

**SAMPLE TEST PAPER**

**Do not open this Test Booklet until you are asked to do so.**

**Read carefully the Instructions on the Back Cover of this Test Booklet.**

***Important Instructions :***

1. On the Answer Sheet, fill in the particulars on **Side-1** and **Side-2** carefully with **blue/black** ball point pen only.
2. The test is of **3 hours** duration and this Test Booklet contains **180** questions. Each question carries **4** marks. For each correct response, the candidate will get **4** marks. For each incorrect response, **one mark** will be deducted from the total scores. The maximum marks are **720**.
3. Use **Blue/Black Ball Point Pen only** for writing particulars on this page/marking responses.
4. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5. **On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator before leaving the Room/Hall. The candidates are allowed to take away this Test Booklet with them.**
6. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Roll No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
7. Use of white fluid for correction is **not** permissible on the Answer Sheet.

Name of the Candidate (in Capitals) \_\_\_\_\_

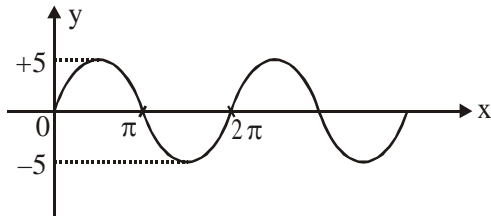
Form Number : in figures \_\_\_\_\_

: in words \_\_\_\_\_

Centre of Examination (in Capitals) : \_\_\_\_\_

Candidate's Signature : \_\_\_\_\_ Invigilator's Signature : \_\_\_\_\_

1.



The graph shown is represented by the equation:-

- (1)  $y = \sin x$                       (2)  $y = 5 \sin x$   
 (3)  $y = \cos x$                       (4)  $y = 5 \cos x$

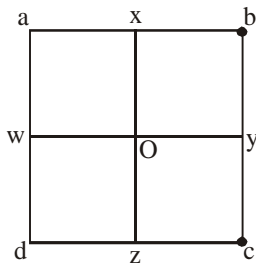
2.

A man can swim with 4 km/hr in still water. How long does he take to cross river 1 km wide if river flows steadily at 3 km/hr and makes his strokes normal to river current ?

- (1) 15 min (2) 10 min (3) 5 min (4) 25 min

3.

A uniform square plate abcd has a mass of 1kg. If two point masses each of 20g are placed at the corners b and c as shown, then the centre of mass shifts on the line :-



- (1) OW (2) OX (3) OY (4) OZ

4.

A body is projected away from the earth with speed  $3V_e$  where  $V_e$  is escape velocity. The speed of body at infinity will be :

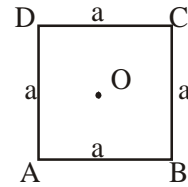
- (1)  $V_e$  (2)  $\sqrt{2}V_e$  (3)  $2V_e$  (4)  $2\sqrt{2}V_e$

5.

A Carnot heat engine has an efficiency of 10%. If the same engine is worked backward to obtain a refrigerator, then find its coefficient of performance.

- (1) 8 (2) 9 (3) 6 (4) 5

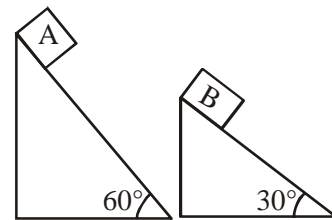
6. If  $\vec{AB} + \vec{AC} + \vec{AD} = n\vec{AO}$ , then  $n = ?$



- (1) 2 (2) 3  
 (3) 4 (4) 5

7.

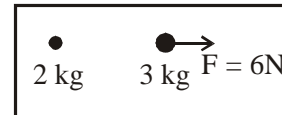
Two fixed frictionless inclined planes making an angle  $30^\circ$  and  $60^\circ$  with the vertical are shown in the figure. Two blocks A and B are placed on the two planes. What is the relative vertical acceleration of A with respect to B :



- (1)  $4.9 \text{ ms}^{-2}$  in vertical direction  
 (2)  $4.9 \text{ ms}^{-2}$  in horizontal direction  
 (3)  $9.8 \text{ ms}^{-2}$  in vertical direction  
 (4) Zero

8.

Two particles are shown in figure. At  $t = 0$  a constant force  $F = 6 \text{ N}$  starts acting on 3 kg. Find the velocity of centre of mass of these particles at  $t = 5 \text{ s}$  :-



- (1) 5 m/s (2) 4 m/s  
 (3) 6 m/s (4) 3 m/s

9.

A rope 1 cm in diameter breaks if the tension in it exceeds 500 N. The maximum tension that may be given to a similar rope of diameter 2 cm is :-

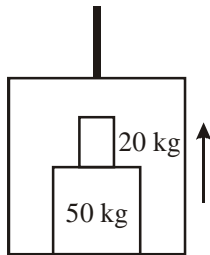
- (1) 500 N (2) 250 N  
 (3) 1000 N (4) 2000 N

10. Which of the following equation does not represent a simple harmonic motion ?  
 (A)  $y = A \sin \omega t + B \cos \omega t$   
 (B)  $y = \cos^3 \omega t$   
 (C)  $y = 10 \cos \left( \frac{3\pi}{2} - \omega t \right)$   
 (D)  $y = 1 + \omega t + \omega^4 t^4$   
 (1) Only (A)  
 (2) Only (D) does not represent SHM  
 (3) Only (B) and (D)  
 (4) Only (B)

11. What is the angle between  $\hat{i} + \hat{j} + \hat{k}$  and  $\hat{i}$  :-

- (1)  $\frac{\pi}{6}$  (2)  $\frac{\pi}{4}$   
 (3)  $\frac{\pi}{3}$  (4) None

12. On the floor of an elevator, a block of mass 50 kg is placed on which another block of mass 20 kg is also placed. The elevator is moving up with a constant acceleration  $1.5 \text{ m/s}^2$  force exerted by 20 kg block on the 50 kg block is nearly :-



- (1) 250 N (2) 230 N  
 (3) 170 N (4) 150 N
13. A body falls on a surface of coefficient of restitution 0.6 from a height of 1 m. Then the body rebounds to a height of :-  
 (1) 0.6 m (2) 0.4 m (3) 1 m (4) 0.36 m
14. A small ball of relative density 0.8 falls into water from a height of 2m. The depth to which the ball will sink is (neglect viscous forces):  
 (1) 8 m (2) 2 m  
 (3) 6 m (4) 4 m

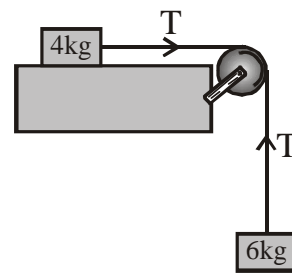
15. If total energy of a oscillation of mass 2 kg is 10J. If its PE at mean position is 5J, find its KE at mean position.

- (1) 10 J (2) 5 J (3) 20 J (4) 15 J

16. The unit of surface tension in SI system is :-

- (1) Dyne/cm<sup>2</sup> (2) Newton/m  
 (3) Dyne/cm (4) Newton/m<sup>2</sup>

17. Two bodies of mass 6 kg and 4 kg are tied to a string as shown in the adjoining figure. If the table is smooth and pulley frictionless, then acceleration of mass 6 kg will be ( $g = 10 \text{ m s}^{-2}$ ) :-



- (1)  $60 \text{ m s}^{-2}$  (2)  $40 \text{ m s}^{-2}$   
 (3)  $6 \text{ m s}^{-2}$  (4)  $4 \text{ m s}^{-2}$

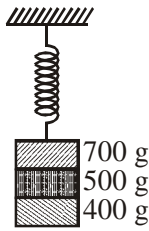
18. A constant torque of 1000 N-m turns a wheel at rest of moment of inertia  $200 \text{ kg-m}^2$  about an axis through its centre. Its angular velocity after 3 sec is -

- (1) 1.5 rad/s  
 (2) 15 rad/s  
 (3)  $\pi$  rad/s  
 (4)  $2\pi$  rad/s

19. Liquid rises to a height of 2 cm in a capillary tube. The angle of contact between the solid and the liquid is zero. The tube is depressed more now so that the top of the capillary is only 1 cm above the liquid. Then, the apparent angle of contact between the solid and the liquid is :

- (1) 0° (2) 30° (3) 60° (4) 90°

20. Three masses 700 gm, 500 gm and 400 gm are suspended at the end of a spring as shown and are in equilibrium. When the 700 gm mass is removed, the system oscillates with a period of 3 seconds; when the 500 gm mass is also removed, it will oscillate with a period of :



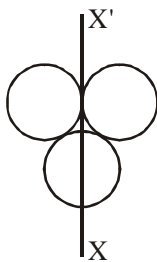
- (1) 1 sec (2) 2 sec (3) 3 sec (4)  $\sqrt{\frac{12}{5}}$  sec

21. The equation of state of some gases can be expressed as  $\left(P + \frac{a}{V^2}\right)(V - b) = RT$ . Here P is the pressure, V is the volume, T is the absolute temperature and a, b, R are constants. The dimensions of 'a' are :-

- (1)  $ML^5T^{-2}$  (2)  $ML^{-1}T^{-2}$   
 (3)  $M^0L^3T^0$  (4)  $M^0L^6T^0$

22. The displacement x of a particle moving in one dimension under the action of a constant force is related to the time t by the equation  $t = \sqrt{x} + 3$ , where x is in meters and t is in seconds. The work done by the force in the first 6 seconds is  
 (1) 9 J (2) 6 J (3) 0 J (4) 3 J

23. Three shells of mass M and radius r are shown. An axis XX' is passing through one diameter and touching the other two spheres. The moment of inertia about it will be :



- (1)  $4 mr^2$  (2)  $\frac{11}{5} mr^2$  (3)  $3 mr^2$  (4)  $\frac{16}{5} mr^2$

24. Two thermometers 'X' & 'Y' shows boiling point & freezing point of water as  $220^\circ X$  &  $20^\circ X$  and  $120^\circ Y$  &  $-40^\circ Y$  respectively. If 'X' shows  $100^\circ X$ , then find the reading in 'Y' thermometer.  
 (1)  $25^\circ Y$  (2)  $50^\circ Y$  (3)  $20^\circ Y$  (4)  $24^\circ Y$

25. A plane progressive wave is represented by the equation  $y = 0.25 \cos(2\pi t - 2\pi x)$ .

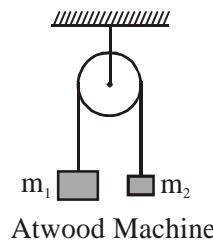
The equation of a wave is with double the amplitude and half frequency but travelling in the opposite direction will be.

- (1)  $y = 0.5 \cos(\pi t - \pi x)$   
 (2)  $y = 0.5 \cos(2\pi t + 2\pi x)$   
 (3)  $y = 0.25 \cos(\pi t + 2\pi x)$   
 (4)  $y = 0.5 \cos(\pi t + \pi x)$

26. The length, breadth and thickness of a metal block is given by  $l = 9$  cm,  $b = 8$  cm,  $t = 2.45$  cm. The volume of the block is :

- (1)  $2 \times 10^2 \text{ cm}^3$  (2)  $1.8 \times 10^2 \text{ cm}^3$   
 (3)  $1.77 \times 10^2 \text{ cm}^3$  (4)  $1.764 \times 10^2 \text{ cm}^3$

27. The two blocks in an Atwood machine have masses 2.0 kg and 3.0 kg. Find the work done by gravity during the fourth second after the system is released from rest :-

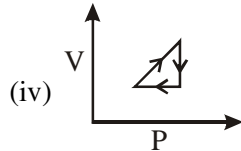
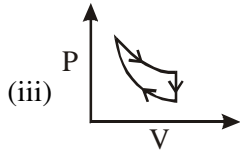
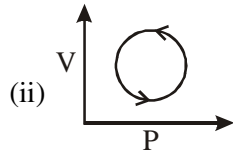
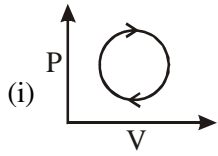


- (1) 70 J (2) 210 J (3) 140 J (4) -140 J

28. The speed of a homogeneous solid sphere after rolling down an inclined plane of vertical height h, from rest without slipping is :-

- (1)  $\sqrt{gh}$  (2)  $\sqrt{\frac{6}{3}gh}$   
 (3)  $\sqrt{\frac{4}{3}gh}$  (4)  $\sqrt{\frac{10}{7}gh}$

29. The following are the P-V diagrams for cyclic processes for a gas. In which of these processes is heat absorbed by the gas ?



- (1) (i), (iii)
- (2) (ii), (iii)
- (3) (iii), (iv)
- (4) (i), (ii), (iii)

30. The displacement produced by a simple harmonic wave is :

$$y = \frac{10}{\pi} \sin 2000\pi t - \frac{\pi x}{17} \text{ cm.}$$

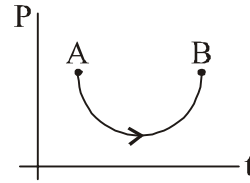
The time period and maximum velocity of the particle will be respectively -

- (1)  $10^{-3}$  second and 200 m/s
- (2)  $10^{-2}$  second and 2000 m/s
- (3)  $10^{-3}$  second and 330 m/s
- (4)  $10^{-4}$  second and 20 m/s

31. Velocity of a body moving along straight line with uniform acceleration reduces by  $\left(\frac{3}{4}\right)$  of its initial value in time  $t_0$ . The total time of motion till its velocity becomes zero is :-

- (1)  $\frac{3}{2}t_0$
- (2)  $\frac{4}{3}t_0$
- (3)  $\frac{5}{3}t_0$
- (4)  $\frac{8}{3}t_0$

32. The net power P of all the forces acting on a particle versus time curve is shown. Work done upon the particle from A to B



- (1) Increases
- (2) Decreases
- (3) First increases then decreases
- (4) First decreases then increases

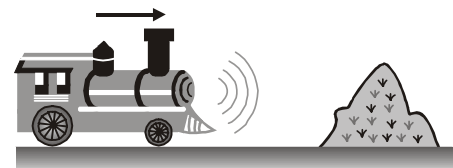
33. A thin circular ring of mass M and radius r is rotating about its axis with a constant angular velocity  $\omega$ . Two objects each of mass m are attached gently to the opposite ends of a diameter of the ring. The ring will now rotate with an angular velocity :-

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

34. The power radiated by a black body is P, and it radiates maximum energy around the wavelength  $\lambda_0$ . If the temperature of the black body is now changed so that it radiates maximum energy around a wavelength  $3\lambda_0/4$ , the power radiated by it will increase by a factor of :-

- (1)  $\frac{4}{3}$
- (2)  $\frac{16}{9}$
- (3)  $\frac{64}{27}$
- (4)  $\frac{256}{81}$

35. An engine approaches a hill with a constant speed. When it is at a distance of 0.9 km it blows a whistle, whose echo is heard by the driver after 5 sec. If speed of sound in air is 330 m/s, the speed of engine is :-



- (1) 10 m/s
- (2) 20 m/s
- (3) 30 m/s
- (4) 40 m/s

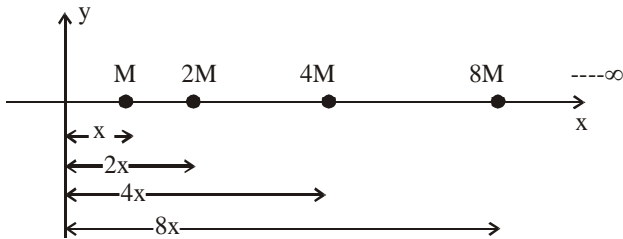
36. A particle is moving from rest with constant acceleration  $4 \text{ m/s}^2$  for some time and then retards with  $2 \text{ m/s}^2$  for some time and finally comes to rest. The total time during the motion is 12 s. The maximum velocity of the particle is :

- (1) 16 m/s (2) 12 m/s (3) 10 m/s (4) 20 m/s

37. Two racing cars of masses  $m_1$  and  $m_2$  are moving in circles of radii  $r_1$  and  $r_2$  respectively. Their speeds are such that each makes a complete circle in the same duration of time  $t$ . The ratio of the angular speed of the first to the second car is :-

- (1)  $m_1 : m_2$  (2)  $r_1 : r_2$   
 (3) 1 : 1 (4)  $m_1 r_1 : m_2 r_2$

38. Find the net gravitational field intensity of the origin:-



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

39. What will be the ratio of temperatures of sun and moon if the wavelengths of their maximum emission radiations rates are  $140 \text{ \AA}$  and  $4200 \text{ \AA}$  respectively :-

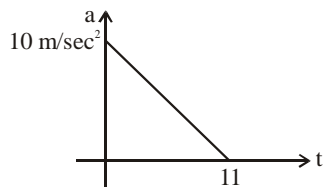
- (1) 1 : 30 (2) 30 : 1  
 (3) 42 : 14 (4) 14 : 42

40. Two tuning forks have frequencies 450 Hz and 454 Hz respectively. On sounding these forks together, the time interval between successive maximum intensities will be :

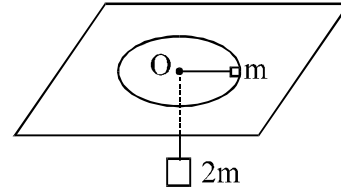
- (1) 1/4 sec (2) 1/2 sec (3) 1 sec (4) 2 sec

41. A particle starts from rest. Its acceleration (a) versus time (t) graph is shown in figure. The maximum speed of the particle will be :-

- (1) 110 m/s  
 (2) 55 m/s  
 (3) 550 m/s  
 (4) 660 m/s



42. A mass  $m$  rotating freely in a horizontal circle of radius 1 m on a frictionless smooth table supports a stationary mass  $2m$ , attached to the other end of the string passing through smooth hole  $O$  in table, hanging vertically. Find the angular velocity of rotation.



- (1)  $\sqrt{5g}$  (2)  $\sqrt{3g}$  (3)  $\sqrt{2g}$  (4)  $\sqrt{g}$

43. At what altitude in metre will the acceleration due to gravity be 25% of that at the earth's surface (Radius of earth =  $R$  metre) :-

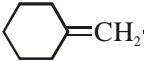
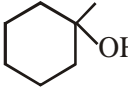
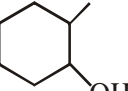
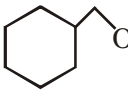
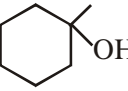
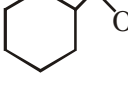
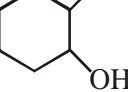
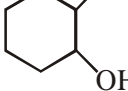
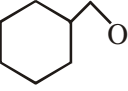

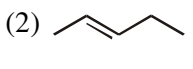
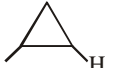
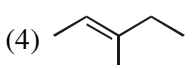
- (1)  $\frac{1}{4}R$  (2)  $R$   
 (3)  $\frac{3}{8}R$  (4)  $\frac{R}{2}$

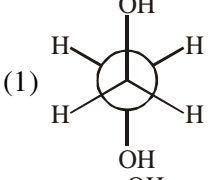
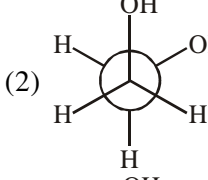
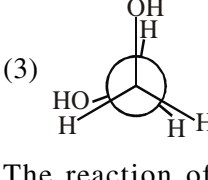
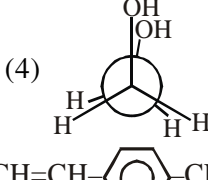
44. Find the approximate number of molecules in vessel of volume 7 litres at  $0^\circ\text{C}$  at  $1.3 \times 10^5$  pascals:

- (1)  $2.4 \times 10^{23}$  (2)  $3 \times 10^{23}$   
 (3)  $6 \times 10^{23}$  (4)  $4.8 \times 10^{23}$

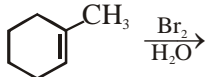
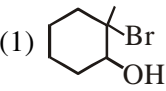
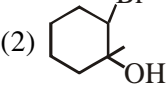
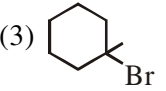
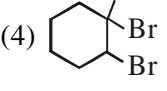
45. A whistle emitting a sound of frequency 440 Hz is tied to a string of 1.5 m length and rotated with an angular velocity of 20 rad/sec in the horizontal plane. Then, the range of frequencies heard by an observer stationed at a large distance from the whistle will be : ( $v = 330 \text{ m/s}$ ) :-

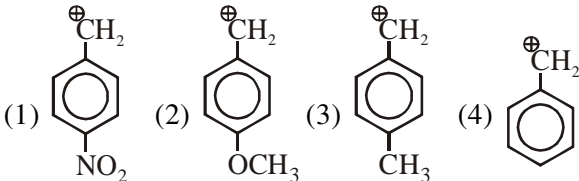
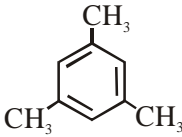
- (1) 400.0 Hz to 484.0 Hz  
 (2) 403.3 Hz to 480.0 Hz  
 (3) 400.0 Hz to 480.0 Hz  
 (4) 403.3 Hz to 484.0 Hz

46. In which orbital does an electron in phosphorus atom. Experience the greatest effective nuclear charge :-  
 (1) 1s (2) 2s (3) 2p (4) 3s
47. Correct order of ionic mobility in water:-  
 (1)  $\text{Be}^{+2} > \text{Ba}^{+2}$  (2)  $\text{Li}^+ > \text{Cs}^+$   
 (3)  $\text{Ca}^{+2} > \text{Mg}^{+2}$  (4)  $\text{Na}^+ > \text{K}^+$
48. Number of cyclic structural isomer with molecular formula  $\text{C}_5\text{H}_{10}$  is :-  
 (1) 4 (2) 5 (3) 6 (4) 7
49. (A)  $\xleftarrow[2.\text{H}_2\text{O}_2/\text{OH}^-]{1.\text{BH}_3, \text{THF}}$    $\xrightarrow[2.\text{NaBH}_4]{1.(\text{CH}_3\text{COO})_2\text{Hg}, \text{H}_2\text{O}}$  (B)
- A and B are respectively :-
- (1)  , 
- (2)  , 
- (3)  , 
- (4)  , 
50. For the reaction  $2\text{Al} + 3\text{MnO} \xrightarrow{\Delta} \text{Al}_2\text{O}_3 + 3\text{Mn}$ ; If 4 mole of Al and 3 mole of MnO are heated then which of the following is incorrect after completion of reaction ?  
 (1) Al is present in excess  
 (2) MnO is present as limiting reagent  
 (3) 2 moles Al remain  
 (4) 1mole MnO is remain
51. Which of following have almost similar size :  
 (1) S, Cl (2) Fe, Cu (3) Cs, Fr (4) I, Br
52. Which of the following molecule contain only two  $\pi$  bonds between carbon atoms ?  
 (1)  $\text{C}_2\text{H}_2$  (2)  $\text{C}_2\text{H}_2\text{Cl}_2$  (3)  $\text{CaC}_2$  (4)  $\text{C}_2$
53. Which of the following does not show geometrical isomer.  
 (1)  (2)   
 (3)  (4) 

54. Most reactive towards EAR in the following compounds :-  
 (1)  $\text{CH}_3-\underset{\text{CH}_3}{\text{C}}=\text{CH}_2$  (2)  $\text{CH}_3-\text{CH}=\text{CH}_2$   
 (3)  $\text{CCl}_3-\text{CH}=\text{CH}_2$  (4)  $\text{CH}_2=\text{CH}-\text{Cl}$
55. One mole of gas absorbs 200 J of heat at constant volume then its temperature rises from 298 K to 308 K. Change in internal energy will be :-  
 (1) 200J (2) -200J (3)  $200 \times \frac{308}{298}$  J (4)  $200 \times \frac{298}{308}$  J
56. Which of the following process will require the maximum amount of energy ?  
 (1)  $\text{K}^+ \rightarrow \text{K}^{+2} + \text{e}^-$  (2)  $\text{Ne} \rightarrow \text{Ne}^+ + \text{e}^-$   
 (3)  $\text{Li}^+ \rightarrow \text{Li}^{+2} + \text{e}^-$  (4)  $\text{Be}^{+2} \rightarrow \text{Be}^{+3} + \text{e}^-$
57. KF combines with HF to form  $\text{KHF}_2$ . The compound contains the species :  
 (1)  $\text{K}^+$ ,  $\text{F}^-$  and  $\text{H}^+$  (2)  $\text{K}^+$ ,  $\text{F}^-$  and HF  
 (3)  $\text{K}^+$  and  $[\text{HF}_2]^-$  (4)  $[\text{KHF}]^+$  and  $\text{F}_2$
58. Which is most stable conformer ?  
 (1)   
 (2)   
 (3)   
 (4) 
59. The reaction of  $\text{CH}_3-\text{CH}=\text{CH}-\text{C}_6\text{H}_4-\text{CH}_3$  with HBr gives .  
 (1)  $\text{CH}_3-\text{CHBrCH}_2-\text{C}_6\text{H}_4-\text{CH}_3$   
 (2)  $\text{CH}_3-\text{CH}_2-\text{CHBr}-\text{C}_6\text{H}_4-\text{CH}_3$   
 (3)  $\text{CH}_3-\text{CHBrCH}_2-\text{C}_6\text{H}_4-\text{OH}$   
 (4)  $\text{CH}_3-\text{CH}_2-\text{CHBr}-\text{C}_6\text{H}_4-\text{Br}$
60. Which electronic arrangement shows ground state of an element :-  
 (1)  $\uparrow \uparrow \uparrow \uparrow \uparrow$  (2)  $\uparrow\downarrow \uparrow\downarrow \uparrow \downarrow \uparrow$   
 (3)  $\uparrow\downarrow \uparrow\downarrow \downarrow \uparrow \uparrow$  (4)  $\uparrow\downarrow \uparrow\downarrow \downarrow \downarrow \downarrow$

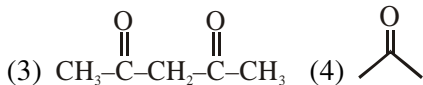


61. Elements of group I give colour in Bunsen flame due to :-  
 (1) Low M. P. (2) Softness  
 (3) Two valence electron (4) Low I. P.
62. Which compound is highly covalent compound?  
 (1) LiF (2) LiCl (3) LiBr (4) LiI
63. The wavelength of  $H_\alpha$  line of Balmer series is  $X \text{ \AA}$ . What is the wavelength of  $H_\beta$  line of Balmer series?  
 (1)  $X \frac{108}{80} \text{ \AA}$  (2)  $X \frac{80}{108} \text{ \AA}$   
 (3)  $\frac{1}{X} \frac{80}{108} \text{ \AA}$  (4)  $\frac{1}{X} \frac{108}{80} \text{ \AA}$
64. What is major product of following reaction ?  
  
 (1)  (2)   
 (3)  (4) 
65. Change in entropy for an ideal gas in reversible isothermal process is given by :-  
 (1)  $2.303 nR \log \frac{V_2}{V_1}$  (2)  $nR \log \frac{V_2}{V_1}$   
 (3)  $nR \log \frac{P_1}{P_2}$  (4) All of these
66. Permanent Hardness of water is due to presence of:-  
 (1)  $\text{CaSO}_4$  (2)  $\text{CaBr}_2$   
 (3)  $\text{MgHCO}_3$  (4)  $(\text{CH}_3\text{COO})_2\text{Ca}$
67. Maximum N-O bond length is in :-  
 (1)  $\text{NO}_2^+$   
 (2)  $\text{NO}_2^-$   
 (3)  $\text{NO}_3^-$   
 (4) All has equal N-O bond length
68. Which of the following is most basic compound in aqueous solution :-  
 (1)  $\text{CH}_3 - \text{NH}_2$  (2)  $(\text{CH}_3)_2\text{NH}$   
 (3)  $(\text{CH}_3)_3\text{N}$  (4)  $\text{NH}_3$
69. Which of the following gas has highest critical temperature.  
 (1)  $\text{CH}_4$  (2)  $\text{C}_2\text{H}_6$  (3)  $\text{N}_2$  (4)  $\text{O}_2$

70. At  $25^\circ\text{C}$ ,  $K_{sp}$  for  $\text{PbBr}_2$  is equal to  $8 \times 10^{-5}$ . If the salt is 80% dissociated, what is the solubility of  $\text{PbBr}_2$  in mol/litre ?  
 (1)  $\left[ \frac{10^{-4}}{1.6 \times 1.6} \right]^{1/3}$  (2)  $\left[ \frac{10^{-5}}{1.6 \times 1.6} \right]^{1/3}$   
 (3)  $\left[ \frac{10^{-4}}{0.8 \times 0.8} \right]^{1/3}$  (4)  $\left[ \frac{10^{-5}}{1.6 \times 1.6} \right]^{1/2}$
71. The chain silicate having general formula  $(\text{SiO}_3)_n^{-2n}$  contain 100 basic unit what will be formula of silicate:-  
 (1)  $\text{Si}_{100}\text{O}_{300}^{-200}$  (2)  $\text{Si}_{100}\text{O}_{300}^{-201}$   
 (3)  $\text{Si}_{100}\text{O}_{301}^{-202}$  (4)  $\text{Si}_{100}\text{O}_{302}^{-200}$
72. Which of the following have maximum no. of  $p\pi-d\pi$  bond ?  
 (1)  $\text{SO}_3$  (2)  $\text{H}_2\text{SO}_4$  (3)  $\text{H}_3\text{PO}_4$  (4)  $\text{HClO}_4$
73. Least stable carbocation is :-  

74. A(g) is 90% converted into B according to the reaction  $\text{A(g)} \rightleftharpoons 3\text{B(g)}$ , then the value of  $\left( \frac{D}{d} \right)$  at this point is :-  
 (1) 1 (2) 2 (3) 2.8 (4) 2.5
75. Ratio of velocities of  $e^\ominus$  of hydrogen atom in  $1^{\text{st}}$ ,  $2^{\text{nd}}$ ,  $3^{\text{rd}}$  orbit is :-  
 (1) 1 : 2 : 3 (2) 1 : 1 : 1  
 (3) 1 : 1/2 : 1/3 (4) 3 : 2 : 1
76. Which of the following is not correct for inorganic benzene :-  
 (1) It is a planer molecule.  
 (2) It has  $p\pi-d\pi$  back bonding  
 (3) It has  $p\pi-p\pi$  back bonding  
 (4) All of the above
77. The total number of  $\sigma$  bond in the following compound :-  
  
 (1) 21 (2) 18 (3) 17 (4) 20



78. Which of the following compound will have most stable enol ?



79. When 3 g of  $\text{C}_2\text{H}_6$  is completely burnt then find out produced volume of  $\text{CO}_2$  at STP :-

- (1) 0.448 L (2) 4.48 L (3) 44.8 L (4) 6 L

80. If a solution has  $\text{P}^{\text{OH}}$  value 12 at  $25^\circ\text{C}$ ,  $\text{H}^+$  concentration should be :-

- (1) 2 (2)  $10^{-2}$  (3)  $10^{-12}$  (4)  $10^{-6}$

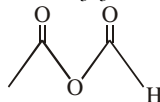
81. The compound  $(\text{SiH}_3)_3\ddot{\text{N}}$  is

(1) Pyramidal & more Basic than  $(\text{CH}_3)_3\ddot{\text{N}}$

(2) Planar & less Basic than  $(\text{CH}_3)_3\ddot{\text{N}}$

(3) Pyramidal & less Basic than  $(\text{CH}_3)_3\ddot{\text{N}}$

(4) Planar & more basic than  $(\text{CH}_3)_3\ddot{\text{N}}$

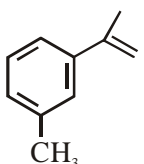
82. The correct IUPAC name is  is :-

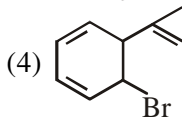
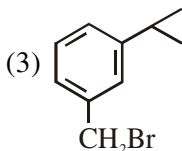
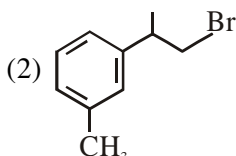
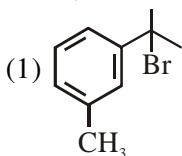
(1) Butane-2,4-dione

(2) Formyl ethanoate

(3) Acetic anhydride

(4) Ethanoic methanoic anhydride

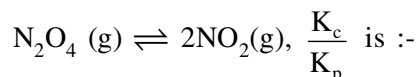
83.   $\xrightarrow[\text{R}_2\text{O}_2]{\text{HBr}}$  Identify the product :-



84. Which of the following acts both as oxidant & reductant :-

- (1)  $\text{H}_2\text{S}$  (2)  $\text{SO}_3$  (3)  $\text{H}_2\text{O}_2$  (4)  $\text{F}_2$

85. For the reaction :



- (1)  $(RT)^2$  (2)  $(RT)^{-2}$   
(3)  $(RT)^1$  (4)  $(RT)^{-1}$

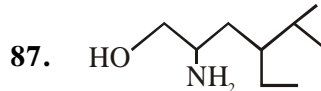
86. Correct relationship for compound  $\text{A}^{-\delta}\text{---B}^{+\delta}$  is :-

(1)  $\text{I.P.}_A + \text{I.P.}_B < \text{E.A.}_A + \text{E.A.}_B$

(2)  $\text{I.P.}_A - \text{E.A.}_B > \text{I.P.}_B - \text{E.A.}_A$

(3)  $\text{I.P.}_A - \text{I.P.}_B > \text{E.A.}_B + \text{E.A.}_A$

(4)  $\text{E.N. (B)} > \text{EN (A)}$



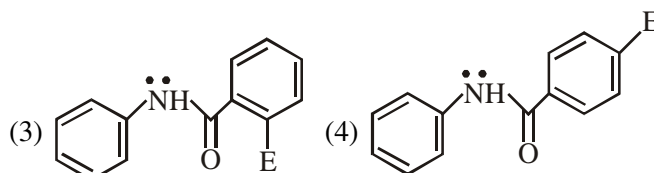
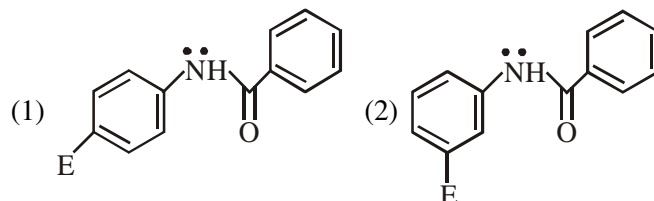
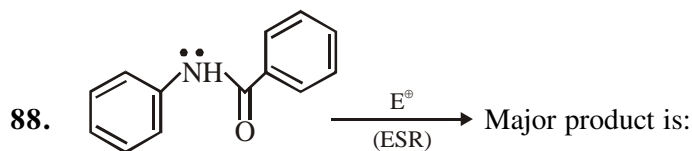
IUPAC name of given compound is :-

(1) 2-Amino-4-ethyl-5-methyl hexan-1-ol

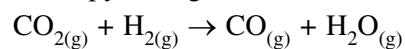
(2) 2-Amino-4-isopropyl-hexan-1-ol

(3) 5-Amino-3-ethyl-2-methyl hexan-6-ol

(4) 4-Ethyl-2-amino-5-methyl hexan-1-ol



89. The  $\Delta H_f$  for  $\text{CO}_{2(\text{g})}$ ,  $\text{CO}_{(\text{g})}$  and  $\text{H}_2\text{O}_{(\text{g})}$  are  $-393.5$ ,  $-110.5$  and  $-241.8$  KJ respectively. The standard enthalpy change for this reaction is.



(1) 524.1 KJ (2) 41.2 KJ

(3)  $-262.5$  KJ (4)  $-41.2$  KJ

90. The compressibility of a gas is greater than unity at 1 atm and 273 K. Therefore :-

(1)  $V_m > 22.4$  L (2)  $V_m < 22.4$  L

(3)  $V_m = 22.4$  L (4)  $V_m = 44.82$  L

91. Identify the plants with their groups :

	A	B	C	D
(1)	<i>Salvinia</i>	<i>Equisetum</i>	<i>Selaginella</i>	Bryophytes
(2)	<i>Selaginella</i>	<i>Salvinia</i>	<i>Equisetum</i>	Pteridophytes
(3)	<i>Pteridium</i>	<i>Salvinia</i>	<i>Selaginella</i>	Bryophytes
(4)	<i>Salvinia</i>	<i>Equisetum</i>	<i>Selaginella</i>	Gymnosperm

92. Which of the following is correctly matched?

- (1) Arena of cellular activity : cytoplasm
- (2) Organelle within organelle : Mitochondria
- (3) Delimiting structure of the animal cell : cell wall
- (4) Controller of cellular activity : Nucleolus

93. Which of the following is not a part of epidermal tissue system?

- (1) Subsidiary cells
- (2) Guard cells
- (3) Passage cells
- (4) Trichoblast cells

94. Vertebral column is not found in :

- (1) *Delphinus*
- (2) *Doliolum*
- (3) *Bufo*
- (4) *Felis*

95. In the resting state of the neural membrane, diffusion due to concentration gradient, if allowed, would drive

- (1)  $K^+$  into the cell
- (2)  $K^+$  and  $Na^+$  out of the cell
- (3)  $Na^+$  into the cell
- (4)  $Na^+$  out of the cell

96. Withdrawal of which of the following hormones is the immediate cause of menstruation?

- (1) Progesterone
- (2) Estrogen
- (3) FSH
- (4) FSH-RH

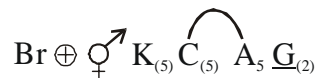
97. Which of the following isn't ammonotelic?

- (1) Bony fishes
- (2) Aquatic amphibians
- (3) Terrestrial amphibians
- (4) Aquatic insects

98. "Bundle of His" is a network of

- (1) Muscle fibres distributed throughout the heart walls
- (2) Muscle fibres found only in the ventricle wall
- (3) Nerve fibres distributed in ventricles
- (4) Nerve fibres found throughout the heart

99. Given floral formula is related to :-

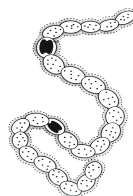


- (1) *Allium capa*
- (2) *Solanum nigrum*
- (3) *Pisum sativum*
- (4) *Colchicum autumnale*

100. Ovary is one chambered but it becomes two chambered due to the formation of false septum in-

- (1) Tomato
- (2) Mustard
- (3) *Dianthus*
- (4) Lemon

101. The figures (a), (b) and (c) are of ?



(a)



(b)



(c)

- (1) (a) – Cyanophyceae – *Nostoc*  
(b) – Phycomycetes–*Aspergillus*  
(c) – Basidiomycetes–*Agaricus*
- (2) (a) – Green Alga – *Nostoc*  
(b) – Deuteromycetes–*Aspergillus*  
(c) – Basidiomycetes–*Agaricus*
- (3) (a) – Red alga – *Nostoc*  
(b) – Ascomycetes–*Aspergillus*  
(c) – Phycomycetes–*Agaricus*
- (4) (a) – Cyanophyceae – *Nostoc*  
(b) – Ascomycetes–*Aspergillus*  
(c) – Basidiomycetes–*Agaricus*

102. Middle lamella is mainly made up of :-

- (1) Calcium pectate
- (2) Cellulose
- (3) Lignin
- (4) Calcium pectate and cellulose

103. In sunflower stem, vascular bundles are –

- (1) open and scattered
- (2) closed and scattered
- (3) open and in a ring
- (4) closed and radial

104. Triploblastic, bilateral symmetry, tube within tube body plan characters are shown by :-

- (1) Cnidarians
- (2) Platyhelminthes
- (3) Aschelminthes
- (4) Sponges

- 105.** Which one of the following statements is correct?  
 (1) Neurons regulate endocrine activity, but not vice versa  
 (2) Endocrine glands regulate neural activity and nervous system regulates endocrine glands  
 (3) Neither hormones control neural activity nor the neurons control endocrine activity  
 (4) Endocrine glands regulate neural activity, but not vice versa
- 106.** Pepsinogen is secreted by  
 (1) Chief cells (2) Parietal cells  
 (3) G-cells (4) Intestinal cells
- 107.** Blood filtered by kidneys on an average per minute is ?  
 (1) 250 – 300 ml (2) 1100 – 1200 ml  
 (3) 500 – 600 ml (4) 600 – 700 ml
- 108.** The value of end systolic volume is :-  
 (1) 120 ml (2) 70 ml  
 (3) 50 ml (4) 5 liter
- 109.** How many plants in the list given below have axile placentation?  
*Petunia*, Potato, Makoi, Onion, *Aloe*, Mustard, Lemon, Primrose, Pea, Sunflower, *Argemone*, Marigold, China rose  
 (1) Four (2) Five (3) Seven (4) Six
- 110.** An example of inferior ovary :-  
 (1) Brinjal (2) China rose (3) Guava (4) Rose
- 111.** How many plants in the list given below are the members of non vascular embryophytes :-  
*Spirogyra*, *Volvox*, *Fucus*, *Polysiphonia*, *Polytrichum*, *Sphagnum*, *Marchantia*, *Funaria*, *Riccia*, *Equisetum*.  
 (1) Six (2) Three (3) Four (4) Five
- 112.** Match the Column I with Column II & select the correct match from the option given below

	Column I		Column II
A.	DNA synthesis	P.	Anaphase I
B.	Centromere division	Q.	S-phase
C.	Disjunction of homologous chromosome	R.	Dikinesis
D.	Terminalization of chiasmata	S.	Anaphase II

- (1) A-Q, B-P, C-S, D-R (2) A-Q, B-S, C-P, D-R  
 (3) A-Q, B-P, C-R, D-S (4) A-Q, B-S, C-R, D-P

- 113.** Isobilateral leaf is present in –  
 (1) Mustard (2) Gram  
 (3) Potato (4) Sorghum
- 114.** Find the incorrect match :-  
 (1) *Planaria* → Great power of regeneration  
 (2) *Euspongia* → Choanocytes  
 (3) *Ancylostoma* → Flame cells  
 (4) *Echidna* → Oviparous
- 115.** Small hyperpolarizing changes in potential at the post synaptic membrane induced by chemical transmitters are  
 (1) inhibitory post-synaptic potentials  
 (2) excitatory post synaptic potentials  
 (3) minimal end plate potentials  
 (4) cumulative post-synaptic potentials
- 116.** Identify the correct set which shows the name of the enzymes from where it is secreted & substrate upon which it acts  
 (1) Pepsin–stomach wall–protein  
 (2) Ptyalin–intestine–maltose  
 (3) Chymotrypsin–salivary gland–lactose  
 (4) Ptyalin–pancreas–lipid
- 117.** PCT and DCT are respectively made of :-

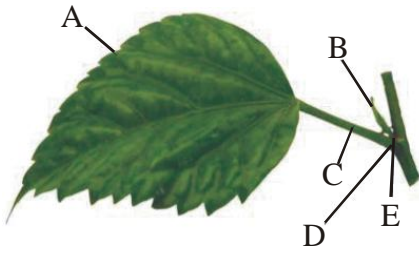
	PCT	DCT
(1)	Simple cuboidal Epithelium	Simple columnar epithelium
(2)	Simple columnar Epithelium	Stratified cuboidal Epithelium
(3)	Brush bordered Simple cuboidal epithelium	Brush bordered simple cuboidal epithelium
(4)	Brush bordered simple cuboidal epithelium	Simple Cuboidal epithelium

- 118.** Match the Column-I with column-II and choose correct option :-

Column-I		Column-II	
(A)	Prop root	(i)	Carrot
(B)	Stilt root	(ii)	Banyan
(C)	Pneumatophore	(iii)	Sugarcane
(D)	Conical root	(iv)	<i>Rhizophora</i>

- (1) A-ii, B-i, C-iii, D-iv (2) A-ii, B-iii, C-iv, D-i  
 (3) A-i, B-ii, C-iii, D-iv (4) A-iii, B-ii, C-i, D-iv

119. Given below is the diagram of leaf. Identify the parts labelled A, B, C, D and E and select the right option about them.



	A	B	C	D	E
(1)	Lamina	Axillary bud	Leaf base	Petiole	Stipule
(2)	Lamina	Axillary bud	Petiole	Leaf base	Stipule
(3)	Lamina	Stipule	Petiole	Leaf base	Axillary bud
(4)	Lamina	Stipule	Petiole	Axillary bud	Leaf base

120. 1<sup>st</sup> step of glycolysis is –  
 (1) Oxidative (2) Reductive  
 (3) Endergonic (4) Exergonic
121. The member of ascomycetes may be  
 (1) Only saprophytic  
 (2) Only parasitic  
 (3) Parasitic or Saprophytic  
 (4) Mostly autotrophic
122. Arrange the following event of meiosis in correct order of their occurrence and select the correct option from option given below  
 (A) Crossing over  
 (B) Synaptonemal complex formation  
 (C) Terminalization of chiasmata  
 (D) Disjunction of homologous chromosomes  
 (E) Arrangement of Bivalent on equatorial plate  
 (F) Poleward movement of daughter chromosomes  
 Options :  
 (1) (B) → (A) → (C) → (D) → (E) → (F)  
 (2) (B) → (A) → (D) → (E) → (C) → (F)  
 (3) (A) → (B) → (C) → (D) → (E) → (F)  
 (4) (B) → (A) → (C) → (E) → (D) → (F)

123. Which of the following is not correct about the monocotyledonous stem?  
 (1) Sclerenchymatous layers below the epidermis  
 (2) Phloem parenchyma is absent  
 (3) Ground tissue is absent  
 (4) Sclerenchymatous bundle sheath
124. Metameric segmentation is found in phylum :-  
 (1) Annelida only  
 (2) Arthropoda only  
 (3) Annelida and arthropoda only  
 (4) Annelida, arthropoda and chordata
125. Vitamin necessary for the proper physiological function of eye is :-  
 (1) B (2) A (3) C (4) D
126. Intestinal villi are more numerous and larger in posterior part of small intestine than in anterior part because –  
 (1) Digestion is faster in posterior part  
 (2) Blood supply is poor in posterior part  
 (3) There is more digested food in posterior part  
 (4) Blood supply is rich in posterior part
127. Identify the incorrect statement  
 (1) Micturition reflex is initiated by stretching of urethra.  
 (2) Henle's loop and vasa recta help maintain concentration gradient of medulla  
 (3) ANF is released from the atria  
 (4) Tubular secretion of H<sup>+</sup> ions helps regulate pH.
128. List of the some plants is given below along with their codes :-  
 A. *Calotropis*  
 B. *Alstonia*  
 C. Mustard  
 Select the correct option in which plants are arranged in ascending order on the basis of number of leaf/leaves at each node.  
 (1) B, C, A (2) A, B, C  
 (3) C, A, B (4) C, B, A

129. Match of the following and choose correct option

	Column-I		Column-II
(A)	Pulvinus	(i)	Sterile stamen
(B)	Pneumatophores	(ii)	Flattened stem
(C)	Staminode	(iii)	Swollen leaf base
(D)	Phylloclade	(iv)	Vertically upwards root

- |     | A     | B     | C    | D     |
|-----|-------|-------|------|-------|
| (1) | (iv)  | (ii)  | (i)  | (iii) |
| (2) | (iii) | (iv)  | (i)  | (ii)  |
| (3) | (iv)  | (iii) | (i)  | (ii)  |
| (4) | (iii) | (iv)  | (ii) | (i)   |

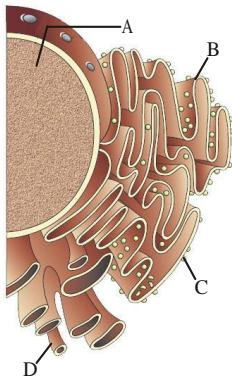
130. In CAM plants which one is CO<sub>2</sub> acceptor during day time for the assimilation into glucose?

- (1) PEP (2) RuBP  
(3) RuMP (4) OAA

131. Cytotaxonomy is based on :

- (1) Cytological information  
(2) Chromosome number  
(3) Chromosome structure and behaviour  
(4) All

132. Four structures in given figure is labelled as A, B, C and D. Which of the following structure is correctly matched with its name and its function?



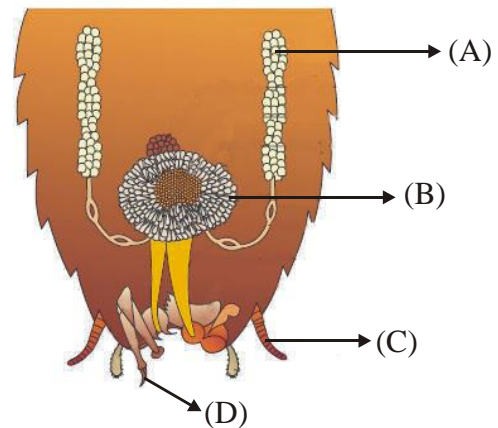
- (1) A : Smooth endoplasmic reticulum : Protein synthesis  
(2) A : Nucleus : Synthesis of mRNAs  
(3) B : Ribosome : Glycoprotein synthesis  
(4) C : Smooth endoplasmic reticulum : Protein synthesis

133. Consider the following four statement (a – d) and select the option which includes all the correct ones only

- (a) Lenticels is formed due to activity of phellogen.  
(b) In dicot stem the vascular cambium is completely secondary in origin.  
(c) The spring wood is darker in colour and has a higher density where as the autumn wood is lighter in colour and has a lower density  
(d) In dicot root endodermis act as a water tight jacket due to casparian strips

- (1) Statement (a), (b) and (c)  
(2) Statement (a), (b) and (d)  
(3) Statement (a) and (d)  
(4) Statement (b) and (c)

134. Study the given figure of male reproductive system of cockroach. Which type of structure represent the Titillator?



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

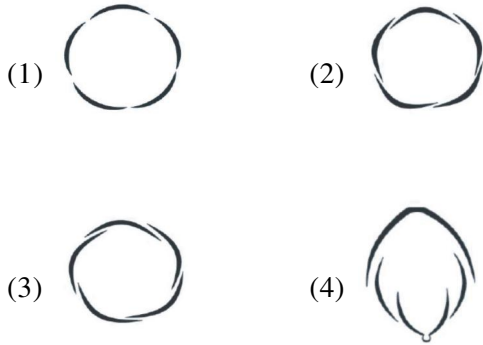
135. In mammalian ear, a membranous structure which separate the scala vestibuli and scala media is

- (1) Basilar membrane (2) Reissner's membrane  
(3) Autolith membrane (4) Tectorial membrane

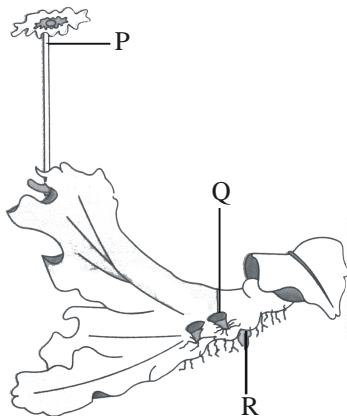
136. Pancreatic juice contains

- (1) Trypsinogen, lipase, pepsin  
(2) Pepsinogen, lipase, maltase  
(3) Trypsinogen, chymotrypsinogen, amylase, lipase  
(4) Trypsinogen, pepsinogen, amylase

137. Human haemoglobin (Hb) is made up of two subunit of  $\alpha$  type and two subunit of  $\beta$  type polypeptide chain, it is a  
 (1) Tertiary structure (2) Quaternary structure  
 (3) Secondary structure (4) Primary structure
138. In which of the following flowers are trimerous?  
 (1) Pea (2) Onion (3) Mustard (4) *Petunia*
139. Which of the following diagram represent the aestivation in lady's finger?



140. Sugarcane, wheat, maize, sorghum, rice, mustard, pea. How many plants from above are  $C_4$  plants?  
 (1) 3 (2) 2 (3) 4 (4) 5
141. In given figures, identify P, Q and R :-

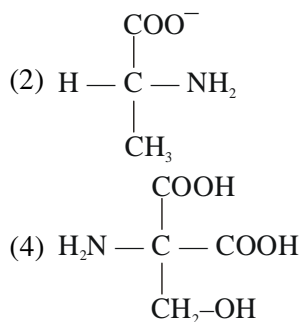
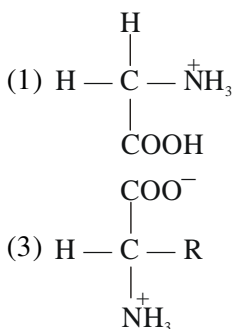


	P	Q	R
(1)	Antheridiophore	Gemma cup	Roots
(2)	Antheridal branch	Capsule	Archegoniophore
(3)	Archegoniophore	Capsule	Rhizoids
(4)	Antheridiophore	Gemma cup	Rhizoids

142. Which of the following is not a significance of mitosis  
 (1) Growth of multicellular organism  
 (2) Constant replacement of cells of upper layer of the epidermis  
 (3) Reduction in chromosome number in daughter cell  
 (4) Continuous growth of plant throughout life
143. In leaves the ground tissues consist of  
 (1) Epidermis (2) Vascular tissue  
 (3) Mesophyll cells (4) Medullary rays
144. In addition to malpighian tubules which type of structures also help in excretion in cockroach :  
 (1) Nephrocytes (2) Uricose gland  
 (3) Urate cells (4) All
145. Which one of the following hormones is not involved in sugar metabolism?  
 (1) Aldosterone (2) Insulin  
 (3) Glucagon (4) Cortisol
146. The respiration does not involves -  
 (1) Pulmonary ventilation.  
 (2) Transportation of gases by blood  
 (3) Fat rich diet to produce more energy  
 (4) Utilisation of  $O_2$  by cells
147. Which one of the following is absent in RNA  
 (1) Ribose (2) Thymine  
 (3) Phosphoric acid (4) Purine
148. Select erroneous pair?  
 (1) Zygomorphic flower – *Cassia*  
 (2) Actinomorphic flower – China rose  
 (3) Epigynous flower – Guava  
 (4) Hypogynous flower – Rose
149. Which of the following is not characteristic feature of fabaceae family?  
 (1) Androecium – Diadelphous  
 (2) Aestivation – Vexillary  
 (3) Placentation – Basal  
 (4) Fruit – Legume
150. \_\_\_\_\_ act as the energy currency at the cell.  
 (1) ADP (2) NADPH  
 (3) ATP (4)  $FADH_2$



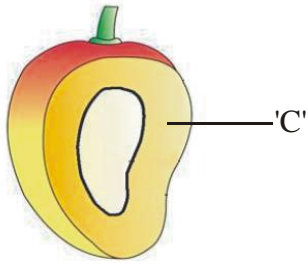
- 151.** In brown algae asexual spores are :-  
 (1) Pear-shaped and have two unequal flagella  
 (2) Pear-shaped and have two unequal cilia  
 (3) Oval-shaped and have two unequal flagella  
 (4) Comma-shaped and biflagellate
- 152.** Terminal centromere is present in :-  
 (1) Metacentric chromosome  
 (2) Acrocentric chromosome  
 (3) Telocentric chromosome  
 (4) Sub metacentric chromosome
- 153.** Beak is absent in :  
 (1) *Psittacula* (2) *Columba*  
 (3) *Pseudogyps* (4) *Macaca*
- 154.** The middle ear of *Rana tigrina* has :-  
 (1) Three ear ossicles i.e. malleus, incus and stapes  
 (2) One ear ossicle columella auris  
 (3) Two ear ossicles columella auris and stapedial plate  
 (4) No ear ossicle
- 155.** Which of the following pairs of hormones are the examples of those that can easily pass through the cell membrane of the target cell and bind to a receptor inside it (mostly in the nucleus)?  
 (1) Insulin, glucagon  
 (2) Thyroxine, insulin  
 (3) Somatostatin, oxytocin  
 (4) Cortisol, testosterone
- 156.** The volume of thoracic chamber is increase in dorso-ventral axis by the help of-  
 (1) Contraction of diaphragm  
 (2) Contraction of external intercostal muscles  
 (3) Relaxation in diaphragm  
 (4) Relaxation in external intercostal muscles
- 157.** Which of the following amino acid is in zwitter ionic form.



- 158.** Which type of aestivation is found in petals of china rose flower?  
 (1) Imbricate (2) Vexillary  
 (3) Twisted (4) Valvate
- 159.** Tap root of the following plant is modified to store food?  
 (1) Sweet Potato (2) Ginger  
 (3) Turnip (4) Potato
- 160.** Mg is associated with activation of enzymes of which of the following process?  
 (1) Photosynthesis  
 (2) Respiration  
 (3) Both (1) and (2)  
 (4) Nitrogen metabolism
- 161.** Which ions is responsible for muscles contraction?  
 (1)  $\text{Na}^+$  (2)  $\text{K}^+$   
 (3)  $\text{Ca}^+$  (4)  $\text{Ca}^+$  &  $\text{K}^+$
- 162.** Bast fibres are present in  
 (1) Primary phloem (2) Secondary phloem  
 (3) Both (1) and (2) (4) Secondary xylem
- 163.** Cycloid and ctenoid scales are found in  
 (1) Cyclostomes (2) Cartilaginous fishes  
 (3) Bony fishes (4) Amphibians
- 164.** Cerebral hemisphere is the centre of  
 (1) Thinking (2) Will power  
 (3) Reasoning (4) All of these
- 165.** During summer season, which hormone concentration is maintained at high level ?  
 (1) Insulin (2) Oxytocin  
 (3) Prolactin (4) Vasopressin
- 166.** The binding of oxygen to haemoglobin may be affected by-  
 (1) Partial pressure of  $\text{CO}_2$   
 (2)  $\text{H}^+$  concentration  
 (3) Temperature  
 (4) All of these
- 167.** Dr. Sunny Mewara's heart has a stroke volume of 70 ml and beats at 75 beats/min. What will be the cardiac output?  
 (1) 3600 ml (2) 4600 ml  
 (3) 5250 ml (4) 5000 ml



168. In the given diagram (Longitudinal section of mango fruit) labelled part 'C' is :-



- (1) Epicarp (2) Mesocarp  
(3) Endo carp (4) Seed

169. Which of the following statement is true?

- (1) Mango and coconut is a drupe fruit  
(2) Epipetalous stamens are present in flowers of lily  
(3) The floral formula of mustard is



- (4) In cymose type of inflorescences the main axis continues to grow the flower are borne laterally in acropetal succession.

170. During oxidation of glucose, how many dehydrogenations occurs in mitochondrial.

- (1) 10 (2) 6  
(3) 12 (4) 8

171. Human adult vertebral formula is :-

- (1) C<sub>5</sub> T<sub>7</sub> L<sub>7</sub> S<sub>8</sub> Co<sub>8</sub> (2) C<sub>5</sub> T<sub>8</sub> L<sub>6</sub> S<sub>6</sub> Co<sub>7</sub>  
(3) C<sub>7</sub> T<sub>12</sub> L<sub>5</sub> S<sub>1</sub> Co<sub>1</sub> (4) C<sub>7</sub> T<sub>8</sub> L<sub>5</sub> S<sub>1</sub> Co<sub>1</sub>

172. Which of the following is an example for lateral meristem?

- (1) Phellogen and procambium  
(2) fascicular cambium and procambium  
(3) dermatogen and procambium  
(4) fascicular cambium and phellogen

173. Find the incorrect match

- (1) *Spongilla* → Spongin fibres  
(2) *Pila* → Calcareous shell  
(3) *Ophiura* → Water vascular system  
(4) *Hyla* → Placoid scales

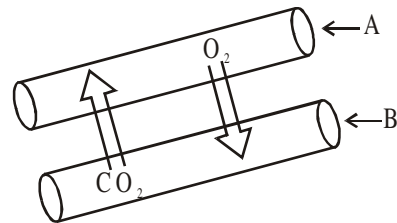
174. Parasympathetic nervous system increases the activity of

- (1) Gut, iris and urinary bladder  
(2) Heart, adrenal and sweat gland  
(3) Heart, pancreas and lacrymal gland  
(4) Lacrymal gland and sweat gland

175. Erythropoietin is secreted from :

- (1) Kidney (2) Pancreas  
(3) Adrenal gland (4) Pituitary gland

176. On the basis of given diagram identity A & B



- (a) A may be systemic artery & B may be Body tissue  
(b) A may be alveoli of lungs & B may be Pulmonary artery  
(c) A may be Body tissue & B may be systemic artery  
(d) A may be Alveoli of lungs & B may be Pulmonary vein

The correct option is –

- (1) (a) & (b) both (2) (c) & (d) both  
(3) (a) & (c) both (4) (b) & (d) both

177. Mark the pair of substances among the following which is essential for coagulation of blood

- (1) Heparin and calcium ions  
(2) Oxalates and heparin  
(3) Calcium ions and platelet factors  
(4) Platelet factors and heparin

178. The term 'papilionaceous' is related to :-

- (1) Calyx (2) Androecium  
(3) Gynoecium (4) Corolla

179. A vertical underground stem is a

- (1) Bulb (2) Corm  
(3) Rhizome (4) Tuber

180. Which of the following is not the extrinsic factor to control plant growth and development?

- (1) Temperature (2) Light  
(3) Humidity (4) PGR


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