



PHYSICS

1. The dimensions of impulse are equal to that of -
(A) Force (B) angular momentum

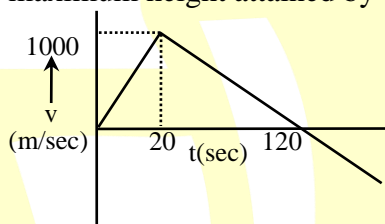
(C) pressure (D) linear momentum

2. Dimensions of magnetic flux density is -

(A) $M^1 L^0 T^{-1} A^{-1}$ (B) $M^1 L^0 T^{-2} A^{-1}$

(C) $M^1 L^1 T^{-2} A^{-1}$ (D) $M^1 L^0 T^{-1} A^{-2}$

3. A rocket is projected vertically upwards and its time-velocity graph is shown in the figure. The maximum height attained by the rocket is -



(A) 1km (B) 10km

(C) 100km (D) 60km

4. Two bodies of different masses m_a and m_b are dropped from two different heights, viz a and b. The ratio of times taken by the two to drop through these distances is

(A) $a : b$ (B) $\frac{m_a}{m_b} : \frac{b}{a}$

(C) $\sqrt{a} : \sqrt{b}$ (D) $a^2 : b^2$

5. A body is dropped from a height h from the state of rest. It covers a distance of $9h/25$ in the last second. What is the height from which the body falls? (in meter)

(A) 12.5 (B) 1.25

(C) 125 (D) Zero

6. A train travels from one station to another at a speed of 40 km/hour and returns to the first station at the speed of 60 km/hour. Calculate the average speed and average velocity of the train

(A) 48 km/hr, zero (B) 84 km/hr, 10 km/hr

(C) 84 km/hr, zero (D) 48 km/hr, 10 km/hr

7. A bomber plane moves horizontally with a speed of 500 m/s and a bomb released from it strikes the ground in 10 s. Angle at which it strikes the ground will be

($g = 10 \text{ m/s}^2$).

(A) $\tan^{-1}\left(\frac{1}{5}\right)$

(B) 60°

(C) 45°

(D) $\tan^{-1}(5)$

8. A machine gun fires a bullet of mass 40 g with a velocity 1200 ms^{-1} . The man holding it, can exert a maximum force of 144 N on the gun. How many bullets can be fired per second at the most ?

(A) One

(B) Four

(C) Two

(D) Three

9. Gravels are dropped on a conveyor belt at the rate of 0.5 kg/s. The extra force required in newtons to keep the belt moving at 2 m/s is

(A) 1

(B) 2

(C) 4

(D) 0.5

10. A body of mass m_1 moving with a velocity 3 ms^{-1} collides with another body at rest of mass m_2 .

After collision the velocities of the two bodies are 2 ms^{-1} and 5 ms^{-1} respectively along the direction of motion of m_2 . The ratio $\frac{m_1}{m_2}$ is

(A) $\frac{5}{12}$

(B) 5

(C) $\frac{1}{5}$

(D) $\frac{12}{5}$

11. Two elastic bodies P and Q having equal masses are moving along the same line with velocities of 16 m/s and 10 m/s respectively. Their velocities after the elastic collision will be in m/s

(A) 0 and 25

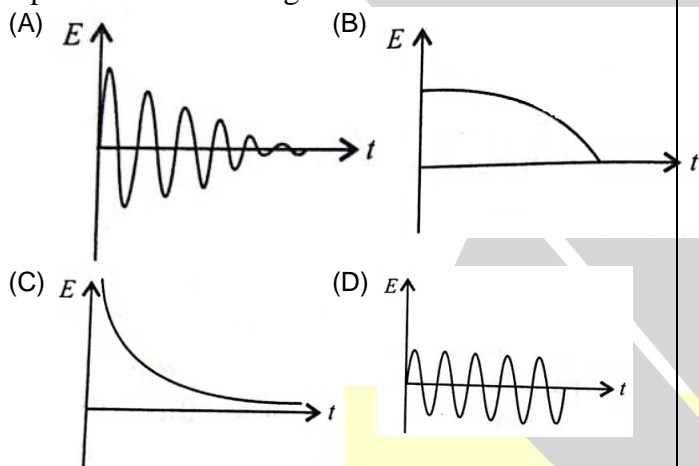
(B) 5 and 20

(C) 10 and 16

(D) 20 and 5

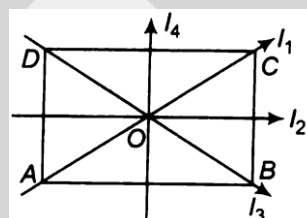
Pattern: PHY – 20 Ques. CHE – 20 Ques BIO – 20 Ques. All Questions are compulsory.

12. Which of the diagrams shown in the figure represents variation of total mechanical energy of a pendulum oscillating in air as function of time?



13. An ideal spring with spring-constant k is hung from the ceiling and a block of mass M is attached to its lower end. The mass is released with the spring initially unstretched. Then the maximum extension in the spring is –
(A) $4 Mg/k$ (B) $2 Mg/k$
(C) Mg/k (D) $4 Mg/2k$
14. A bomb of 50 Kg is fired from a cannon with a velocity 600 m/s. if the mass of the cannon is $10^3 kg$, then its recoil velocity will be –
(A) 30 m/s (B) –30 m/s
(C) 0.30 m/s (D) –0.30 m/s
15. What is the moment of inertia of a solid sphere of density ρ and radius R about its diameter ?
(A) $\frac{105}{176} R^5 \rho$ (B) $\frac{176}{105} R^5 \rho$
(C) $\frac{105}{176} R^2 \rho$ (D) $\frac{176}{105} R^2 \rho$

16. The moment of inertia of a thin rectangular plate ABCD of uniform thickness about an axis passing through the centre O and perpendicular to the plane of the plate is

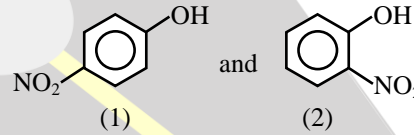
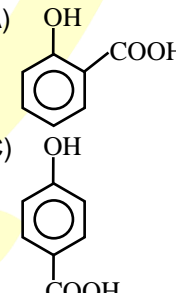
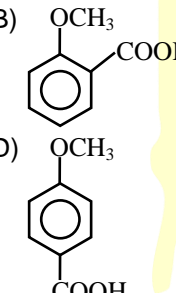
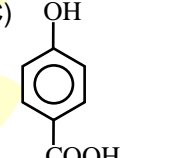
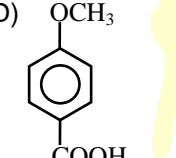
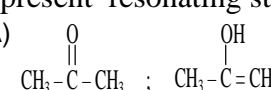
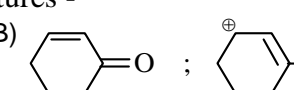
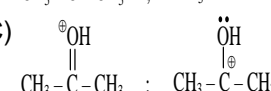
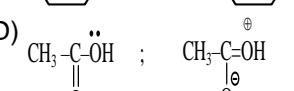


- (A) $I_1 + I_2$ (B) $I_2 + I_4$
(C) $I_1 + I_3$ (D) $I_1 + I_2 + I_3 + I_4$
17. A ball kept in a closed box moves in the box making collisions with the walls. The box is kept on a smooth surface. The velocity of the center of mass
(A) of the box remains constant (B) of the box plus the ball system remains constant
(C) of the ball remains constant (D) of the ball relative to the box remains constant
18. Three thin rods each of length L and mass M are placed along x , y and z axis such that one end of each rod is at origin. The moment of inertia of this system about z -axis is
(A) $\frac{2}{3} ML^2$ (B) $\frac{4ML^2}{3}$
(C) $\frac{5ML^2}{3}$ (D) $\frac{ML^2}{3}$
19. If the acceleration due to gravity inside the earth is to be kept constant, then the relation between the density d and the distance r from the centre of earth will be –
(A) $d \propto r$ (B) $d \propto r^{1/2}$
(C) $d \propto 1/r$ (D) $d \propto \frac{1}{r^2}$
20. If the earth is to be at half of the present distance from sun, then number of days in one year would be
(A) 92 days (B) 129 days
(C) 183 days (D) 365 days

CHEMISTRY

Pattern: PHY – 20 Ques. CHE – 20 Ques BIO – 20 Ques. All Questions are compulsory.

21. Ratio of time period of electron in first and second orbit of H-atom would be -
(A) 1 : 18 (B) 1 : 8
(C) 1 : 2 (D) 2 : 1
22. What is ratio of time periods (T_1 / T_2) in second orbit of hydrogen atom to third orbit of He^+ ion?
(A) $\frac{8}{27}$ (B) $\frac{32}{27}$
(C) $\frac{27}{32}$ (D) $\frac{27}{8}$
23. Calculate total no. of e^- having $m = 0$ in Cr atom -
(A) 12 (B) 13
(C) 5 (D) 24
24. Element with the electronic configuration given below belong to which group in the periodic table
 $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^{10}, 4s^2 4p^6 4d^{10}, 5s^2 5p^3$
(A) 3rd (B) 5th
(C) 15th (D) 17th
25. The electronic configuration of an element is $1s^2, 2s^2 2p^6, 3s^2 3p^4$. The atomic number of element present just below the above element in periodic table is -
(A) 36 (B) 34
(C) 33 (D) 32
26. The electron affinity values for the halogens shown the following trend -
(A) $F < Cl > Br > I$ (B) $F < Cl < Br < I$
(C) $F > Cl > Br > I$ (D) $F < Cl > Br < I$
27. Arrange the elements in increasing order of atomic radius Na, Rb, K, Mg -
(A) $Na < K < Mg < Rb$ (B) $K < Na < Mg < Rb$
(C) $K < Na < Mg < Rb$ (D) $Rb < K < Mg < Na$
28. The correct order of electron affinity is -
(A) $Be < B < C < N$ (B) $Be < N < B < C$
(C) $N < Be < C < B$ (D) $N < C < B < Be$
29. Which of the following is not isoelectronic series-
(A) Cl^- , P^{3-} , Ar (B) N^{3-} , Ne, Mg^{+2}
(C) B^{+3} , He, Li^+ (D) N^{3-} , S^{2-} , Cl^-

30. Which of the set of species have same hybridization state but different shapes
(A) NO_2^+ , NO_2 , NO_2^- (B) ClO_4^- , SF_4 , XeF_4
(C) NH_4^+ , H_3O^+ , OF_2 (D) SO_4^{2-} , PO_4^{3-} , ClO_4^-
31. Out of the two compounds shown below, the vapour pressure of (2) at a particular temperature is expected to be:

(A) Higher than that of (1) (B) Lower than that of (1)
(C) Same as that of (1) (D) Can be higher or lower depending upon the size of the vessel
32. Which of the molecule is trigonal bipyramidal:
(A) BF_3 (B) CH_4
(C) PCl_5 (D) SF_6
33. Which of the following has strongest intra molecular hydrogen bonding:
(A)  (B) 
(C)  (D) 
34. Correct statement regarding this reaction
 $\text{BF}_3 + \text{NH}_3 \longrightarrow [\text{F}_3\text{B} \leftarrow \text{NH}_3]$
(A) Hybridisation of N is changed (B) Hybridisation of B is changed
(C) NH_3 act as a lewis base (D) (B) & (C) both
35. Which of the following pairs of structures do not represent resonating structures -
(A)  (B) 
(C)  (D) 

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36. Consider the following three halides -

- (a) $\text{CH}_3\text{--CH}_2\text{--Cl}$
(b) $\text{CH}_2\text{=CH--Cl}$
(c) $\text{C}_6\text{H}_5\text{--Cl}$




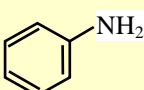
Arrange C–Cl bond length of these compounds in decreasing order -

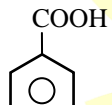
- (A) $a > b > c$ (B) $a > c > b$
(C) $c > b > a$ (D) $b > c > a$

37. The meta-directing power of the groups --NH_2 , --OCH_3 , $\text{--C}_6\text{H}_5$ and --NO_2 follows the order


- (A) $\text{--NH}_2 > \text{--OCH}_3 > \text{--C}_6\text{H}_5 > \text{--NO}_2$ (B) $\text{--NO}_2 > \text{--C}_6\text{H}_5 > \text{--OCH}_3 > \text{--NH}_2$
(C) $\text{--OCH}_3 > \text{--NH}_2 > \text{--C}_6\text{H}_5 > \text{--NO}_2$ (D) $\text{--OCH}_3 > \text{--NO}_2 > \text{--NH}_2 > \text{--C}_6\text{H}_5$

38. Which of the following is the strongest base -

- (A)  (B) 
(C)  (D) 

39.  , pK_a value of the compound decreases if

- X is:
(A) --NO_2 (B) --NH_2
(C) --OH (D) --OCH_3

40.  electrophilic substitution

- occurs at
(A) o/p of 1st ring (B) meta at 1st ring
(C) o/p at 2nd ring (D) meta of 2nd ring.

41. Salamander belongs to the class

- (A) Pisces (B) Aves
(C) Reptiles (D) Amphibian

42. Consider the following sets of some animals. The set that consists of all animals belonging to the same phylum is:

- (A) *Pinctada*, *Aplysia*, *Chaetopleura* (B) *Dentallium*, *Pila*, *Echinus*
(C) *Asterias*, *Antedon*, *Ascidia* (D) *Adamsia*, *Gorgonia*, *Pleurobrachia*

43. *Taenia solium* has

- (A) Mouth and anus both (B) Only mouth present but no anus
(C) Only anus present but no mouth (D) Complete digestive tract is absent

44. With respect to fungal sexual cycle, choose the correct sequence of events.

- (A) Karyogamy, Plasmogamy, Meiosis (B) Meiosis, Plasmogamy, Karyogamy
(C) Plasmogamy, Karyogamy, Meiosis (D) Meiosis, Karyogamy, Plasmogamy

45. Mycorrhiza is an association of

- (A) Higher plant and non-motile algae (B) Fungi and higher plants
(C) Leguminous plant and bacteria (D) Both 1 and 2

46. Most abundant RNA in the cell

- (A) rRNA (B) mRNA
(C) tRNA (D) tRNA threonine

47. Which biomolecule is distributed more widely in a cell?

- (A) Chloroplast (B) RNA
(C) DNA (D) Spaherosomes

48. β -oxidation occurs in

- (A) Nucleus (B) Cytoplasm
(C) Mitochondria (D) Chloroplast

BIOLOGY/Biomolecules/NEET/OBJ-One Correct

BIOLOGY

Pattern: PHY – 20 Ques. CHE – 20 Ques BIO – 20 Ques. All Questions are compulsory.

49. Which is a reducing sugar?
(A) Galactose (B) Gluconic acid
(C) Sucrose (D) β -methyl galactosidase
50. Koshland's theory of enzyme action is known as
(A) Lock and key theory (B) Reduced fit theory
(C) Induced fit theory (D) Enzyme coenzyme theory
51. Mineral associated with cytochrome is
(A) Mg (B) Cu and Ag
(C) Fe (D) Cu
52. Replum is found in the ovary of
(A) Brassicaceae (B) Malvaceae
(C) Liliaceae (D) Asteraceae
53. The stem modified into flat, green organs performing the function of leaves
(A) Phyllodes (B) Cladodes
(C) Phylloclades (D) Scales
54. _____ are the non-essential parts of a flower
(A) Androecium and gynoecium (B) Sepals and carpels
(C) Sepals and petals (D) Sepals and gynoecium
55. Gametes are non – motile in-
(A) Blue green algae (B) Red algae
(C) Both 1 and 2 (D) Green algae
56. Group of organism that closely resemble each other and freely interbreed in nature, constitute a -
(A) Species (B) Genus
(C) Family (D) Taxon
57. Which of the following is a correct name ?
(A) Solanum tuberosum (B) Solanum Tuberosum
(C) Solanum tuberosum (D) All the above
Linn
58. Khorana synthesized two RNAs (a) with repeat sequence of AB and (b) with repeat sequence of ABC, the polypeptide coded by (a) and (b) are respectively
(A) Homopolypeptides (B) Heteropolypeptides
in the both (a) and in both (a) and (b)
(C) Homopolypeptide in (D) heteropolypeptide in
(a) and (a) and
heteropolypeptide in Homopolypeptide in
(b) (b)
59. Natural system of classification is given by
(A) Bentham and Hooker (B) Carolus Linnaeus
(C) Charles Darwin (D) Engler and Prantl
60. For the strand separation and stabilization during DNA replication which of the following set of enzymes and proteins are required?
(A) SSBP, gyrase and primase (B) Topoisomerase, helicase and ligase
(C) Gyrase, ligase and primase (D) Topoisomerase, helicase and SSBP

BIOLOGY/The Living World/NEET/OBJ-One Correct