

Time : 3 Hrs.

## Mock Test - 9

MM : 720

### Complete Syllabus of Class XI & XII

#### GENERAL INSTRUCTIONS :

1. This paper consisting 180 objective type questions from Physics, Chemistry and Biology (Botany & Zoology).
2. For each correct response 4 marks will be awarded, whereas for each incorrect response 1 mark will be deducted from the total score.
3. No deduction from the total score will be made if no response is indicated.
4. More than one answer will be negatively marked.
5. Use Blue/Black ball point pen only to darken the appropriate circle.
6. Mark should be dark and should completely fill the circle in the answer sheet.
7. Do not use white-fluid or any other rubbing material on answer sheet. No change in the answer once marked.
8. Rough work must not be done on the answer sheet.
9. Student cannot use log tables and calculators of any other material in the examination hall.

### PHYSICS

#### Choose the correct answer :

1. A given mass of metal is moulded in different shapes. Its surface area is minimum when it is a
  - (1) Right circular cone
  - (2) Right cylinder
  - (3) Sphere
  - (4) Paraboloid
2. A physical quantity depends on time  $t$  as  $A = A_0 e^{-\alpha t^3}$ . Then constant  $\alpha$  has dimensions
  - (1)  $[T]$
  - (2)  $[T^{-2}]$
  - (3)  $[T^{-1}]$
  - (4)  $[T^{-3}]$
3. Two forces of 5 dyne and 6 dyne are acting on a body. The resultant force on the body can only be
  - (1) More than 5 dyne
  - (2) More than 6 dyne
  - (3) Between 5 dyne and 6 dyne
  - (4) Between 1 dyne and 11 dyne
4. A chain of mass  $M$  and length ' $L$ ' held vertical by fixing its upper end to a rigid support. Then what is the tension in chain at distance  $y$  from the rigid support
  - (1)  $Mg$
  - (2)  $\frac{Mg(y)}{L}$
  - (3)  $\frac{Mg}{L}(L - y)$
  - (4)  $\frac{MgL}{(L - y)}$

5. If a block takes thrice as much time to slide down a  $45^\circ$  rough inclined plane as it takes to slide down a similar smooth plane. Then coefficient of friction is

(1)  $\frac{1}{3}$  (2)  $\frac{2}{3}$   
(3)  $\frac{9}{8}$  (4)  $\frac{8}{9}$

6. Under the action of a force a 2 kg body moves such that its position  $x$  as a function of time  $t$  is given by

$$x = \frac{t^4}{4} + 3. \text{ Then work done by the force in first two}$$

seconds is

(1) 6 J (2) 10 J  
(3) 7 J (4) 8 J

7. An object of mass 5 kg falls from rest through a vertical distance of 10 m and acquires a velocity of 10 m/s. Then, work done by the resistance force of air on the object is

(1) 250 J (2) -250 J  
(3) 500 J (4) 1500 J

8. On tripling the speed, the stopping distance for same braking force becomes

(1) 3 times (2) 9 times  
(3) 4 times (4) 8 times

9. The semivertex of conical pendulum through which a body can perform uniform circular motion, if the string

support  $\frac{2}{\sqrt{3}}$  times its weight, is

(1)  $90^\circ$  (2)  $30^\circ$   
(3)  $60^\circ$  (4)  $120^\circ$

10. A thin circular ring of mass  $M$  and radius  $r$  is rotating about its axis through centre normal to its plane with a constant angular velocity  $\omega$ . Two objects, each of mass  $m$  are attached gently to the opposite ends of a diameter of the ring. The wheel now rotates with an angular velocity of

(1)  $\frac{\omega M}{(M+m)}$  (2)  $\frac{\omega(M+2m)}{M}$   
(3)  $\frac{\omega M}{(M+2m)}$  (4)  $\frac{\omega M}{(M-2m)}$

11. If  $\vec{a} + \vec{b} = \vec{c}$  and  $a + b = c$ , then angle between  $\vec{a}$  and  $\vec{b}$  is

(1)  $90^\circ$  (2)  $30^\circ$   
(3)  $60^\circ$  (4)  $0^\circ$

12. A projectile is launched at angles  $\alpha$  and  $\beta$  with the horizontal such that  $\alpha + \beta = \frac{\pi}{2}$  with same speed.

The ratio of horizontal ranges  $\left(\frac{R_1}{R_2}\right)$  in two cases is

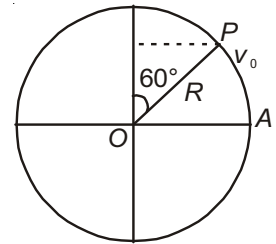
(1)  $\frac{1}{2}$  (2) 2  
(3) 1 (4) 4

13. The gravitational field intensity of uniform solid sphere at distance  $r < R$  is [ $R$  = radius of sphere and  $M$  = mass of sphere]

(1)  $\frac{GM}{r^2}$  (2)  $\frac{GM}{r}$   
(3)  $\frac{GM}{R^3}r$  (4)  $\frac{GM}{r^{3/2}}$

14. In given figure under critical condition of a vertical circular motion, find the velocity ( $v_0$ ) at point  $P$ .

(1)  $\sqrt{gR}$   
(2)  $\sqrt{3gR}$   
(3)  $\sqrt{2gR}$   
(4)  $\sqrt{4gR}$



15. Two springs having force constants  $k_1$  and  $k_2$  ( $k_2 > k_1$ ) are stretched by same elongation. Then work done will be

(1) Equal for both (2) Greater for  $k_1$   
(3) Greater for  $k_2$  (4) Cannot be calculated

16. Two masses of 1 gm and 4 gm are moving with K.E. in ratio 4 : 1. Ratio of their momenta is

(1) 4 : 1 (2) 6 : 1  
(3) 1 : 2 (4) 1 : 1

17. A bullet of mass ( $M$ ) and velocity ( $v$ ) is fired into a large wooden block of mass  $M_0$  and get stuck to it. Then, final velocity of the system is

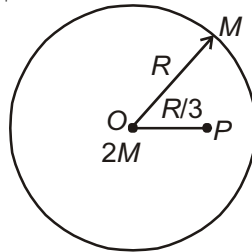
(1)  $\frac{Mv}{M_0}$  (2)  $\left(\frac{Mv}{M+M_0}\right)$   
(3)  $\frac{Mv}{2M_0}$  (4)  $\frac{Mv}{M-M_0}$

18. A body constrained to move in  $y$  direction is subjected to a force  $F = -2\hat{i} + 10\hat{j} + 5\hat{k}$ . Then, work done by this force in moving the body a distance of 10 meter along  $y$  axis is

(1) 130 J (2) 100 J  
(3) 20 J (4) 50 J

19. At the centre of a spherical shell of mass  $M$  and radius  $R$ , a point mass  $2M$  is placed. Then, gravitational potential at distance  $\frac{R}{3}$  from the centre is

(1)  $-\frac{GM}{R}$   
(2)  $-\frac{3GM}{R}$   
(3)  $-\frac{7GM}{R}$   
(4)  $+\frac{3GM}{R}$



20. If a body has equal amount of rotational kinetic energy and translational kinetic energy while rolling without slipping on a horizontal surface. Then body is a
- (1) Disc (2) Sphere  
(3) Ring (4) Cylinder

21. Two bodies of masses 1 kg and 2 kg have position vectors  $(\hat{i} + 3\hat{j} + \hat{k})$  and  $(-2\hat{i} + \hat{j} + 2\hat{k})$ . The position vector of centre of mass of the system is

(1)  $\frac{-3\hat{i} + 2\hat{j} + 5\hat{k}}{3}$   
(2)  $\frac{-3\hat{i} + 5\hat{j} + 5\hat{k}}{3}$   
(3)  $\frac{3\hat{i} + 2\hat{j} + 11\hat{k}}{4}$   
(4)  $\frac{-2\hat{i} + 3\hat{j} + 5\hat{k}}{3}$

22. Two wires of same material and length, but cross-sectional area in the ratio 1 : 2 are used to suspend the same load. Then ratio of their respective extensions is

(1) 4 : 1 (2) 2 : 1  
(3) 1 : 2 (4) 1 : 4

23. A body floats in water with one third of its volume above the surface of water. If it is placed in some oil, it floats with half of its volume above the oil surface. Then, specific gravity of the oil is

(1)  $\frac{3}{2}$  (2)  $\frac{3}{4}$   
(3)  $\frac{4}{3}$  (4) 1

24. A body cools from  $91^\circ\text{C}$  to  $89^\circ\text{C}$  in 5 minute when the room temperature is  $20^\circ\text{C}$ . Then it will cool from  $71^\circ\text{C}$  to  $69^\circ\text{C}$  in

(1) 5 minute (2) 3 minute  
(3) 7 minute (4) 6 minute

25. A string is hanging from a rigid support. A transverse wave pulse is generated at its free end. The speed of wave pulse at distance  $x$  from its free end is proportional to

(1)  $x^2$  (2)  $x$   
(3)  $\sqrt{x}$  (4)  $\frac{1}{x}$

26. Velocity of sound is maximum in

(1)  $\text{H}_2$  (2)  $\text{N}_2$   
(3)  $\text{Cl}_2$  (4)  $\text{O}_2$

27. When a spring is extended by 2 cm from natural length, the energy stored is 100 J. When extended further by 2 cm, the energy increases by

(1) 200 J (2) 400 J  
(3) 100 J (4) 300 J

28. The time period of oscillation of total energy of a harmonic oscillator having angular frequency ( $\omega$ ) is

(1)  $\frac{2\pi}{\omega}$

(2)  $\frac{\pi}{\omega}$

(3) Infinite

(4)  $\frac{\pi}{2\omega}$

29. The ratio of the forces between two small spheres charged to constant potentials in air to that in dielectric medium of dielectric constant ( $k$ ) is

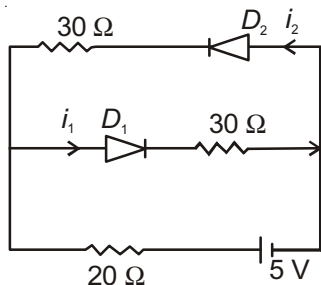
(1) 1 :  $k$  (2)  $k$  : 1  
(3) 1 :  $k^2$  (4)  $k^2$  : 1

30. A parallel plate isolated charged capacitor is immersed in an oil of dielectric constant 10. The electric field between the plates is
- Increased to  $\sqrt{10}$  times that in air
  - Increased to 10 times that in air
  - Decreased to  $\frac{1}{10}$  times that in air
  - Decreased to  $\frac{1}{\sqrt{10}}$  times that in air
31. Force acting on a charged particle kept between the plates of a charged capacitor is  $F$ . If one of the plates of capacitor is removed. Then same particle will experience a force
- $\frac{F}{2}$
  - Zero
  - $F$
  - $2F$
32. A wire of length 2 m carrying a current of 1 A is bent to form a circle. The magnetic moment of the coil is
- $\frac{2}{\pi} \text{ Am}^2$
  - $\frac{1}{\pi} \text{ Am}^2$
  - $\frac{\pi}{2} \text{ Am}^2$
  - $2\pi \text{ Am}^2$
33. Two parallel and identical wires carrying currents  $i_1$  and  $i_2$  experience force  $F_1$  and  $F_2$ . If  $\frac{i_1}{i_2} = \frac{1}{3}$ , then  $\frac{F_1}{F_2}$  is
- $\frac{2}{3}$
  - $\frac{1}{3}$
  - 1 : 1
  - $\frac{4}{9}$
34. Which of the following can produce the maximum induced emf ?
- 6 A, direct current
  - 6 A, 20 Hz
  - 50 A, direct current
  - 6 A, 400 Hz
35. If the current through an inductor of 2 H is given by  $i = tsint$ , then voltage across the inductor of 2 H is
- $\cos t + tsint$
  - $2t\cos t + 2sint$
  - $t\cos t + sint$
  - $2tsint + 2\cos t$
36. The instantaneous A.C. voltage and currents are given by  
 $V = 50 \sin(100\pi t)$   
 $I = 50 \sin[100\pi t]$ ,  
 then average power dissipated in the circuit is
- 1.0 kW
  - 1.25 kW
  - 128 W
  - 0.128 W
37. The angle of minimum deviation for an equilateral prism of refractive index  $\sqrt{3}$  is
- $30^\circ$
  - $45^\circ$
  - $60^\circ$
  - $120^\circ$
38. If a convex mirror of focal length ' $f$ ' is immersed in a liquid  $\left(\mu = \frac{5}{3}\right)$ , then new focal length of mirror will be
- $f$
  - $3f$
  - $\frac{f}{2}$
  - $2f$
39. Young's double slit experiment is performed by two lights of yellow and green colours having fringe widths  $\beta_1$  and  $\beta_2$ , then  $\frac{\beta_1}{\beta_2}$  is
- 1
  - $> 1$
  - $< 1$
  - Cannot be predicted
40. An  $e^-$  is projected along the axis of a current carrying coil with velocity  $v$ , then time rate of change of momentum of electron will be
- $\frac{mv}{t}$
  - $\frac{2mv}{t}$
  - Zero
  - Infinite
41. If half life of a radioactive sample is 4 days, then fraction of the sample remained after 2 days will be
- $\frac{1}{\sqrt{2}}$
  - $\frac{\sqrt{2}-1}{\sqrt{2}}$
  - $\sqrt{2}$
  - $\frac{1}{2}$

42. To obtain 2<sup>nd</sup> member of Lyman series, transition states are

- (1)  $n_1 = 2, n_2 = 4$
- (2)  $n_1 = 1, n_2 = 3$
- (3)  $n_1 = 2, n_2 = 3$
- (4)  $n_1 = 1, n_2 = \infty$

43. The currents through diodes  $D_1$  and  $D_2$  are



## CHEMISTRY

46. Equivalent weights of  $As_2S_3$  and  $KMnO_4$  during the formation of  $H_3AsO_4$ ,  $H_2SO_4$  and  $Mn^{2+}$  ion are respectively

- (1)  $M/26, M/5$
- (2)  $M/28, M/5$
- (3)  $M/20, M/5$
- (4)  $M/5, M/4$

47. Which of the following statement/s is/are **correct**?

- (1) Silica gel adsorbs water
- (2) Catalytic action and colloidal nature is based on the phenomenon of adsorption
- (3) Absorption and adsorption can take place simultaneously
- (4) All of these

48. The pH of 0.1 M  $(NH_4)_2SO_4$  solution is  $[pK_b = 4.74]$

- (1) 5.13
- (2) 5.3
- (3) 6.2
- (4) 5.8

49. A vessel contains 1 mole of  $O_2$  gas at temperature  $T$  K and pressure  $P$ . An identical vessel containing 1 mole of He gas at a temperature  $2T$  K has a pressure

- (1)  $P/8$
- (2)  $P$
- (3)  $2P$
- (4)  $8P$

50. Equal masses of methane and oxygen gas are mixed in an empty container at  $25^\circ C$ . The fraction of the total pressure exerted by oxygen gas is

- (1)  $\frac{1}{2}$
- (2)  $\frac{2}{3}$
- (3)  $\frac{1}{3}$
- (4)  $\frac{1}{3} \times \frac{273}{298}$

(1)  $i_1 = 0.1$  A,  $i_2 = 0.1$  A

(2)  $i_1 = 0.1$  A,  $i_2 = 0$

(3)  $i_1 = 0, i_2 = 0.3$  A

(4)  $i_1 = 0, i_2 = 0$

44. The wavelength of first line of Lyman series of hydrogen is 121.6 nm. The wavelength of the second member of Balmer series is

- (1) 61.7 nm
- (2) 486.4 nm
- (3) 30.4 nm
- (4) 243.2 nm

45. The ratio of the energy of the orbital electron in first orbit to that in the second orbit in hydrogen atom is

- (1) 2
- (2) 4
- (3) 8
- (4) 16

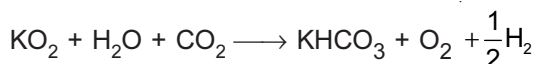
51. Which of the following has maximum number of unpaired electrons?

- (1)  $Mg^{2+}$
- (2)  $Ti^{3+}$
- (3)  $V^{3+}$
- (4)  $Fe^{2+}$

52. According to Bohr's theory the angular momentum of an electron in 5<sup>th</sup> orbit is

- (1)  $\frac{2.5h}{\pi}$
- (2)  $\frac{5h}{\pi}$
- (3)  $\frac{25h}{\pi}$
- (4)  $\frac{6h}{2\pi}$

53. Which process is not involved in the reaction?



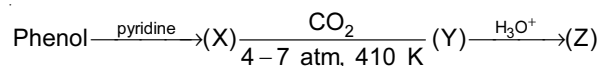
- (1) Hydrolysis
- (2) Acid base reaction
- (3) Redox reaction
- (4) Disproportionation reaction

54.  $CrO_5$  reacts with  $H_2SO_4$  to form  $Cr_2(SO_4)_3$ ,  $H_2O$  and  $O_2$ . Moles of  $O_2$  liberated by 1 mole of  $CrO_5$  in the given reaction is

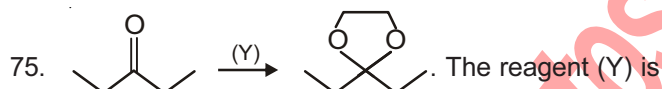
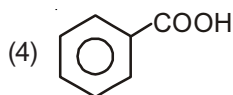
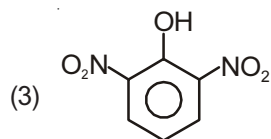
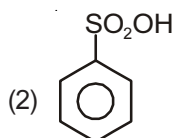
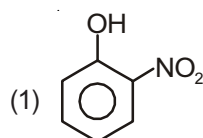
- (1) 1.25
- (2) 1.75
- (3) 2.5
- (4) 4.5

55. The metal that cannot be produced on reduction of its oxide by aluminium is  
 (1) Fe (2) Mn  
 (3) K (4) Cr
56. An ion is reduced to its element when it absorbs  $6 \times 10^{20}$  electrons. The number of equivalents of the ion involved is  
 (1) 0.1 (2) 0.01  
 (3) 0.001 (4) 0.0001
57. The isostructural pairs amongst the given species are  
 (1)  $\text{NF}_3$ ,  $\text{NO}_3^-$  and  $\text{BF}_3$ ,  $\text{H}_3\text{O}^+$   
 (2)  $\text{NF}_3$ ,  $\text{HN}_3$  and  $\text{NO}_3^-$ ,  $\text{BF}_3$   
 (3)  $\text{NF}_3$ ,  $\text{H}_3\text{O}^+$  and  $\text{NO}_3^-$ ,  $\text{BF}_3$   
 (4)  $\text{NF}_3$ ,  $\text{H}_3\text{O}^+$  and  $\text{HN}_3$ ,  $\text{BF}_3$
58. The I.E. will be maximum for the process  
 (1)  $\text{Be} \longrightarrow \text{Be}^{2+}$  (2)  $\text{Li} \longrightarrow \text{Li}^+$   
 (3)  $\text{Cs} \longrightarrow \text{Cs}^+$  (4)  $\text{Ba} \longrightarrow \text{Ba}^{2+}$
59. The correct relationship between the boiling points of dilute solutions of  $\text{AlCl}_3(T_1)$  and  $\text{CaCl}_2(T_2)$ , having the same molar concentration is  
 (1)  $T_1 > T_2$  (2)  $T_2 > T_1$   
 (3)  $T_1 = T_2$  (4)  $T_2 \geq T_1$
60. Aqueous solution of 0.004 M  $\text{Na}_2\text{SO}_4$  and 0.01 M glucose are isotonic. The degree of dissociation of  $\text{Na}_2\text{SO}_4$  is  
 (1) 85% (2) 75%  
 (3) 60% (4) 25%
61. The formation of  $\text{O}_3$  in upper part of atmosphere is catalyzed by  
 (1)  $\text{N}_2$  (2) NO  
 (3) CO (4)  $\text{CO}_2$
62. Which of the following acts as a negative catalyst?  
 (1) Tetraethyl lead as an antiknock compound  
 (2) Glycerol in decomposition of  $\text{H}_2\text{O}_2$   
 (3) Ethanol in oxidation of chloroform  
 (4) All of these
63. For an endothermic reaction, the correct relation about energy of activation for forward and backward reaction is  
 (1)  $E_{a(f)} > E_{a(b)}$  (2)  $E_{a(f)} < E_{a(b)}$   
 (3)  $E_{a(f)} = E_{a(b)}$  (4) None is correct
64. An increase in the rate of a reaction for rise in temperature is due to  
 (1) Increase in collision frequency  
 (2) Shortening of mean free path  
 (3) Increase in the number of effective collisions  
 (4) Decrease in activation energy
65. The weakest base among the following is  
 (1)  $\text{H}^-$  (2)  $\text{CH}_3^-$   
 (3)  $\text{CH}_3\text{O}^-$  (4)  $\text{Cl}^-$
66. How many unit of NaCl is present per unit cell of NaCl?  
 (1) 4 (2) 6  
 (3) 2 (4) 8
67. Combustion of which of the following compounds ( in the presence of excess of oxygen) does not result in the change of hybrid state of C-atom?  
 (1)  $\text{CH}_4$  (2)  $\text{CH}_2 = \text{CH}_2$   
 (3)  $\text{CH}_3 - \text{CH}_3$  (4)  $\text{HC} \equiv \text{CH}$
68. Which of the following has the lowest heat of hydrogenation per mole?  
 (1) cis-2-butene (2) trans 2-butene  
 (3) 1-butene (4) 1,3-butadiene
69. When chloroform reacts with excess of benzene in the presence of  $\text{AlCl}_3$ , the product formed is  
 (1) 1,1,1-trichloroethane  
 (2) Trichlorophenyl methane  
 (3) Triphenylmethane  
 (4) Triphenylchloromethane
70. Neopentyl chloride on dehydrohalogenation using low concentration of base yields mainly  
 (1) 2-methyl but-2-ene  
 (2) 2-methyl but-1-ene  
 (3) 3-methyl but-1-ene  
 (4) 2-pentene
71. Which of the following statement is **incorrect**?  
 (1) Chlorobenzene is more reactive than benzene towards electrophilic substitution reactions  
 (2) C – Cl bond in chlorobenzene is less polar than in  $\text{CH}_3\text{Cl}$   
 (3) Chlorobenzene is less reactive than  $\text{CH}_3\text{Cl}$  towards nucleophilic substitution reactions  
 (4) In chlorobenzene further electrophilic substitution takes place at ortho and para position

72. The product (Z) in the following sequence of reactions is



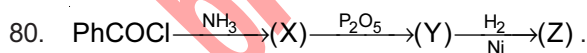
- (1) Aspirin (2) Salicylaldehyde  
(3) Benzoic acid (4) Salicylic acid
73. Increasing order of acidic strength is
- (1) Ethanol, iso-propanol, tert-butanol  
(2) Tert-butanol, iso-propanol, ethanol  
(3) Iso-propanol, tert-butanol, ethanol  
(4) Tert-butanol, ethanol, iso-propanol
74. Which of the following will be least soluble in sodium carbonate solution?



- (1)  $\text{RMgX}/\text{H}_2\text{O}$  (2)  $(\text{CH}_2\text{OH})_2$   
(3)  $\text{ROR}'$  (4)  $\text{RH}/\text{H}_2\text{O}$
76.  $\text{C}_3\text{H}_8\text{O} \xrightarrow{[\text{O}]} \text{C}_3\text{H}_6\text{O} \xrightarrow{\text{I}_2/\text{NaOH}} \text{CHI}_3$   
(Z)
- Starting compound (Z) is
- (1) 1-propanol (2) 2-propanol  
(3) Propanal (4) Ethyl methyl ether
77. Mixture of  $\text{HCHO}$  and  $(\text{CH}_3)_3\text{C}-\text{CHO}$  on reaction with  $\text{NaOH}$  gives a mixture of
- (1)  $\text{HCOONa}$  and  $(\text{CH}_3)_3\text{C}-\text{COONa}$   
(2)  $\text{CH}_3-\text{OH}$  and  $(\text{CH}_3)_3\text{C}-\text{COONa}$   
(3)  $\text{CH}_3-\text{OH}$  and  $(\text{CH}_3)_3\text{C}-\text{CH}_2-\text{OH}$   
(4)  $\text{HCOONa}$  and  $(\text{CH}_3)_3\text{C}-\text{CH}_2-\text{OH}$

78. A compound (Y) is formed when acetaldehyde condenses with ethylamine. (Y) on further catalytic hydrogenation will yield

- (1) Ethyl methyl amine  
(2) Diethylamine  
(3) n-butylamine  
(4) Trimethylamine
79. An aliphatic amine with molar mass 73 on heating with excess of  $\text{CH}_3\text{I}$  gave a quaternary salt. Which of the following amine follow this data?
- (1) N,N-diethylethanamine  
(2) N-methylpropanamine  
(3) 2-propanamine  
(4) Neopentylamine



(Z) as a major product is

- (1) Benzoic acid (2) Aniline  
(3) Benzylamine (4) Benzonitrile
81. Which of the following is used in the preparation of nylon?
- (1) Adipic acid (2) Butadiene  
(3) Isoprene (4) Ethylene
82. In metallurgical process the flux used for removing acidic impurities is
- (1) Silica  
(2) Sodium chloride  
(3) Lime stone  
(4) Sodium carbonate
83. Which of the following carbonates decomposes most readily on heating?
- (1)  $\text{Na}_2\text{CO}_3$   
(2)  $\text{K}_2\text{CO}_3$   
(3)  $\text{Li}_2\text{CO}_3$   
(4)  $\text{CaCO}_3$
84. The **incorrect** statement about tetracyanonickelate(II) ion is
- (1) It is a divalent anion  
(2) The hybrid state of Ni is same as that in  $\text{Ni}(\text{CO})_4$   
(3) It is a low spin complex  
(4) It is diamagnetic in nature

85. In the formation of tetramine zinc (II) cation, the hybrid orbitals used by Zn ion is
- $sp^3d$
  - $dsp^2$
  - $sp^3$
  - $dsp^3$
86. Which product will not be formed when potassium chlorate is treated with conc.  $H_2SO_4$ ?
- $ClO_2$
  - $HClO_4$
  - $KHSO_4$
  - $Cl_2$
87. Which of the following statement/s is/are correct for the manufacture of sulphuric acid by contact process?
- $V_2O_5$  is used for catalytic oxidation of S to  $SO_3$
  - $SO_3$  is absorbed in concentrated sulphuric acid
  - $SO_3$  is directly absorbed in water
  - Both (1) & (2)
88. Which of the following is non-reducing in nature?
- Sucrose
  - Cellulose
  - Maltose
  - Both (1) & (2)
89. When  $NH_3$  and sodium hypochlorite are allowed to react, it forms
- $NH_4Cl$
  - $NH_2OH$
  - $NH_2 - NH_2$
  - $N_2$
90. Which statement is not true about  $N_2O_5$ ?
- It is anhydride of  $HNO_3$
  - In solid state it exists as  $NO_2^+NO_3^-$
  - It is structurally similar to  $P_4O_{10}$
  - It can be prepared by heating  $HNO_3$  over  $P_2O_5$

## BOTANY

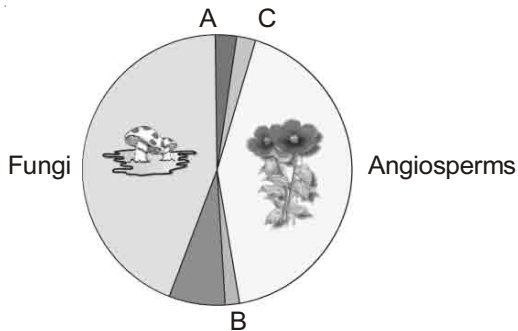
91. Read the following four statements (A – D) w.r.t. gibberellins (GAs) .
- Some GAs are acidic
  - They delay senescence
  - Used to increase the length of grapes stalks
  - Promote bolting just after flowering
- How many of the above statements are wrong?
- One
  - Two
  - Three
  - Four
92. Select the **incorrect** match
- Terpenes – IAA
  - Climacteric ripening – Ethylene
  - Adenine derivatives – Kinetin
  - Carotenoids – Absciscic acid
93. Which hormone initiates germination in peanut seeds?
- Gibberellins
  - Auxins
  - Absciscic acid
  - Ethylene
94. Which of these is ultimately responsible for enlargement and extension growth of a plant cell?
- Osmotic pressure
  - Turgor pressure
  - Diffusion pressure deficit
  - Osmotic potential
95. Which of the following is the limiting nutrient for both natural and agricultural ecosystem?
- Nitrogen
  - Carbon
  - Potassium
  - Boron
96. According to mass flow hypothesis of phloem transport
- Sucrose is loaded actively in phloem sieve tube directly from mesophyll cells
  - Loading of sugar at source produces hypotonic condition
  - Turgor pressure gradient between source and sink has no role in phloem transport
  - Loading of the phloem sets up a water potential gradient that facilitates movement of sugar in mass
97. During nitrogen fixation in root nodule
- Most of the process take place in aerobic environment
  - The energy ATP required is provided by the respiration of the host cells and bacteroids both
  - Rhizobium* become anaerobic
  - 8  $e^-$  and 8  $H^+$  are required to produce one molecule of ammonia

98. Which of the following photosynthetic experiment shows that the colour that we see in leaves is not due to single pigment but due to four pigments?
- Spectrophotometry
  - Autoradiography
  - Ultracentrifugation
  - Paper chromatography
99. During photorespiration, the decarboxylation reaction occurs in
- Peroxisomes
  - Mitochondria
  - Chloroplast
  - Chloroplast of bundle sheath cell
100. Translation can begin much before the mRNA is fully transcribed hence both of these are said to be coupled. This can be observed in
- Saccharomyces*
  - Oryza*
  - E.coli*
  - Drosophila*
101. Which one of the following trait is recessive in garden pea?
- Yellow seed colour
  - Green pod colour
  - Axial flower position
  - Green seed colour
102. Select the **incorrect** statement w.r.t. Klinefelter's syndrome
- Individual is sterile
  - Overall masculine development
  - Development of breast is also expressed
  - Chromosome complement is AA+, XXY i.e. monosomy of X
103. Phenylketonuria is inborn error of metabolism inherited as the
- X-linked dominant trait
  - X-linked recessive trait
  - Autosomal recessive trait
  - Autosomal dominant trait
104. Read the following statements w.r.t. human genome project and select wrong statement.
- Scientists have identified about 1.4 million locations where SNPs occur
  - Less than 2 percent of the genome codes for proteins
  - The human genome contains 3164.7 billion nucleotide bases
  - The total number of genes is estimated at 30,000
105. Which of the following is **incorrect** w.r.t. anemophily?
- Well exposed stamens
  - Pollen grains are light and sticky
  - Feathery stigma to trap pollen grains
  - It is quite common in grasses
106. A mere \_\_\_\_\_ percent impurities make domestic sewage unfit for human use
- 1
  - 0.1
  - 2.5
  - 20
107. For controlling vehicular air pollution, all the buses of Delhi were converted to run on CNG by the end of
- 2004
  - 2002
  - 2000
  - 2003
108. During mutation if a purine is replaced by pyrimidine then it is called
- Inversion
  - Transition
  - Transversion
  - Translocation
109. In mitochondrial electron transport system
- Number of ATP molecules synthesised does not depend on nature of electron donor
  - Ubiquinone receives reducing equivalents via FADH<sub>2</sub> also
  - Cytochrome c is a large protein attached to outer surface of inner mitochondrial membrane
  - Complex IV has cyt. a and cyt. a<sub>3</sub> but no copper centres
110. Electronic wastes generated in developed countries are recycled in developing countries to recover the metals, **except**
- Gold
  - Iron
  - Silver
  - Copper
111. Which of the following ecological factor is ecologically most relevant that influences life of organisms?
- Temperature
  - Light
  - Soil
  - Water
112. Decomposition is inhibited during
- Warm and moist environment
  - Low temperature and anaerobiosis
  - Warm and aerobic environment
  - Neutral and slightly acidic condition

113. GFC is the major conduit for energy flow in

- (1) Grassland ecosystem
- (2) Forest ecosystem
- (3) Pond ecosystem
- (4) Desert ecosystem

114. In the following pie chart of global plants diversity, what does A, B and C represent respectively?



- (1) Mosses, ferns and lichens
- (2) Ferns, mosses and lichens
- (3) Mosses, lichens and ferns
- (4) Lichens, ferns and mosses

115. In India, the Air (Prevention and control of Pollution) act came into force in 1981, but was amended in \_\_\_\_\_ to include noise as an air pollutant.

- |          |          |
|----------|----------|
| (1) 1974 | (2) 1989 |
| (3) 1987 | (4) 1988 |

116. Select the **incorrect** match w.r.t. number of biodiversity rich regions in India.

- |                          |       |
|--------------------------|-------|
| (1) National parks       | : 90  |
| (2) Biosphere reserves   | : 15  |
| (3) Hot spots            | : 3   |
| (4) Wildlife sanctuaries | : 448 |

117. Gemmae are

- (1) Non-green, multicellular structures
- (2) Developed in small receptacles on dorsal side of thallus
- (3) Non-green asexual bud on ventral side of thallus
- (4) Diploid vegetative structure on sporophyte

118. The Indian Agricultural Research Institute, New Delhi has released vitamin C rich variety of

- (1) Spinach
- (2) Carrots
- (3) Pumpkin
- (4) Bitter gourd

119. In maize, stem borers are unable to cause destruction of crop due to

- (1) Hollow stem
- (2) Low nitrogen and sugar content
- (3) High nitrogen and sugar content
- (4) Low aspartic acid

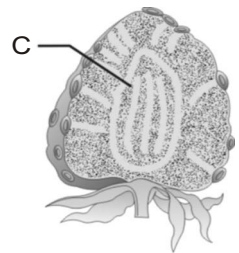
120. Choose **incorrect** option w.r.t. glycolysis

- (1) Substrate for this is derived from end product of photosynthesis i.e. sucrose
- (2) ATP is utilised at two steps in a chain of ten reactions
- (3) Two redox – equivalents are removed from PGAL in the form of two H-atoms
- (4) Conversion of DPGA to 3-PGA is not an energy yielding process

121. Examine the figures (i) & (ii) given below and select the right option out of 1-4, in which all the three structure A, B and C are identified correctly.



(i)



(ii)

**A**

**B**

**C**

- |               |           |          |
|---------------|-----------|----------|
| (1) Endosperm | Cotyledon | Thalamus |
| (2) Cotyledon | Micropyle | Thalamus |
| (3) Cotyledon | Endosperm | Thalamus |
| (4) Cotyledon | Endosperm | Seed     |

122. Mesosome helps in all the following processes **except**

- (1) Cell wall formation
- (2) Synthesis and secretion of proteins
- (3) DNA replication
- (4) Respiration

123. Consider the following statements w.r.t. golgi apparatus and select the right choice.

- a. Fixed number of cisternae are present
  - b. The cisternae are concentrically arranged away from nucleus
  - c. The cis and trans faces are interconnected
  - d. It is important site of formation of glycolipids
- (1) a and b are correct    (2) c and d are correct  
(3) Only d is correct    (4) b, c and d are correct

124. Select the **incorrect** statement w.r.t. centrioles

- (1) Cartwheel like organisation
- (2) They are made up of nine evenly spaced peripheral fibrils of tubulin
- (3) The central part is non-proteinaceous and called the hub
- (4) They form the basal body of cilia or flagella

125. The homologous chromosomes separate, while sister chromatids remain associated at their centromeres during

- (1) Anaphase I
- (2) Anaphase II
- (3) Diplotene
- (4) Diakinesis

126. Bark is non technical term which refers to a number of tissues types, viz.,

- (1) Periderm and secondary xylem
- (2) Periderm and secondary phloem
- (3) Secondary xylem and secondary phloem
- (4) Periderm and vascular cambium

127. Select **incorrect** match

- (1) Monocot root – Large and well developed pith
- (2) Monocot stem – Water containing cavities
- (3) Dicot stem – Collenchymatous hypodermis
- (4) Dicot root – Many xylem bundles

128. Plant taxon like solanaceae and convolvulaceae can be grouped together in which one of the following categories?

- (1) Genus
- (2) Order
- (3) Class
- (4) Family

129. Flowers are actinomorphic in

- (1) Tomato, chilli and gulmohur
- (2) Onion, pea and potato
- (3) Garlic, potato and mustard
- (4) *Datura*, tomato and *Sesbania*

130. Which one of the following statements is **correct**?

- (1) In tomato, seeds are endospermous
- (2) Placentation in *Dianthus* is basal
- (3) Stamens are epipetalous in lily
- (4) Epigynous flowers are found in mustard

131. Fungus with septate mycelium, parasitic to potato crop and can reproduce by asexual spores only is

- (1) *Phytophthora*
- (2) *Alternaria*
- (3) *Claviceps*
- (4) *Ustilago*

132. Bottled fruit juices bought from the market are clearer as compared to those made at home because these are clarified by the use of

- (1) Pectinases and proteases
- (2) Streptokinase
- (3) Lipases
- (4) Pectinase only

133. Read the following statement having two blanks (A and B)

“ A is a variety of B resistance to aphids.

The correct option for the two blanks is

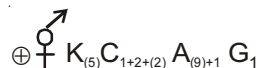
| A                | B               |
|------------------|-----------------|
| (1) Pusa Komal   | Cowpea          |
| (2) Pusa Sawani  | Okra            |
| (3) Pusa Gaurav  | <i>Brassica</i> |
| (4) Pusa Swarnim | <i>Brassica</i> |

134. Choose **incorrect** statement w.r.t. viruses

- (1) All viruses are obligate parasite
- (2) No viruses contain both RNA and DNA
- (3) Capsid is made of small subunits called capsomeres
- (4) Genetic material in animal viruses is dsDNA only

135. Consider the following four statements A, B, C and D and select the right option.

- A. In monodelphous condition, the stamens may be united into one bunch or one bundle
- B. In tomato flower, the placentation is parietal
- C. The floral formula for fabaceae is



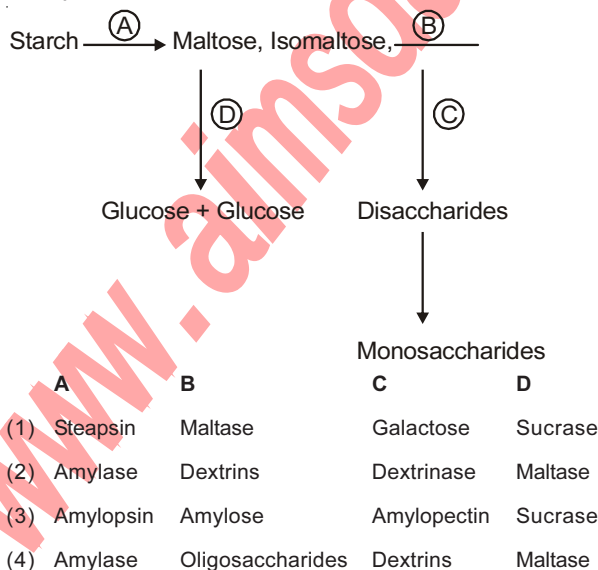
- D. In *Calotropis*, the aestivation is valvate

The correct statements are

- (1) A & D
- (2) B & C
- (3) A & C
- (4) C & D

# ZOOLOGY

136. Blood vascular system of cockroach is of open type because of which?
- (1) Cockroach is cursorial, nocturnal and omnivorous
  - (2) Visceral organs located in haemocoel are bathed in blood
  - (3) Blood plays no role in distribution of respiratory gases to tissues
  - (4) Excretory waste released from body of cockroach in the form of uric acid
137. Among the given statements one is wrong for competitive inhibition
- (1) Competitive inhibition is often used to control bacterial pathogens
  - (2) Competitive inhibitors closely resemble the substrate in its molecular structure
  - (3) Competitive inhibitors link to the enzyme through covalent linkage
  - (4) Competitive inhibitors do not affect  $V_{\max}$  of the reaction if  $K_m$  of the reaction is increased
138. The following statements w.r.t. salivary secretion released by salivary glands are correct, **except**
- (1) Prevent bacterial growth in buccal cavity due to presence of lysozyme and thiocyanate ions
  - (2) Cause hydrolysis of starch upto about 30% in buccal cavity
  - (3) Absence of positively charged ions
  - (4) Fall abruptly during emergency situations
139. Complete the reaction



140. Substances like fructose and some amino acids are absorbed with the help of carrier ions like  $\text{Na}^+$ . This mechanism is called
- (1) Diffusion
  - (2) Active only
  - (3) Antiport
  - (4) Facilitated transport
141. How much  $\text{CO}_2$  is delivered by 5 l of blood to alveoli?
- (1) 500 mL
  - (2) 40 mL
  - (3) 200 mL
  - (4) 1 L
142. Binding of oxygen with haemoglobin is primarily dependent upon
- (1) RBC number
  - (2) Partial pressure of oxygen
  - (3) Concentration of  $\text{H}^+$  in plasma
  - (4) Diffusing capacity
143. Given below are four statements (I-IV) regarding human blood circulatory system
- (I) Veins possess thick walls and a narrow lumen
  - (II) In the treatment of angina NO and nitroglycerine is recommended
  - (III) Duration of cardiac cycle can be altered depending on metabolic needs of a person
  - (IV) Heart failure can be treated with the help of pacemakers
- How many of the above are correct statements?
- (1) I only
  - (2) II & III
  - (3) III & IV
  - (4) I & IV
144. In a standard ECG, the T alphabet is used to denote
- (1) Depolarisation of atria
  - (2) Depolarisation of AV node
  - (3) Repolarisation of ventricles
  - (4) Start of atrial systole
145. Antidiuretic hormone does not deal with
- (1) Vasoconstriction of blood vessels
  - (2) Prevention of diuresis
  - (3) Excitation of osmoreceptors on detecting increase in body fluid volume
  - (4) Increase in water absorption from DCT and collecting duct

146. The collecting duct serves to concentrate the urine as it is
- (1) Capable of the selective absorption of  $H^+$  and  $K^+$  ions
  - (2) Capable of allowing passage of small amounts of urea into the medullary interstitium
  - (3) Capable of absorbing  $HCO_3^-$  ions from urine in exchange of  $NH_4^+$
  - (4) Highly reabsorptive for substances like glucose, amino acids etc.
147. Aerobic muscles are characterised by
- (1) Absence of Z-lines
  - (2) Presence of plenty of mitochondria
  - (3) Absence of T-tubules
  - (4) Absence of myoglobin
148. The cardiac muscle fibres
- (1) Show absence of T-tubules
  - (2) Are unstriated
  - (3) Show abundance of calcium channels in their membrane
  - (4) Show inability to utilise lactic acid
149. In which one of the following the genus name, its two characters and its class/phylum are **correctly** matched?

| Genus name           | Two characters                                       | Class/phylum   |
|----------------------|------------------------------------------------------|----------------|
| (1) <i>Pteropus</i>  | (a) Body covered by hair<br>(b) Oviparous            | Reptiles       |
| (2) <i>Chameleon</i> | (a) Pentadactyl limbs<br>(b) Prehensile tail         | Reptiles       |
| (3) <i>Torpedo</i>   | (a) Electric organs<br>(b) Four pairs of gill slits  | Chondrichthyes |
| (4) <i>Scoliodon</i> | (a) Lateral line system<br>(b) Ampullae of Lorenzini | Osteichthyes   |

150. Mark the correct option for tissue, location and function

| Tissue                                 | Location                | Function                                                 |
|----------------------------------------|-------------------------|----------------------------------------------------------|
| (1) Reticular tissue                   | Spleen                  | Support                                                  |
| (2) Brush bordered cuboidal epithelium | PCT                     | Fast absorption                                          |
| (3) Neurosensory epithelium            | Taste buds and cornea   | Conversion of all types of stimuli to electrical stimuli |
| (4) Glandular epithelium               | Lining of blood vessels | To handle blood pressure                                 |

151. Types of joint present between occipital and Atlas vertebra is
- (1) Pivot joint
  - (2) Ball and socket
  - (3) Condylloid joint
  - (4) Saddle joint
152. In eye, the blind spot is where
- (1) Sharpest point of vision is present
  - (2) Electrical signals leave eye ball for brain
  - (3) Macula lutea is present carrying maximum number of cones
  - (4) Ora serrata accepts the electrical signals
153. One amongst the following hormones in excess is considered as diabetogenic hormones
- (1) Insulin
  - (2) Cortisol
  - (3) Thyroxine
  - (4) Aldosterone
154. Hormone responsible for promotion of cell division, protein synthesis and bone growth is
- (1) Cortisol
  - (2) GH
  - (3) Calcitonin
  - (4) Thymosin
155. Pineal gland secretes a hormone melatonin, plays a very important role in the following, **except**
- (1) Regulate diurnal rhythm of our body
  - (2) Regulate body temperature
  - (3) Deal with skin pigmentation
  - (4) Stimulate gonadal function
156. The process of formation of a mature female gamete is called oogenesis, for which one amongst the following statements is incorrect?
- (1) A primary follicle carries primary oocyte that has entered meiosis I
  - (2) The primary follicle surrounded by many layers of granulosa cells and a new theca is called secondary follicle
  - (3) At puberty about 60,000–80,000 primary follicles are lost by atresia
  - (4) After the formation of tertiary follicle the primary oocyte completes its first meiotic division
157. The proliferative phase of periodic cycle is not characterised by
- (1) Sudden spurt in the level of LH towards its end
  - (2) Rise in temperature of body
  - (3) Release of secondary oocyte from ovary towards its end
  - (4) Change in the nature of cervical mucus

158. One amongst the following may not be considered as the significance of fertilisation
- (1) It provides the stimulus for completion of meiosis II
  - (2) Fertilisation increases metabolic activity of the egg
  - (3) It brings about cortical and zona reactions which change the plasma membrane as well as zona pellucida chemically so as to prevent entry of another sperm
  - (4) It ensures ability of sperm to fertilise egg due to removal of capacitation factors
159. Cleavage is characterised by
- (1) Long interphase
  - (2) Normal DNA replication but no synthesis of other cell constituents in substantial amount
  - (3) Normal oxygen consumption
  - (4) Maintenance of cell size *i.e.*, equal to that of parent cell
160. One amongst the following structures is of endodermal origin
- (1) Liver
  - (2) Tendons
  - (3) Neuro-hypophysis
  - (4) Dentine of teeth
161. Placenta also acts as an endocrine tissue and produces several hormones. Mark the hormones which is not secreted by placenta.
- (1) Human chorion gonadotropin
  - (2) Human placental lactogen
  - (3) Estrogen
  - (4) Inhibin
162. A user taking MALA-D as contraceptive will not show
- (1) Inhibition of ovulation
  - (2) Alternation of uterine endometrium
  - (3) Inhibition of motility and secretory activity of fallopian tubes
  - (4) Absence of periodic cycles
163. One amongst the following may not be considered as the outcome of an undetected STD
- (1) Pelvic inflammatory diseases
  - (2) Ectopic pregnancies
  - (3) Abortions and still births
  - (4) Lactational amenorrhoea
164. Multiload 375 inserted in uterus of a female will not
- (1) Release Cu ions in uterus that suppress sperm motility
  - (2) Increase phagocytosis of sperms within uterus
  - (3) Interfere with fertilisation capacity of sperm
  - (4) Act as a physical barrier between the sperm and ovum
165. Following examples show analogy, **except**
- (1) Eye of *octopus* and eye of mammal
  - (2) Flippers of *penguins* and *Dolphins*
  - (3) Sweet potato and potato
  - (4) Thorn of *Bougainvillea* and tendril of *cucurbita*
166. The common ancestors of seed ferns and progymnosperms are \_\_\_\_\_ that appeared towards the end of \_\_\_\_\_ period.
- (1) Chlorophyta, Devonian
  - (2) Psilophyton, Silurian
  - (3) Sphenopsids, Carboniferous
  - (4) Zosterophyllum, Jurassic
167. Adaptive radiation of a species in an isolated geographical area is possible when
- (1) Biotic potential of the species is limited
  - (2) The resource is unlimited and superior competitors are absent
  - (3) Reproductive fitness of all the resident species is comparable
  - (4) Nature is favourable to one extreme of a trait in an array of phenotypes
168. Darwinian concept of evolution does not pertain to
- (1) Reproductive fitness of species
  - (2) Origin of species by natural selection
  - (3) Germinal nature of variations
  - (4) Resource serving as limiting factor to check population
169. Development of new species occurs due to
- (1) Isolation and mutation
  - (2) Competition and mutation
  - (3) Isolation and competition
  - (4) Competition and variation

170. The vaccine against typhoid fever contains
- (1) Polysaccharide from *Salmonella typhi*
  - (2) Killed or attenuated *Salmonella typhi*
  - (3) Purified toxin
  - (4) Polysaccharide from *Salmonella* conjugated with protein
171. Choose the odd one
- (1) Salk polio vaccine      (2) Rabies vaccine
  - (3) Diphtheria vaccine      (4) Pertussis vaccine
172. The pair of disease caused by virus
- (1) Polio, Typhoid      (2) Diphtheria, Measles
  - (3) Dengue, Mumps      (4) Amoebiasis, Influenza
173. The ampicillin resistance gene in pBR322 is recognised by
- (1) Sal I      (2) Pst I
  - (3) Hind III      (4) Bam HI
174. Allergens in the environment on reaching human body stimulate cells in certain individuals that leads to release of excessive amounts of inflammatory chemicals. The cells under consideration are
- (1) B-lymphocytes      (2) NK cells
  - (3) Mastocytes      (4) Neutrophils
175. Bt cotton is
- (1) The cotton damaged by *Bacillus thuringiensis*
  - (2) Cotton that possesses pesticidal property
  - (3) Genetically engineered cotton that carries to activate RNAi genes
  - (4) A variety of cotton that contains an active insecticidal toxin in its cells

176. Introduction of Hirudin synthesising gene in *Brassica napus* and its isolation from its seeds is an example of
- (1) Molecular diagnosis      (2) Molecular farming
  - (3) Biopotency      (4) Biopiracy
177. The ability of *Agrobacterium tumefaciens* to behave as a natural genetic engineer is because of
- (1) Its ability to secrete opines
  - (2) Its ability to link its prokaryotic DNA with Eukaryotic DNA without human interference
  - (3) Its ability to infect injured dicot plants
  - (4) Presence of vir gene in its Ti plasmid, that produces tumour

178. The Pallindromic sequence
- $$\begin{array}{c} \downarrow \\ 5' \text{GTCGAC} 3' \\ 3' \text{CAGCTG} 5' \\ \uparrow \end{array}$$
- is identified by

- (1) Hind III      (2) Sal I
- (3) Hae III      (4) Sma I

179. A genetically engineered micro-organism used successfully in bioremediation of oil spills is a species of
- (1) *Xanthomonas*      (2) *Pseudomonas*
  - (3) *Bacillus*      (4) *Trichoderma*
180. Immobilised enzymes are generally used for bioreactors in
- (1) Batch process      (2) Digestive process
  - (3) Activation process      (4) Continuous process

## Mock Test - 9

### ANSWERS

|         |         |          |          |          |
|---------|---------|----------|----------|----------|
| 1. (3)  | 37. (3) | 73. (2)  | 109. (2) | 145. (3) |
| 2. (4)  | 38. (1) | 74. (1)  | 110. (3) | 146. (2) |
| 3. (4)  | 39. (2) | 75. (2)  | 111. (1) | 147. (2) |
| 4. (3)  | 40. (3) | 76. (2)  | 112. (2) | 148. (3) |
| 5. (4)  | 41. (1) | 77. (4)  | 113. (3) | 149. (2) |
| 6. (4)  | 42. (2) | 78. (2)  | 114. (3) | 150. (2) |
| 7. (2)  | 43. (2) | 79. (2)  | 115. (3) | 151. (3) |
| 8. (2)  | 44. (2) | 80. (3)  | 116. (2) | 152. (2) |
| 9. (2)  | 45. (2) | 81. (1)  | 117. (2) | 153. (2) |
| 10. (3) | 46. (2) | 82. (3)  | 118. (4) | 154. (2) |
| 11. (4) | 47. (4) | 83. (3)  | 119. (2) | 155. (4) |
| 12. (3) | 48. (1) | 84. (2)  | 120. (4) | 156. (3) |
| 13. (3) | 49. (3) | 85. (3)  | 121. (3) | 157. (2) |
| 14. (3) | 50. (3) | 86. (4)  | 122. (2) | 158. (4) |
| 15. (3) | 51. (4) | 87. (4)  | 123. (2) | 159. (2) |
| 16. (4) | 52. (1) | 88. (4)  | 124. (3) | 160. (1) |
| 17. (2) | 53. (4) | 89. (3)  | 125. (1) | 161. (4) |
| 18. (2) | 54. (2) | 90. (3)  | 126. (2) | 162. (4) |
| 19. (3) | 55. (3) | 91. (3)  | 127. (4) | 163. (4) |
| 20. (3) | 56. (3) | 92. (1)  | 128. (2) | 164. (4) |
| 21. (2) | 57. (3) | 93. (4)  | 129. (3) | 165. (4) |
| 22. (2) | 58. (1) | 94. (2)  | 130. (1) | 166. (2) |
| 23. (3) | 59. (1) | 95. (1)  | 131. (2) | 167. (2) |
| 24. (3) | 60. (2) | 96. (4)  | 132. (1) | 168. (3) |
| 25. (3) | 61. (2) | 97. (3)  | 133. (3) | 169. (1) |
| 26. (1) | 62. (4) | 98. (4)  | 134. (4) | 170. (2) |
| 27. (4) | 63. (1) | 99. (2)  | 135. (1) | 171. (3) |
| 28. (3) | 64. (3) | 100. (3) | 136. (2) | 172. (3) |
| 29. (2) | 65. (4) | 101. (4) | 137. (3) | 173. (2) |
| 30. (3) | 66. (1) | 102. (4) | 138. (3) | 174. (3) |
| 31. (1) | 67. (4) | 103. (3) | 139. (2) | 175. (2) |
| 32. (2) | 68. (4) | 104. (3) | 140. (4) | 176. (2) |
| 33. (3) | 69. (3) | 105. (2) | 141. (3) | 177. (2) |
| 34. (4) | 70. (1) | 106. (2) | 142. (2) | 178. (2) |
| 35. (2) | 71. (1) | 107. (2) | 143. (2) | 179. (2) |
| 36. (2) | 72. (4) | 108. (3) | 144. (3) | 180. (4) |