BIOLOGY

NEET

CRASH COURSE

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION-I, II

SMART ACHIEVERS

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STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION-I

1. Plant breeding is the purposeful manipulation of plant species in order to create desired plant types that are better suited for cultivation, give better yields and are disease resistant.
2. Green revolution was possible due to development of high-yielding and disease resistant varieties of wheat, rice, maize etc.
3. It was also used for biofortification of crops which improved the nutritional quality with higher levels of vitamins, mineral, higher protein and healthier fats.
4. Single cell protein (SCP) is an excellent alternate source of proteins for animal and human nutrition.
5. Tissue culture technique is used to achieve propagation of a large number of plants in very short duration.
6. Protoplast fusion or somatic hybridisation can produce new hybrid plants combining characteristics of different varieties of plants.

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION-II

1. Animal husbandry is the practice of taking care and breeding of domestic animals by applying scientific principles.
2. The ever-increasing demand of food from animals and animal products both in terms of quality and quantity has been met by good animal husbandry practices. These practices include

   (i) management of farm and farm animals, and (ii) animal breeding.
3. In view of the high nutritive value of honey and its medicinal importance, there has been a remarkable growth in the practice of bee-keeping or apiculture.
4. Fishery is another flourishing industry meeting the ever-increasing demand for fish, fish products and other aquatic foods.
5. India has 1.6 million hectares of inland water bodies and 6,500 kilometers long coast as potential source for fish cultivation. Important Indian fish varieties are Catla, Rohu, Mrigal, Silver carp and Grass carp.

EXERCISE

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION-I

Q.1 Most herbicide interfere with :
(1) Water absorption (2) Translocation of sugar
(3) Photolysis of water (4) CO_2 absorption

Q.2 Pests resistant to insecticides have :
(1) Less permeable cuticle (2) Capacity of faster storage of toxin in fat
(3) Enzymes for metabolising toxins (4) All the above

Q.3 Which of the following is the cyanobacterial group acting as biofertiliser ?
(1) Bacillus (2) Anabaena (3) Rhizobium (4) Azotobacter

Q.4 In a gene bank, genetic material is stored in the form of :
(1) Seeds (2) Vegetative materials (3) Both (1) and (2) (4) None

Q.5 Botanical name of Jojoba is :
(1) Parthenium argentatum (2) Leucaena leucocephala
(3) Psophocarpus tetragonoloba (4) Simmondsia chinensis

Q.6 Integrated pest management (IPM) is based on :
(1) Biological control of pest (2) Mechanical control
(3) Carefully timed used of pesticides (4) All the above

Q.7 Why crossing with wild relatives is beneficial/because it helps in the transfer of gene of ?
(1) Disease resistance (2) Pest resistance (3) Drought resistance (4) All the above

Q.8 Green manuring increases crop yield by :
(1) 5 – 10% (2) 80 – 90% (3) 10 – 20% (4) 30 – 50%

Q.9 Genetic erosion is due to :-
(1) Deforestation
(2) Shifting cultivation
(3) Adoption of genetically uniform varieties of crop
(4) All the above

Q.10 One of the following crops produces recalcitrant seeds :-
(1) Wheat (2) Maize (3) Tea (4) Rice

Q.11 The use of predator to control a pest is called
(1) Genetic engineering (2) Biological control (3) Chemical control (4) Artificial control

Q.12 Mycorrhiza work's as :
(1) Modified leaf (2) Mechanical support
(3) Acts as root hairs in adverse condition (4) Modified stem

Q.13 *Bacillus thuringiensis* is used to control :
(1) Moth (2) Flies (3) Mosquito (4) All the above

Q.14 In 1984 Bhopal gas tragedy was caused due to leakage of :-
(1) Methyl isocyanate (2) Sodium carbonate
(3) Potassium isocyanate (4) Sodium dioxide

Q.15 Organo phosphates inhibit cholinesterase which of the is a cholinesterase inhibitor :-
(1) Aldrin (2) Malathion (3) Endosulphan (4) BHC

Q.16 A gene bank is a place where valuable plant material is preserved in viable condition-gene bank are parts of :-
(1) In situ conservation (2) Ex situ conservation
(3) Both in situ & Ex-situ conservation (4) None of the above

Q.17 Most insecticides attack upon insects on their -
(1) Digestive system (2) Reproductive system
(3) Nervous system (4) Respiratory system

Q.18 BGA is chiefly used as biofertilizer in the crop of
(1) Wheat (2) Gram (3) Mustard (4) Paddy

Q.19 The material of biological origin, which is used to maintain and improve soil fertility is:-
(1) Bio pesticide (2) Bionutrient (3) Chenical fertilizers (4) Green manure

Q.20 Noodles are prepared from :-
(1) *Triticum aestivum* (2) *Triticum durum*
(3) *Pennisetum typhoids* (4) *Sorghum ulgare*

Q.21 Botanical name of tea is
(1) *Piper nigrum* (2) *Thea/Camellia sinesis*
(3) *Allium cepa* (4) *Capsicum sp*

Q.22 Hybrids are generally-
(1) Weak (2) Strong (3) Like as parents (4) Mutants

Q.23 The reason why some mutations which are harmful do not get eliminated from gene pool ?
(1) They have future survival value
(2) They are recessive and carried by heterozygous individuals.
(3) They are dominant and show up more frequently.
(4) Genetic drift occurs because of a small population.

Q.24 Emasculation is achieved by-
(1) Removal of anther (2) Removal of stigma
(3) Removal of entire organisms (4) Removal of petals and sepals

Q.25 Heterosis is -
(1) Hybrid incompatibility (2) Hybrid vigour
(3) Hybrid sterility (4) Structural hybridity

Q.26 If a breeder has to evolve a disease resistant strain, what step will be taken first:-
(1) Hybridisation (2) Selection of parents
(3) Working out the yield (4) Looking for the subject in the library

Q.27 Hybrid vigour is due to -
(1) Chiasma (2) Linkage (3) Crossing over (4) Heterozygosity

Q.28 Maximum demand of wood is for :
(1) Paper (2) Fuel (3) Timber (4) Biogas

Q.29 Forest Reaserch Institute is situated at -
(1) Nainital (2) Madras (3) Calcutta (4) Dehradun

Q.30 Hemp fibres belong to -
(1) *Linum* (2) *Cannabis sativus* (3) *Corchorus* (4) *Hibiscus*

Q.31 Fibres obtained from coconut fruit are -
(1) Copra (2) Coir (3) Hemp (4) Flax

Q.32 Cardamom hills occur in -
(1) Madhya Pradesh (2) Uttar Pradesh (3) West Bengal (4) Kerala

Q.33 A plant which is both a spice as well as dye is ?
(1) Indigo (2) Turmeric (3) Catechu (4) Clove

Q.34 Which one is latex based alkaloid -
(1) Atropine from atropa (2) Ephedrine from Ephedra
(3) Daturine from Datura (4) Morphine from Opium

Q.35 *Rauvolfia serpentina* belongs to family -
(1) Chenopodiaceae (2) Malvaceae (3) Solanaceae (4) Apocyanaceae

Q.36 A family having oil yielding plant is -
(1) Cruciferae (2) Cucurbitaceae (3) Ranunculaceae (4) Solanaceae

Q.37 Clove oil is extracted from -
(1) Santalum wood (2) Floral buds of *Syzygium aromaticum*
(3) Vetiveria roots (4) Leaves of *Syzygium aromaticum*

Q.38 Essential oils are those which ?
(1) Yield perfumes (2) Function as lubricants
(3) Are essential for human beings (4) Are essential for plants

Q.39 Central Drug Research Institute is at -
(1) Lucknow (2) Banglore (3) Kanpur (4) Madras

Q.40 Bhojpatra is obtained from -
(1) Leaves of *Piper betle* (2) Bark of *Betula utilis*
(3) Leaves of *Cinchona* (4) Bark of *Cinchona*

Q.41 "Hing" got from *Ferula asafoetida* is -
(1) Resinous exudate of root (2) Fruits
(3) Inflorescence (4) Leaves

Q.42 Useful product of epidermal origin is -
(1) Saffron (2) Cotton (3) Cloves (4) Cork

Q.43 Teak wood is obtained from -
(1) *Tectona grandis* (2) *Dalbergia sisoo*
(3) *Butea monosperma* (4) *Pinus roxburghii*

Q.44 Which part of cauliflower, used as vegetable -
(1) Terminal bud with immature leaves (2) Fleshy unripe inflorescence
(3) Fruit (4) Swollen stem

Q.45 Quinine is extracted from -
(1) Bark of *Cinnamomum* (2) Leaves of *Ocimum*
(3) Leaves of *Cinnamomum* (4) Bark of *Cinchona*

Q.46 Palm oil is obtained from -
(1) *Elaeis* (2) *Olea* (3) *Phoenix* (4) *Cocos*

Q.47 Coir is obtained from -
(1) Pericarp (2) Bark (3) Stem (4) Leaves

Q.48 Wheat grain is :
(1) Fruit (2) Seed (3) Thalamus (4) Embryo

Q.49 Milk is changed into curd by -
(1) *Acetobacter aceti* (2) *Bacillus megatherium*
(3) *Xanthomonas citri* (4) None of the above

Q.50 D.D.T. is -
(1) Carbamate (2) Organophosphate (3) Organochlorine (4) Triazine

Q.51 Heterosis (Hybrid Vigor) desirable in vegetatively propagated plants, because :
(1) Heterosis maintains longer duration
(2) These plants are easy to cultivate
(3) Vegetative reproduction help in fast multiplication
(4) It is due to homozygosity

Q.52 Modern farmer's can increase the yield of paddy upto 50% by the use of :
(1) Cyanobacteria (2) Rihizobim
(3) Cyanobacteria in Azolla pinnata (4) Farm yard manure

Q.53 Which of the following is the pair of biofertilizers ?
(1) *Azolla* and BGA (2) *Nostoc* and legume
(3) *Rhizobium* and grasses (4) *Salmonella* & *E. coli*

Q.54 Three crops that contribute maximum to global food grain production are –
(1) Wheat, rice and maize (2) Rice, maize and sorghum
(3) Wheat, maize and sorghum (4) Wheat, rice and barley

Q.55 Somaclonal variations appears in –
(1) Organism produced through somatic hybridization
(2) Plants growing in highly polluted conditions
(3) Apomictic plants
(4) Tissue culture raised plants

Q.56 First transgenic plant was tobacco and it contain resistant gene for –
(1) Insect resistant (2) Herbicide resistant (3) Pest resistant (4) Frost resistant

Q.57 Cryopreservation is :
(1) Preservation of living beings in chemicals (2) Preservation through gases
(3) Preservation at very low temperature (4) Preservation at high temperature

Q.58 Which of the following hormone is used for shoot differentiation in callus ?
(1) 2, 4–D (2) Benzyl amino purine (BAP)
(3) Deformylase (4) Gibberelic acid

Q.59 Which of the following type of culture is used in some interspecific crosses, where endosperm of developing hybrid seed degenerates very early ?
(1) Meristem culture (2) Shoot tip culture (3) Embryo culture (4) Anther culture

Q.60 The process of transferring the cell–culture from old medium to fresh culture medium is known as :–
(1) Sterilization (2) Subculturing (3) Introduction (4) Suspension culture

Q.61 Tissue culture is beneficial for :-
(1) Micropropagation (2) Production of disease free plants
(3) Androgenic haploid (4) All the above

Q.62 Which one of the following is not included under in-situ conservation ?
(1) Sanctuary (2) Botanical garden (3) Biosphere reserve (4) National park

Q.63 Sulphur is an important nutrient for optimum growth and productivity in
(1) Pulse crops (2) Cereals (3) Fibre crops (4) Oilseed crops

Q.64 In order to obtain virus-free plants through tissue culture the best method is :
(1) Protoplast culture (2) Embryo rescue (3) Anther culture (4) Meristem culture

Q.65 Which one of the following statements is correct?
(1) At present it is not possible to grow maize without chemical fertilizers
(2) Extensive use of chemical fertilizers may lead to eutrophication of nearby water bodies
(3) Both Azotobacter and Rhizobium fix atmospheric nitrogen in root nodules of plants
(4) Cyanobacteria such as Anabaena and Nostoc are important mobilizers of phosphates and potassium for plant nutrition in soil

Q.66 Which one of the following is linked to the discovery of Bordeaux mixture as a popular fungicide ?
(1) Loose smut of wheat (2) Black rust of wheat
(3) Bacterial leaf blight of rice (4) Downy mildew of grapes

Q.67 Somaclones are obtained by :
(1) Genetic engineering (2) Tissue culture (3) Plant breeding (4) Irradiation

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION-II

Q.68 The number of calves produced during its whole reproductive period of a cow or buffalo is
(1) 8 - 10 calves (2) 15 - 20 Calves (3) 12 - 16 Calves (4) 5 - 7 calves

Q.69 Which of the following breed of buffaloes is mostly demanded ?
(1) Surti (2) Murrah (3) Jaffrabadi (4) Bhadawari

Q.70 Zebu cattle is
(1) Water Buffalo (2) Indian Buffalo (3) Cow (4) Sheep

Q.71 Rinderpest is the disease of
(1) Buffaloes (2) Cattle (3) Pigs (4) Horses

Q.72 Sunandini is
(1) A famous dancer from Kerala
(2) Name of a marine fish found at coasts of Tamil Nadu
(3) A cow formed by hybridization of Indian breed and Jersey cow
(4) None of the above

Q.73 Milch breeds produce
(1) Good milk producing buffaloes (2) Good milk producing cows
(3) Good working bullocks (4) None of these

Q.74 The milk yielding capacity of Buffalo is
(1) Three times more than cows (2) Double than cows
(3) Four times more than cows (4) None of the above

Q.75 Foot and mouth disease attacks
(1) Cattle (2) Camels (3) Sheep and goats (4) Horses

Q.76 Compare to other animal which one has low reproductive rate
(1) Camelus dromidarus (2) Ovis sp
(3) Capra hircus (4) Horse

Q.77 The ova are released by hormone induction and fertilization by artificial insemination and then embryo is stored at 4°C for several years. This is the technique known as
(1) Artificial insemination (2) Embryo transplantation
(3) Super ovulation (4) Preservation of embryo

Q.78 Technique of cryopreservation is used for
(1) Preservation of various tissues (2) Preservation of semen of good quality bulls
(3) Preservation of very young foetuses (4) All of the above

Q.79 First artificial insemination was done in India at
(1) National Dairy Institute, Kamal (Haryana)
(2) Indian Veterinary Research Institute, Izatnagar (U.P.)
(3) Punjab Agricultural University, Ludhiana (Punjab)
(4) Allahabad Agricultural Institute, Allahabad (U.P.)

Q.80 Artificial breeding of cattle is brought about by
(1) Artificial insemination (2) Superovulation and embryo transplantation
(3) Homozygotic twinning (4) All the above

Q.81 Which of the following statements is true
(1) Salivary glands of moth secrete silk
(2) Larval form of moth secretes silk
(3) Silk is extracted from cocoon of moth by boiling
(4) Both (2) and (3)

Q.82 Which is protein in nature
(1) Polyethylene (2) Silk and wool (3) Cellulose (4) Teryliene

Q.83 Bombyx mori belongs to the class
(1) Insecta (2) Chilopoda (3) Arachnida (4) Crustacea

Q.84 Which of the following species of honey bee is reared in artificial hives
(1) Apis indica (2) Apis dorsata (3) Apis florea (4) None of these

Q.85 In honey bees the drones (males) are produced from
(1) Unfertilized eggs (2) Fertilized eggs
(3) Larvae fed by royal jelly (4) Fasting larvae

Q.86 Honey bee is of greatest use to man due to which reason
(1) We get honey from them (2) Helps in cross pollination
(3) Is of medicinal value (4) Entertains

Q.87 Domestication of honey bee is called
(1) Sericulture (2) Apiculture (3) Tissue culture (4) Pisciculture

Q.88 Which of the following animal can be formed without fertilization
(1) Human (2) Hen (3) Honey bee (4) Ascaris

Q.89 Queen is specified for
(1) Administration (2) Making hive (3) Egg laying (4) Collection of food

Q.90 In honey bee royal jelly is secreted from
(1) Crop gland (2) Wax gland (3) Pharyngeal gland (4) Salivary gland

Q.91 Worker bees are
(1) Sterile females
(2) Fertile females
(3) When queen is absent then acts as a fertile females
(4) Sterile drones

Q.92 Lac is obtained from
(1) Laccifer (2) Bombyx (3) Dactylopius (4) Lytta

Q.93 Which one of the following mollusc is cultured in fresh water for producing pearls
(1) Pinctada (2) Haliotis (3) Anodonta (4) Mytilus

Q.94 Birds specially chicken grown for meat only is known as
(1) Hybrid (2) Broiler (3) Bird mangement (4) Bird culture

Q.95 Ranikhet disease is found in
(1) Honey bee (2) Hens (3) Fishes (4) Pigs

Q.96 Inbreeding is carried out in animal husbandry because it:
(1) increases vigour (2) improves the breed
(3) increases heterozygosity (4) increases homozygosity

AIIMS Special

Instructions for following questions (Q.97 to Q.116).

(1) If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).
(2) If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).
(3) If Assertion is true statement but Reason is false, then mark (3).
(4) If both Assertion and Reason are false statements, then mark (4).

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION-I

Q.97 **Assertion :** Somatic hybrids may be used for the production of useful plants.
Reason : Genetic manipulation can be carried out more rapidly when plant cells are in protoplast state.

Q.98 **Assertion :** Callus is obtained within 2-3 weeks.
Reason : Suspension culture grows much faster than callus culture.

Q.99 **Assertion :** Genetic improvement of the crop is plant breeding.
Reason : It creates desired plant types that are better suited for cultivation.

Q.100 **Assertion :** The phase between 1960-1970 is often called the Green Revolution.
Reason : The development of several high yielding varieties of wheat and rice in 1960s increased yields per unit area.

Q.101 **Assertion :** The maize having high nitrogen, sugar and aspartic acid is resistant to pest.
Reason : It develops resistance to maize root borers.

Q.102 **Assertion :** Virus-free plants can be produced from virus infected plants by means of meristems tissue culture.
Reason : The virus fails to grow during the growth of host tissue.

Q.103 **Assertion :** Winged bean is cultivated throughout India.
Reason : The protein content in the seeds of winged bean is low.

Q.104 **Assertion :** Leguminous plants are best preferred for rotation of crops.
Reason : They have root nodules which have nitrogen fixing bacterium Clostridium.

Q.105 **Assertion :** Clones are a group of organism of identical genotype, produced by same kind of sexual reproduction and same sexual processes.
Reason : These are prepared by a group of cells descended from many cells or by inbreeding of a completely heterozygous line.

Q.106 **Assertion :** In plant tissue culture, somatic embryos can be induced from any plant cell.
Reason : Any viable plant cell can differentiate into somatic embryos.

Q.107 **Assertion :** Azolla pinnata is used as a biofertilizer in rice cultivation.
Reason : Azolla performs dinitrogen fixation with the help of symbiotic bacterium Bacillus sp.

STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION-II

Q.108 **Assertion :** Bulls not selected for breeding are castrated when young and converted to bullocks.
Reason : They are the main source of animal drought power in India.

Q.109 **Assertion :** Anthrax is caused by a bacterium.
Reason : Anthrax develops only in buffaloes and can't be transferred to human.

Q.110 **Assertion :** In anthrax, the animal dies due to lack of oxygen.
Reason : The anthrax bacterium uses up the oxygen carried by the animal blood.

Q.111 **Assertion :** Cattle breeds can be improved by super ovulation and embryo transplantation.
Reason : Super ovulation in high milk-yielding cows is induced by hormonal injection.

Q.112 **Assertion :** Honey is an animal product produced by honeybee.
Reason : Honey contains only sugar nothing else.

Q.113 **Assertion :** India ranks fifth in the world in cattle population but figures poorly in milk production.
Reason : Buffaloes give more milk with higher fat and mineral contents than cows.

Q.114 **Assertion :** Poultry farming has definite advantage over livestock rearing.
Reason : Poultry birds are easy to raise, can be acclimatised to a wide range of climatic conditions, have short life span and are prolific breeders.

Q.115 **Assertion :** Encephalomalacia, disease of poultry is caused by the protozoan Eimeria.
Reason : Encephalomalacia causes bloody diarrhoea in poultry.

Q.116 **Assertion :** Fish meal is a rich source of protein for cattle and poultry.
Reason : Fish meal is prepared from the non-edible parts of fishes such as tails, fins and bones.

ANSWER KEY

Q.1	3	Q.2	4	Q.3	2	Q.4	3	Q.5	4	Q.6	4	Q.7	4
Q.8	4	Q.9	4	Q.10	3	Q.11	2	Q.12	3	Q.13	4	Q.14	1
Q.15	2	Q.16	2	Q.17	3	Q.18	4	Q.19	4	Q.20	2	Q.21	2
Q.22	2	Q.23	2	Q.24	1	Q.25	2	Q.26	2	Q.27	4	Q.28	3
Q.29	4	Q.30	2	Q.31	2	Q.32	4	Q.33	2	Q.34	4	Q.35	4
Q.36	1	Q.37	2	Q.38	1	Q.39	1	Q.40	2	Q.41	1	Q.42	2
Q.43	1	Q.44	2	Q.45	4	Q.46	1	Q.47	1	Q.48	1	Q.49	4
Q.50	3	Q.51	1	Q.52	3	Q.53	1	Q.54	1	Q.55	4	Q.56	2
Q.57	3	Q.58	2	Q.59	3	Q.60	2	Q.61	4	Q.62	2	Q.63	4
Q.64	4	Q.65	2	Q.66	4	Q.67	2	Q.68	1	Q.69	2	Q.70	3
Q.71	2	Q.72	3	Q.73	2	Q.74	1	Q.75	1	Q.76	4	Q.77	4
Q.78	4	Q.79	4	Q.80	4	Q.81	4	Q.82	2	Q.83	1	Q.84	1
Q.85	1	Q.86	2	Q.87	2	Q.88	3	Q.89	3	Q.90	3	Q.91	1
Q.92	1	Q.93	1	Q.94	2	Q.95	2	Q.96	4	Q.97	1	Q.98	2
Q.99	2	Q.100	1	Q.101	4	Q.102	1	Q.103	3	Q.104	3	Q.105	4
Q.106	1	Q.107	3	Q.108	2	Q.109	3	Q.110	1	Q.111	2	Q.112	3
Q.113	2	Q.114	1	Q.115	4	Q.116	2						