- 393 (b) Lymphocytes are a type of white blood cell, which are an important part of the immune system. Two special types of lymphocytes are present in our blood, *i.e.*, B-lymphocytes and T-lymphocytes. The B-lymphocytes produce an army of proteins in response to pathogen into our blood to fight with them. These proteins are called antibodies



394 (b) Amniocentesis is misused for sex identification of an unborn baby, which finally leads to female infanticide.

395 (d) Heroin or smack is a central nervous system depressant, which means it slows down brain function and affects breathing (which can slow down or even stop)

396 (d) *Emilia sonchifolia* is used in eye inflammation and for curing night blindness.

397 (b) Transmission of HIV infection generally occurs from infected mother to her child through placenta. An HIV-infected mother can transmit HIV to her baby during pregnancy, during labour and delivery, or by breast feeding

398 (c) A single faulty cell may divide to form clone of identical cells forming an irregular mass called tumour. Tumour cells can break away and spread to other parts of the body particularly in the blood stream causing secondary tumour. This process is called **metastasis**. Tumour that spread and cause ill health and death are described as malignant.

399 (a) Bone marrow provides the micro-environment for the development and maturation of T-lymphocytes

400 (a) Smack is obtained by acetylation of morphine, which is extracted from the latex of poppy plant *Papaver somniferum*

401 (c) Greenish Maurer's dots (not enlarged) are found in the erythrocytes of man, if these are infected with *Plasmodium falciparum*.

402 (c) IgE antibodies are produced in response to allergens. The substances, which produce an immune response in an individual are called allergens

403 (d) There are five types of antibodies

Antibodies	Functions
IgA	Localized protection in external secretions
IgD	Antigen recognition by B-cells

IgE	It is involved in allergic reaction
IgG	Complement activation
IgM	Complement activation

404 (c) Quartan malaria is caused by *Plasmodium malariae*, which is characterized by reoccurrence of fever at interval of 72 hours. *P. malariae* has **incubation period of 18-24 days**.

405 (b) Composed of heavy and light polypeptide chains

406 (c) HIV virus causes AIDS. It was first discovered in 1981 in a remote areas of central Africa

407 (d) Techniques like radiography (Use of X-rays). CT (Computed Tomography) and MRI (Magnetic Resonance Imaging) are very useful to detect cancers of the internal organs

408 (b) *Plasmodium* is a parasite. Malaria is caused by a protozoans, parasite *Plasmodium* and transmitted by mosquito

409 (a) Physiological barriers like body temperature, pH of the body fluids and other body secretion prevent growth of several disease causing microorganisms. Certain kinds of cells, When infected with a virus release interferons (glycoproteins). Interferons (IFNs) make the cells resistant to viral infections.

410 (d) **Allograft** is a transplant between the individuals of same species, but with different genetical background.

It is generally used as a temporary measure until the damaged tissue is able to repair itself.

411 (a) **IgE** plays a major role in allergic reactions by sensitizing cells to certain antigens.

412 (c) The primary and secondary immune responses are carried out with the help of two special types of lymphocytes present in our blood, *i.e.*, B-lymphocytes and T-lymphocytes. The B-lymphocytes produce an army of protein in response to pathogens into our blood to fight them. These proteins are called antibodies. Antibodies are protein molecules also called immunoglobins (Ig)

- 413 (b) Opium is obtained from poppy plant or *Papaver somniferum* (family-Papaveraceae).
- 414 (b) Any agent or factor that induces cancer is called carcinogen carcinogenic factor, e.g., cadmium oxide, which induces prostate cancer. Chromium and nickel compounds induce lung cancer, while vinyl chloride and aflatoxins induce liver cancer.
- 415 (a) **Typhoid** is caused by a rod-like motile bacterium named *Salmonella typhi*.
- 416 (a) Toxins released from *Corynebacterium diphtheriae* causes diphtheria. Actually, bacterial cells do not contain gene for toxin production-a phage carries the gene for it. Only those lysogenised cells of *C. diphtheriae* which carry  $\beta$  -phage, can produce the toxin and cause diphtheria.
- 417 (d) HIV can be transmitted from an infected person to another through. Blood (including menstrual blood), infected needles and syringes, semen, sexual intercourse with infected person vaginal secretions, breast milk
- 418 (b) Interferons (INFs) are group of three vertebrate glycoproteins ( $\alpha$ ,  $\beta$ ,  $\gamma$ ). Out of these, two ( $\alpha$  and  $\beta$ ) are produced within virally infected cells. Interferon induces, among adjacent cells, an antiviral state by including synthesis of the enzymes, which inhibit the viral reproduction cycle.
- 419 (d) All of the above. Modern-day life style has resulted in lowering of immunity and more sensitivity to allergens. More and more children in metro cities of India suffer from allergies and asthma due to sensitivity to the environment. This could be because of the protected environment provided early in life
- 420 (a) Charas is the dried resinous extract from the flowering tops and leaves of *Cannabis sativa*. In some countries, it is called **hashish** It is a hallucinogen, which alters a person's thoughts, feelings and perceptions.
- 421 (a) True, *Streptococcus pneumonia* and *Haemophilus influenza* are responsible for the disease pneumonia in humans, which infects the alveoli of the lungs. As a result of the infection, the alveoli get filled with fluid leading to severe problems in respiration
- 422 (a) HIV is a causative agent of disease AIDS. ELISA (Enzyme Linked Immune Sorbent Assay) is used to test HIV infections. **Western blot test** is widely used confirmatory test for HIV infection.
- 423 (b) **Trachoma** is not a cancer. It is an eye disease, due to infection of bacteria, *Chlamydia trachomatis*. There is increased redness with watery fluid secretion from eye.
- 424 (d) DPT vaccine is given for three bacterial diseases, i.e., diphtheria caused by *Corynebacterium diphtheriae*; pertussis or whooping cough caused by *Bordetella pertussis* and tetanus by *Clostridium tetani*.
- 425 (c) Sickle cell anemia (in which RBCs become sickle-shaped and stiff) is a genetic disorder that is autosomal and linked to a recessive allele. It has not been eliminated from the African population because it provides immunity against malaria. People who are heterozygous for sickle cell allele are much less susceptible for *falciparum* malaria, which is one of main cause of illness and death in them. Thus, the sickle cell allele is maintained at high levels in populations where *falciparum* malaria is common.
- 426 (a) Thymus provides the microenvironment for the development and maturation of T-lymphocytes
- 427 (a) Injection of some kind of globulins or antibodies provides artificially acquired passive immunity.
- 428 (b) The tuberous roots of sarpagandha (*Rauwolfia serpentina*) are medicinally useful. They contain many alkaloids of which reserpine is most important. It lowers blood pressure. Besides, it cures diarrhoea and dysentery. The roots of ashwagandha (*Withania somnifera*) are used in treatment of rheumatism, cough, ulcers, and hiccups.
- 429 (a) Acquired Immuno-Deficiency Syndrome (AIDS) is a disorder of Human Immuno-Deficiency Virus

- (HIV). This disorder damages the immune system of human body.
- 430 **(c)**  
Smoking causes inflammation of lung alveoli, which decreases surface area for gaseous exchange and causes emphysema.
- 431 **(c)**  
Large intestine.  
*Entamoeba Histolytica* is a parasite of the human large intestine, commonly contracted by ingesting contaminated water or food
- 432 **(b)**  
Plague is a bacterial disease. It is caused by a rod-shaped, non-motile, bacillus, *Pasteurella pestis*. It is spread through the bite of infected rat flea (*Xenopsylla cheopsis*) on lower extremities.
- 433 **(b)**  
HIV enters into T-lymphocytes, replicates and produces progeny viruses. The progeny viruses released in the blood and damage other helper T-lymphocytes. This is repeated leading to a progressive decrease in the number of T-lymphocytes in the body of the infected person. During this period, the person suffers from bouts of fever, diarrhoea and weight loss. The person starts suffering from infections.
- 434 **(d)**  
The skin provides the first defense against invasion by pathogens, skin acts as a wall that keeps pathogens out of the body. Secretions of the oil and sweat glands within the dermis make the skin's surface acidic, inhibiting the growth of many pathogens. Sweat also contains the enzyme lysozyme, which attacks and digests the cell walls of many bacteria
- 435 **(d)**  
Symptoms of allergic reactions are sneezing, watering eyes, running nose, difficulty in breathing, etc.
- 436 **(a)**  
Interferons block viral reproduction in healthy cells. Measles is caused by the measles virus. Typhoid is a bacterial disease. Filariasis is a parasite disease (usually an infectious tropical disease) that is caused by thread-like nematodes. Malaria is caused by a protozoan (*Plasmodium* sp.) but carried by the female *Anopheles* mosquito
- 437 **(a)**  
Both (a) and (b).  
HIV can be transmitted from an infected person to another through. Blood (including menstrual blood), infected needles and syringes, semen, sexual intercourse with infected person vaginal secretions, breast milk
- 438 **(c)**  
Population growth curve is the graphic representation of population growths by plotting number of individuals at different time intervals. The human population growth curve is S-shaped or sigmoid. It has three phases, *i.e.*, lag phase or slow phase or zero growth phase.
- 439 **(d)**  
The infective stage of *Plasmodium*, inoculated into human blood by female *Anopheles* is a minute form called **sporozoite**. These are present in the saliva of female *Anopheles* mosquito.
- 440 **(a)**  
ELISA stands for Enzyme Linked Immuno Sorbent Assay. It is a test for detection of AIDS virus.
- 441 **(a)**  
The disease elephantiasis is caused by *Wuchereria bancrofti*, a member of phylum-Aschelminthes. It is an endoparasite of humans that lives in the lymphatic system. The disease is marked by an excessive growth of connective tissue and enormous swelling of affected parts, such as the scrotum, legs, arms and more rarely the vulva and breasts.
- 442 **(d)**  
Vaccines provide active immunity to disease
- 443 **(a)**  
Hallucinogens include LSD, marijuana, mescaline, psilocybin, bhang, ganja, hashish, charas, etc, while narcotic drugs include opium and its derivatives such as morphine, codeine, heroin, etc.
- 444 **(a)**  
Physiological barriers to the entry of microorganisms in human body are tears in eyes, saliva in the mouth and HCl in stomach. The enzyme lysozyme is found in tears and saliva and inhibits the synthesis of peptidoglycan present in the cell wall of microorganisms especially eubacteria.
- 445 **(a)**  
Amphetamines and cocaine are strong stimulants. Stimulants increase nerve activity in the brain by initiating the release of noradrenaline.
- 446 **(b)**  
Passive immunity involves either the transfer of antibodies or of WBCs from an immune to a non-immune person. It may be natural, *e.g.*,

- transferred from mother to child across the placenta or through mother's milk to the infant or artificial, *e.g.*, cultured antibodies, antivenoms etc.
- 447 **(b)**  
Cancer is caused by loss of control over cell's reproduction capacity. Therefore, they are more easily damaged by radiations than normal cells.
- 448 **(c)**  
When cattle are fed with spoiled hay to sweet clover, which contains dicumarol, these may suffer with vitamin-K deficiency which resulted into prolonged bleeding or even fatal haemorrhage.
- 449 **(b)**  
In rheumatoid arthritis, the immune system mistakenly attacks its own cells. The ability to differentiate pathogens or foreign molecules from self cells is lost
- 450 **(a)**  
Hypochondria is a somatoform disorder in which one has the unfounded belief that he or she is suffering from a serious illness. Anxiety is complex combination of the fleeing of fear, apprehension and worry. Mood is a characteristic feeling. Phobia is an uncontrol, irrational and fear of a specific object, situation or activity.
- 451 **(d)**  
The most common warning signs of drug and alcohol abuse among youth include drop in academic performance, unexplained absence from school/college, lack of interest in personal hygiene, withdrawal, isolation, depression, fatigue, aggressive and rebellious behavior, deteriorating relationships with family and friends, loss of interest in hobbies, change in sleeping and eating habits, fluctuations in weight, appetite, etc.
- 452 **(d)**  
Antigenic determinants or epitopes are those sites on antigens, which are recognized by antibodies and receptors present on T and B-cells. Each antigen determinant can stimulate the formation of a particular kind of antibody or cell. The antibody's antigen binding sites are located on the variable portion of the antibody. These sites help antibodies to combine specifically with antigens in the manner of lock and key.
- Hence, antigen determinants differ from antigen binding sites by their location, function and structure also.
- 453 **(d)**  
*Schistosoma haematobium* is an endoparasite of man. It causes the haematuria. **Cercaria** is the infective stage causing haematuria.
- 454 **(d)**  
Health is affected by genetic disorders, infections and life style. Non-infectious diseases are caused by factors such as genetics, environment, and life style
- 455 **(a)**  
Normal cell have genes called cellular oncogenes, which are present in inactivated state but under certain conditions like mutation they get transformed to cancer causing oncogenes
- 456 **(a)**  
Penicillin was discovered by **Alexander Fleming** from the fungus, *Penicillium notatum*. *Penicillium* is called green mould, which belongs to class-Ascomycetes. Today, penicillin is also obtained from *P.chrysogenum*.
- 457 **(b)**  
*Entamoeba histolytica*. Amoebiasis is an infection of intestine caused by the parasite *Entamoeba histolytica*
- 458 **(d)**  
The use of drugs like anti-histamine, adrenaline and steroids quickly reduce the symptoms of allergy
- 459 **(a)**  
The thymus is quite large at the time of birth but keeps reducing in size with age and by the time puberty is attained it reduces to a very small size
- 460 **(d)**  
Nasal discharge. Symptoms of amoebiasis disease include constipation, abdominal pain and cramps, stools with excess mucous and blood clots. Amoebiasis is an infection of the intestine caused by the parasite *Entamoeba hitolytica*
- 461 **(d)**  
There is always a time lag between the infection and appearance of AIDS symptoms. This period may vary from a few months to many years (usually 5-10 years)
- 462 **(d)**  
Health is maintained by balanced diet, personal hygiene and regular exercise
- 463 **(c)**

Genetic screening is a part of genetic counselling, which includes prenatal diagnosis, carrier diagnosis and predictive diagnosis.

464 (d)

The electrical activity of exposed animal brain is recorded by electroencephalograph (EEG). It is useful to find out whether the person is alert awake or asleep.

465 (c)

Jaundice is a disease of liver and involves yellow coloration of the skin, mucous membranes and secretions resulting from hyperbilirubinemia.

466 (d)

T-lymphocytes originate in bone marrow from lymphatic stem cells and then young lymphocytes migrate into the thymus. After wards, they pass on to all the lymphoid tissues of the body and get lodged there

467 (a)

Erythrocytic cycle of *Plasmodium* occurs in RBCs and beings when a cryptomerozoite or micrometacryptomerozoite enters into an RBC. After entering into RBC, a merozoite becomes, rounded disc-like young trophozoite. The accumulation of haemozoin granules (acquire trophozoite) and probably also some other toxic substances in blood causes the characteristic attack of **malarial fever** initially after about four erythrocytic cycles and than after each cycle.

468 (a)

A-Antigen binding site, B-Heavy chain, C-Light chain

469 (b)

Bacteria like *Streptococcus pneumoniae* and *Haemophilus influenzae* are responsible for the disease pneumonia.

*Entamoeba histolytica* is protozoan parasite in the large intestine of human which causes amoebiasis(amoebic dysentery).

*Plasmodium flacifarum* causes malignant malaria.

*Wuchereia bancrofti*, the filarial worm causes elephantiasis or filariasis.

*Salmonella typhi* is a pathogenic bacterium, which causes typhoid fever in human beings.

470 (d)

Pellagra is caused due to deficiency of vitamin-B<sub>3</sub>(niacin or nicotinic acid).

471 (d)

Myelogenous leukaemia is a type of leukaemia (white blood cancer). It begins by the cancerous production of young myelogenous cells from bone marrow and then spreads throughout the body.

472 (b)

Cyclosporin is an immuno suppressive drug obtained from fungus. It is used for organ transplant patients.

473 (a)

Many diseases such as, Kala-azar, visceral **leishmaniasis**, oriental sore, etc, are spread by **sand fly** (*Phlebotomus*) through its proboscis.

474 (a)

Symptoms of ascariasis disease includes internal bleeding, muscular pain, fever anaemia and blockage of the intestinal passage. Ascariasis is caused by an endoparasite of human, *Ascaris lumbricoids* commonly called roundworm

475 (c)

AIDS is a viral infection. HIV (Human Immuno Deficiency Virus), the virus that causes AIDS, was first discovered in 1981 in a remote area of Central Africa

476 (b)

*Ascariasis* is caused by an intestinal endoparasite of human, *Ascaris lumbricoides*, commonly known as roundworm

477 (a)

Yellow fever is caused by arbovirus (RNA virus), while dengue fever is caused by virus DEN<sub>1</sub>, DEN<sub>2</sub>, DEN<sub>3</sub> and DEN<sub>4</sub>. Female tiger mosquito (*Aedes aegypti*) acts as a vector for both the diseases.

478 (a)

Modern-day life style has resulted in lowering of immunity and more sensitivity to allergens. More and more children in metro cities of India suffer from allergies and asthma due to sensitivity to the environment. This could be because of the protected environment provided early in life

479 (a)

Cancer is a non-infectious disease. It is the major cause of death in human

480 (a)

Malaria is caused by the toxins produced in the human body by the malaria parasite *Plasmodium*. The malarial parasites are carried from infected to healthy person by female *Anopheles* mosquito.

481 (b)

Haemozoin is released into blood during the infection of *Plasmodium vivax* at every 48 hr.

- 482 (c) Innate immunity prevents entry of microorganisms into tissues or, once they have gained entry, eliminates them prior to the occurrence of disease. Acquired immunity occurs in response to an infection is called adaptive immunity as the immune system must adapt itself to previously unseen molecules
- 483 (a) Human hepatitis-B virus vaccine was prepared by using antigen produced by recombinant technology in yeast (*Saccharomyces, cerevisiae*)
- 484 (b) Blood pressure is measured in mmHg by an instrument known as sphygmomanometer. The instrument was invented by an Italian Doctor **Riva Racci**.
- 485 (d) Rabies, influenza and AIDS are viral diseases. Amoebiasis, giardiasis and trypanosomiasis are caused by Protozoa. Taeniasis, ascariasis and elephantiasis are the diseases caused by helminths but cancer, tuberculosis are not related disease. Tuberculosis and tetanus are bacterial diseases while cancer is not.
- 486 (a) Cocaine obtained from *Erythroxylon coca* (coca or cocaine) plant is useful to increase cardiovascular effects in human beings.
- 487 (b) Monoclonal antibodies are highly specific antibodies derived from only one clone of a specific hybridoma cell. They recognize only one specific site of an antigen. These can be used in detecting allergies, diagnosing viral diseases and in detecting certain types of cancers. Monoclonal antibodies are now-a-days marketed as 'magic bullets' The idea of magic bullet was first proposed by Paul Ehrlich.
- 488 (a) WBCs (Polymorpho-nuclear leukocytes and monocytes, natural killer lymphocytes) and macrophages, phagocytose and destroy microbes
- 489 (a) Fat soluble vitamins are A, D, E and K. Deficiency of vitamin-A leads to night blindness or nyctalopia because vitamin-A is essential for the synthesis of visual pigment, rhodopsin.
- 490 (b) AIDS was first reported in USA in 1981. In India, first case of AIDS was detected in Chennai in **1986, AIDS** (Acquired Immune Deficiency Syndrome) is caused by Immuno deficiency Virus (HIV).
- 491 (b) Immunological destruction of body tissue or product due to antibodies reacting with it as non self antigen is called autoimmune disease
- 492 (a) *Ascariasis* is caused by an intestinal endoparasite of human, *Ascaris lumbricoides*, commonly called roundworm. Eggs of parasite are excreted along with faeces of infected person, which contaminate water, soil and plants. Infection takes place through contaminated vegetable, fruits and water
- 493 (b)  $\text{Fe}^{2+}$  is a component of haemoglobin, *i.e.*, iron and proteins are raw material for synthesis of haemoglobin and thus, also for RBCs. Deficiency of  $\text{Fe}^{2+}$  as well as protein, vitamin-B<sub>12</sub> and folic acid can cause anaemia.
- 494 (d) Typhoid is caused by bacterium, *Salmonella typhi*. The disease is spread by contaminated food and water through housefly.
- 495 (a) AIDS is caused by Human Immunodeficiency Virus (HIV). It is lentivirus belonging to the family-Retroviridae. The core of this lentivirus contains two single strands of RNA molecules, proteins and the enzyme reverse transcriptase
- 496 (d) Neurasthenia is mental inability to concentrate on or enjoy things.
- 497 (c) Grafting of tissue or organ between individuals of different species is called **xengraft**.
- 498 (d) Passive immunity results when antibodies are produced by one individual and then acquired by another. The acquisition of the antibodies in colostrum by an infant is an example of (naturally acquired) passive immunity; the crossing of the placenta by maternal antibodies is another example of naturally acquired passive immunity
- 499 (c) In sonography (ultrasound imaging), inaudible high frequency of sound wave in the range of 1-15 MHz are used.
- 500 (d)

The two common tests used in the diagnosis of AIDS are Western Blot (culturing of blood and testing plasma for virus) and ELISA (Enzyme Linked Immunosorbent Assay).

501 (a)

Eosinophils are non-phagocytic and play a role in immune system. T-cytotoxic cells ( $T_c$  –cells) are responsible for destruction of host cells, which are infected by pathogens thus, involve in cell mediated immunity.

503 (a)

*Plasmodium* life cycle is digenetic. *Plasmodium* completes its life cycle in two hosts (digenetic). *i.e.*, man and female *Anopheles* mosquito

504 (d)

Birth control will not only improve the gene pool but also reduce the rate of increase in human population, which is presently a big problem. Sterilization is an effective and safest method of birth control. Sterilization of man is done by **vasectomy**, in which the passage of sperms is blocked either by cutting or by putting ligatures around the male duct (vasa deferentia). On the other hand, the sterilization in woman is called **tubectomy** where the passage of ova is blocked in fallopian tubes either by cutting or by ligaturing these tubes.

505 (c)

AIDS disease is caused by the member of retrovirus group. The genome of retroviruses is made up of RNA and each virus has two single chains of RNA. In the viral envelopes, the outer coat of the virus, consisting of two layers of lipids with various proteins embedded in it

506 (d)

The term 'physical carcinogens' includes a wide range of agents. Ionizing radiations like X-rays and gamma rays and non-ionizing radiations like UV rays causes DNA damage leading to neoplastic transformation

507 (a)

Active immunity is an immunity. In which the body produce antibody for itself as a response to specific harmful substances

508 (d)

ELISA test can be used to measure either antigen or antibody. For the detection of antibodies, following three assays are used:

(i)Competitive ELISA

(ii)Indirect or sandwich ELISA

(iii)Antibody class captive ELISA.

509 (c)

Lymphocytes.

Lymphocytes are a type of white blood cell, which are an important part of the immune system. Two special types of lymphocytes are present in our blood, *i.e.*, B-lymphocytes and T-lymphocytes. The B-lymphocytes produce an army of proteins in response to pathogen into our blood to fight with them. These proteins are called antibodies

510 (c)

Parkinson's disease is caused by dopamine deficiency. Dopamine is a neurotransmitter and released from a presynaptic neuron that interact with specific receptor sites of a post synaptic neuron.

511 (b)

Organism	Disease
Bacteria	Tetanus
Virus	Polio
Fungi	Ringworm
Mycoplasma	Pleuropneumonia

512 (b)

Interferons block viral reproduction in healthy cells through the production of antiviral proteins

513 (a)

Five different types of antibodies are produced in our body. IgD, IgA, IgM, IgE, IgG are some of them. Because, these antibodies are found in the blood so, the response is also called as humoral immune response

514 (d)

Monoclonal antibodies against cancer-specific antigens are also used for detection of certain cancer

The tumour cells are removed with the help of surgery to check the spread of cancerous cells. Cancerous cells are killed by several chemotherapeutic drugs. These drugs exhibit side effects like hair loss, anaemia.

In immunotherapy, biological modifiers like  $\alpha$ -interferons are used, which activate the immune system and help in destroying the tumour

515 (a)

The type of antibody present in colostrums secreted by mammary gland during the initial days of lactation is IgA. Colostrum is the first fluid secreted by the mammary glands after childbirth

516 (c)

Asthma is a respiratory disorder. It is caused by foreign allergens and dust particles present in the air passing through it. The pollen grains present in air can cause asthmatic attacks in certain seasons.

517 (c)

Intermediate host of *Wuchereria* is female *Culex* mosquito

518 (d)

The body's first line of defense against pathogens uses mostly physical and chemical barriers such as sweat, skin tears mucus, stomach acid, and so on

519 (b)

If a quick immune response is needed as in tetanus infection, preformed antibodies or antitoxin is injected into the patient. This type of immunization is called passive immunization

520 (c)

The full form of SCID is Severe Combined Immuno Deficiency, which is a disease of immune system.

521 (d)

**Trichomoniasis** is a sexually transmitted disease. It is caused by *Trichomonas vaginalis*. **Malaria** is caused by *Plasmodium* sp. and cancer is a large and complex family of malignancies. It usually develops from a normal cells that has changed or mutated. Pneumonia caused by *Diplococcus pneumoniae*.

522 (d)

Symptoms of amoebiasis disease include constipation, abdominal pain and cramps, stools with excess mucous and blood clots. Amoebiasis is an infection of the intestine caused by the parasite *Entamoeba histolytica*

523 (a)

LSD causes chromosomal and foetal abnormalities.

524 (b)

**Electroencephalography** (EEG) is the graphic representation of the electrical activity of brain cells that are picked up by electrodes placed on the scalp.

526 (c)

The B-lymphocytes (types of WBC) produce an army of proteins in response to pathogens into our blood to fight with them. These proteins are called antibodies

527 (c)

AIDS virus spreads by decreasing helper T-cells present in blood.

528 (b)

**Syphilis** is a sexually transmitted disease. It is caused by spirochaete bacterium *Treponema pallidum*. It affects the mucous membranes in genital, rectal and oral regions and causes lesions.

529 (d)

Cocaine is obtained from coca plant *Erythroxylum coca*. It interferes with the transport of the neurotransmitter dopamine. Cocaine, commonly called coke or crack is usually snorted, it has a potent stimulating action on central nervous system, producing a sense of euphoria and increased energy. Excessive dosage of cocaine causes hallucinations

530 (a)

Typhoid.

Typhoid fever is caused by a type of bacteria called *Salmonella typhi*. It is spread by contaminated food and water

531 (b)

Neem seed oil is used for external application in the cure of leprosy.

532 (a)

<b>Plasmodium sp</b>	<b>Incubation Period</b>
<i>Plasmodium vivax</i>	12-14 days
<i>Plasmodium malariae</i>	18-24 days
<i>Plasmodium ovale</i>	14 days
<i>Plasmodium falcipparum</i>	12 days

533 (c)

In non-compatible blood transfusion, the antibody dependent cytotoxicity is seen.

534 (d)

The letter T in T-lymphocytes refers to thymus.

**Thymus** is haemopoietic as well as an endocrine gland. Thymus is the 'seedbed' of thymic lymphocytes (T- lymphocytes). Certain stem cells, originating in yolk sac and liver in early embryo, but only in bone marrow in late embryo, migrate into the thymus and proliferate to form a large number of lymphocytes.

535 (b)

Elephantiasis or filariasis is a pathogenic disease. Its pathogen is *Wuchereria bancrofti* and infection occurs by the bit of *Culex* mosquitoes

536 (d)

In most severe cases, nausea and vomiting is caused by radiations in an hour or two. The blood cells are damaged. Most of hair fall out in about two weeks. The death results from damage of



blood cells.

537 (d)

The amniocentesis technique has been developed for detecting abnormalities by analysing chromosomal defects or aberration of the foetus.

538 (c)

The correct matching pairs are

pathogen	Disease
<i>Leishmania donovani</i>	Kala-azar
<i>Wuchereria bancrofti</i>	Filariasis
<i>Trypanosoma gambiense</i>	Sleeping sickness
<i>Entamoeba histolytica</i>	Amoebiasis

539 (a)

Morphine is white crystalline, bitter narcotic principal alkaloid of opium. It is used in medicine as hydrochloride or sulphate to dull pain, sedation and induce sleep.

540 (b)

Ultrasound is produced by lead zirconate. It is based on the principle when an electric potential is applied to crystals of lead zirconate, they get excited start vibrating. These vibrations are the sound of the production of ultra sound.

541 (c)

Thymus gland (concerned with immunological functions) concerns with AIDS because AIDS is a chronic life threatening disorder which damages the human body's immune system. It is characterized by the reduction in the number of helper T-lymphocytes.

542 (a)

LSD (Lysergic acid diethylamide) is one of the most dangerous hallucinogens of modern times, derived from ergot fungus *Claviceps purpurea*.

543 (a)

Rheumatoid Arthritis (RA) is a form of inflammatory arthritis and an auto-immune disease

544 (b)

Cataract is an eye disorder in old age, in which the flexibility of the lens declines so, that the lens become less convex on both sides. Simultaneously, it may become somewhat opaque, acquire an amber colour and increased in its density.

545 (d)

Tuberculosis (TB) is caused by a rod-shaped bacterium named *Mycobacterium tuberculosis*. It commonly affects the lungs. The bacteria damage tissues and release a toxin named tuberculin.

546 (a)

IgA is predominantly found in seromucous secretions such as saliva, tear, colostrums, milk. It is effective against a number of antigens, providing local immunity.

547 (d)

*Mosquitoes are carriers of*  
Malaria – *Anopheles mosquito* (female)  
Filariasis – *Culex* (female)  
Yellow fever – *Aedes* (female)

548 (b)

Communicable diseases are transferred from one diseased person to a normal person. Amoebiasis (protozoan disease) is a communicable disease.

549 (b)

*Plasmodium* completes its life cycle in two hosts (digenetic) *i.e.*, Man and female *Anopheles* mosquito

550 (c)

**Mammalian thymus** is a bilobed lymphoid organ situated in front of heart in the upper part of sternum. Thymus is especially important before puberty for its role in the developing immune system.

551 (b)

**Filariasis** (Elephantiasis) is caused by *Wuchereria bancrofti*. This disease is characterized by swelling of the legs, scrotum and some other parts of the body.

552 (d)

Transmission of HIV-infection generally occurs by sexual contact with infected person, by transfusion of contaminated blood and blood products, by sharing infected needles as in the case of intravenous drug abusers and from infected mother to her child through placenta

553 (c)

Name of Disease	Caused By
TB Small pox	Bacteria; <i>Mycobacterium tuberculosis</i> DNA containing variola virus (completely eradicated disease)
Diphtheria	Bacteria; <i>Corynebacterium diphtheriae</i>

554 (a) Alcohol can cause inflammation in the liver. Over time, scarring and cirrhosis can occur. Cirrhosis is the final phase of alcoholic liver disease

555 (d) Hepatitis-D is caused by a Hepatitis-D virus (HDV), which is found in nature only as a co-infection with HBV(Hepatitis-B virus).

556 (d) Cocaine is a strong stimulant and when taken in overdose causes headache, convulsions hallucination and death due to cardiovascular or respiratory failure

557 (d) Elephantiasis is caused by filarial worm *Wuchereria bancrofti* and *W. malayi*. In elephantiasis, the legs become very heavy stout and elephant-like. It spreads by the bite of female *Culex* mosquitoes

558 (b) Diethyl stilbestrol causes cancer of vagina, while cadmium oxide causes prostate gland cancer, aflatoxin and vinyl chloride cause cancer of liver.

559 (d) Cyclosporine-A is a bioactive molecule and used as an immunosuppressive agent in organ-transplant patients. It is produced by the fungus, *Trichoderma polysporum*.

560 (c)

Column I	Column II
Epilepsy	Irregular electrical discharge in the neurons
Alzheimer's disease	Decreased production of acetylcholine
Parkinson's disease	Degeneration of dopamine releasing neurons
Huntington's chorea	Degeneration of neurons in the cerebral cortex

561 (b) When the number of individuals added to the population (natality) equals the number of individuals lost (mortality), the population remains constant or show zero population growth.

563 (d) Tuberculosis is an infectious bacterial disease caused by *Mycobacterium tuberculosis*.

564 (d) When an infected female *Anopheles* bites a healthy person, *Plasmodium* in the form of 'Sporozoites' are transmitted from saliva of mosquito into the human body

565 (c) The lymph nodes are small solid structures located at different points along the lymphatic system. Lymph nodes serve to trap the microorganisms or other antigens, which happen to get into the lymph and tissue fluid

566 (d) When a host is exposed to antigens. Which may be in the form of living or dead microbes or proteins, antibodies are produced in the host body. This type of immunity is called active immunity. All the three options are *via* media through, which an antigen enters into host body

567 (c) Nuclear Magnetic Resonance (NMR) distinguishes between water poor and water rich tissues. So, this technique is used in the analysis of metabolic and physiological process of tissues.

568 (a) Chewing of tobacco causes oral cancer, which becomes fatal in extreme conditions

569 (b) In acquired passive immunity, antibodies from one individual are passed into another individual. It may be natural, *e.g.*, transferred from mother to child across the placenta and through colostrum or artificial, *e.g.*, immunity acquired by antibodies (cultured in horse), antivenin etc.

570 (a) ECG or Electrocardiograph is a graphic record of the electric current produced by the excitation of the cardiac muscles, for disease diagnosis. This is composed of P-wave, a QRS complex and a T-wave. The QRS complex has 3 separate Q, R and S waves.

P-wave \_\_\_\_\_ Depolarization of atria, produced by the activation of SA node.

QRS complex \_\_\_\_\_ Depolarization of ventricles.

PQ \_\_\_\_\_ Impulse travel through atria, AV-node and rest of the conducting tissues.

RS \_\_\_\_\_ Spread of excitation from AV-node to Purkinje fibres.

T-wave \_\_\_\_\_ Repolarization of ventricles or ventricular relaxation (diastole).

571 (b) The uncontrolled division or proliferation of cells

- without any differentiation is called cancer
- 572 (a) The carnivorous fish used for eradication of mosquito larva in stagnated water is *Gambusia*. *Gambusia* is a large genus of fish in family-Poeciliidae (order-Cyprinodontiformes)
- 573 (a) Anxiety disorders develop when there is an over reaction or phobia to stressful events. These are associated with a range of unpleasant bodily symptoms including nausea, palpitation, trembling, muscle tension and diarrhoea.
- 574 (a) *Schistosoma mansoni* is the common human **blood fluke**. It belongs to class-Trematoda of Platyhelminthes. Blood fluke is digenetic parasite, the primary host of which is man and secondary host snail.
- 575 (a) In males drugs includes acne, increased aggressiveness, mood swings, depression and reduction of size of the testicles, decreased sperm production, potential for kidney and liver dysfunction, breast enlargement, premature baldness, enlargement of the prostate gland
- 576 (b) Tumour suppressor gene normally keeps mitosis in check and prevent cancer from occurring. This gene must be inactivated, altered or removed to control cell cycle and prevent cancer.
- 577 (c) PCR is a technique in which a small fragment of DNA is rapidly cloned or duplicated to produce multiple DNA copies. Thus, it helps in the diagnosis of a genetical disorder. This technique was conceived by American biochemist **Kary B Mullis**.
- 578 (a) The leukocytes or white blood cells, defend the body against infecting organisms and foreign agents
- 579 (b) **Bacilli Calmette Guerin** (BCG) is the vaccine for tuberculosis. It was first used in 1921. BCG is the only vaccines available today for protection against tuberculosis. It is most effective in protecting children from the disease. BCG contains a live attenuated (weakened) strain of *Mycobacterium bravus*. This vaccine was developed by **Clamette** and **Guerin** at Pasteur Institutes, Paris.
- 580 (d) Smoking is associated with increased incidence of cancers of lung, urinary bladder and throat, bronchitis, emphysema, coronary heart disease, gastric ulcer, etc. Tobacco chewing is associated with increased risk of cancer of the oral cavity
- 581 (b) Malaria is caused by Protozoa *Plasmodium* and transmitted by mosquito (*Anopheles*)
- 582 (b) In india, the population control programme launched in April 1976.
- 583 (d) Tuberculosis is caused by Gram-positive, acid fast bacillus *Mycobacterium tuberculosis* and the leprosy is caused by *Mycobacterium leprae*. The acid fast properties of all mycobacteria result from the waxy mycolic acid constituent of the cell wall.
- 584 (c) Hela cells are cancer cells taken from **Miss Hanrietta Lacks** suffering from cervical cancer. These are aneuploids and maintained in tissue culture since 1953. The cells are used widely in research. The cells divide and double their number in every 24 hours.
- 585 (a) Malaria is caused by a protozoan Plasmodium (*P. vivax*, *P. malariae*, *P. falciparum* and *P. ovale*)
- 586 (d) Diabetes mellitus is a non-communicable disease. It is characterized by chronic hyperglycemia, which is excessive concentration of glucose in the blood. Diabetes is primarily. A result of relative or complete lack of insulin secretion by the  $\beta$  –cells of islets of Langerhans in pancreas.
- 587 (d) Innate immunity is also known as inborn/familial/natural or genetic immunity. Innate immunity is non-specific type of defence that is present at the time of birth
- 588 (d) In AIDS patients, HIV virus reduces the number of helper T-cells. HIV enters into helper T-lymphocytes (TH), replicates and produce progeny viruses. The progeny viruses released in the blood attack other helper T-lymphocytes. This process is repeated several times, leading to a progressive decrease in

- the number of helper T-lymphocytes in the body of the infected person
- 589 **(b)**  
VCRC stands for Vector Control Research Centre situated at Pondicherry.
- 590 **(b)**  
Quinine is obtained from the bark of *Cinchona officinalis* (family-Rubiaceae). The bark of this plant contains about 30 alkaloids including quinine, cinchonine, quinidine and cichonidine. It is used for the treatment of malaria fever.
- 591 **(a)**  
Carcinoma is the cancer of epithelial cells that covers external body surfaces (skin) and the lining of body organs. While the cancer of muscle is sarcoma, cancer of lymph glands is lymphoma and cancer of blood cells is leukaemia.
- 592 **(d)**  
Immunoglobulin M (IgM) is the largest Ig. It is the first Ig produced in a primary response to an antigen and is frequently seen in the immune responses to antigenically complex organisms like viruses and bacteria.
- 593 **(b)**  
Peyer's is patch is any of the nodules of lymphatic cells that aggregate to form bundles or patches and occur usually in the lowest portion (ileum) of the small intestine
- 594 **(a)**  
The filariasis pathogens are transmitted to a healthy person through the bite of female mosquito (*Culex*) vectors
- 595 **(b)**  
Electroporation and biolistics are two physical methods for gene transfection. In biolistics, DNA is coated on to the surface of tiny metal particles usually tungsten or gold, which is then shot into the cells.
- 596 **(d)**  
**Malaria** is a protozoan disease. It caused by the protozoan *Plasmodium* sp.
- 597 **(d)**  
The number of helper T-lymphocytes progressively decreases in the body of the infected persons. With the decrease in number of T-cells, the immunity also decreases. Due to this person is stable to produce any immunity even against common bacteria like *Mycobacterium*, parasites like *Toxoplasma*, viruses and fungi. National AIDS Control Organisation (NACO) established in 1991 and other Non-Governmental Organisations (NGOs) educate people about AIDS
- 598 **(d)**  
**ELISA** (Enzyme Linked Immuno Sorbent Assay), also known as an Enzyme Immuno Assay (EIA), is a biochemical technique used mainly in immunology to detect the presence of an antibody of an antigen in a sample. It is a useful tool for determining serum antibody concentrations (such as with the HIV test). The ELISA was the first screening test widely used for HIV because of its high sensitivity.
- 599 **(b)**  
'Prions' are the infective proteinaceous particles. This term was proposed by **Prusiner**. Prions cause some neurological diseases in animals (including humans), e.g., **Mad cow disease** in cattle and in humans, it causes Kuru diseases, Kreutzfeldt-Jacob disease, etc.
- 600 **(c)**  
Normal cells shows the property of contact inhibition. Normal somatic cells when grown in culture becomes growth inhibited when they encounter another cell. Cancerous cells lost the property of contact inhibition
- 601 **(c)**  
The T-lymphocytes mediate Cell Mediated Immune System (CMI). The B-lymphocytes produce an army of proteins in response to pathogens into our blood to fight with them. These proteins are called antibodies. The T-cells themselves do not secrete antibodies but help B-cells produce them
- 602 **(b)**  
HIV was first isolated by Montagnier *et. al* in the pasteur institute of paris
- 603 **(b)**  
Many investigators have plotted size or weight of an organism against time producing a growth curve (a simple S-shaped curves). It shows the first lag phase or phase of slow growth, second phase of exponential growth, third phase of diminishing growth and last stationary phase.
- 604 **(a)**  
*Ascaris* is a genus of parasitic nematode worms known as the 'small intestine roundworms'
- 605 **(a)**  
The thymus gland secretes thymosin hormone, which stimulates the development of certain kinds of white blood cells involved in producing immunity.

- 606 **(d)**  
Sustained high fever, weakness, stomach pain, constipation, headache and loss of appetite are some of the common symptoms of typhoid. It is confirmed by WIDAL test
- 607 **(a)**  
A-Auto-immunity, B-Auto-immune disease, C-Rheumatoid arthritis
- 608 **(a)**  
NACO stands for National AIDS control organization. It was established in 1991
- 609 **(d)**  
Ringworm is a skin infection caused by a fungus species of *Microsporum*, *Epidermophyton* or *Trichophyton*
- 611 **(d)**  
Both statements (I) and (II) are correct.
- 612 **(b)**  
Cyclosporin is an immuno suppressant. It is a chemical which suppresses immune reaction of the body towards transplanted organs thus, it prevents the rejection of organ transplanting in humans.
- 613 **(d)**  
Anaemia refers to any condition in which there is an abnormally low haemoglobin concentration

and/or blood cell count. The most common cause is deficiency of iron, which is an essential element of haemoglobin molecule. Thus, the iron compounds in the diet will help to alleviate the symptoms of anaemia.

- 614 **(c)**  
The inability to distinguish between self cells and non-self cells may lead to auto-immune disease. Auto-immune diseases arise from an inappropriate immune response of the body against substances and tissues normally present in the body (auto-immunity)
- 615 **(c)**  
Allergy is due to the release of chemicals like histamine and serotonin from the mast cells. Histamine and serotonin are the most abundant and fastest chemical released by mast cell