Hindi

Form Number : _____

Paper Code : 0999DM310315020

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN) path to success

CLASSROOM CONTACT PROGRAMME

(Academic Session : 2015 - 2016)

ENTHUSIAST, LEADER & ACHIEVER COURSE

TARGET : PRE-MEDICAL - 2016

Test Type : **ALL INDIA OPEN TEST** Test Pattern : AIPMT

TEST DATE : 21 - 02 - 2016

TEST SYLLABUS : FULL SYLLABUS

Important Instructions /

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

1. A seat marked with Reg. No. will be allotted to each student. The student should ensure that he/she occupies the correct seat only. If any student is found to have occupied the seat of another student, both the students shall be removed from the examination and shall have to accept any other penalty imposed upon them.

2. Duration of Test is **3 Hours** and Questions Paper Contains **180** Questions. The Max. Marks are **720**.
   3 **180** **720**
3. Student can not use log tables and calculators or any other material in the examination hall.
4. Student must abide by the instructions issued during the examination, by the invigilators or the centre incharge.
5. Before attempting the question paper ensure that it contains all the pages and that no question is missing.
6. Each correct answer carries 4 marks, while **1 mark will be deducted for every wrong answer.** Guessing of answer is harmful.
   1
7. A candidate has to write his / her answers in the OMR sheet by darkening the appropriate bubble with the help of **Blue / Black Ball Point Pen only** as the correct answer(s) of the question attempted.
   OMR
8. **Use of Pencil is strictly prohibited.**

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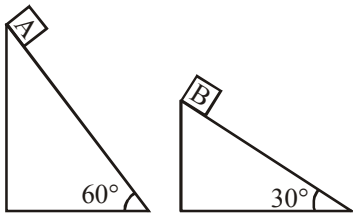
BEWARE OF NEGATIVE MARKING

1. Two fixed frictionless inclined planes making an angle 30° and 60° 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?



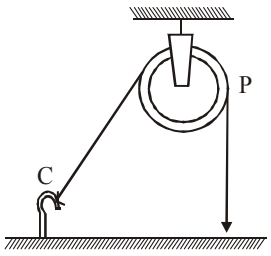
(1) 4.9 ms^{-2} in vertical direction.
(2) 4.9 ms^{-2} in horizontal direction
(3) 9.8 ms^{-2} in vertical direction
(4) Zero

2. In a Young's double slit experiment the intensity at a point where the path difference is $\frac{\lambda}{6}$ (λ being the wavelength of the light used) is I. If I_0 denotes the maximum intensity, I/I_0 is equal to :-

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

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

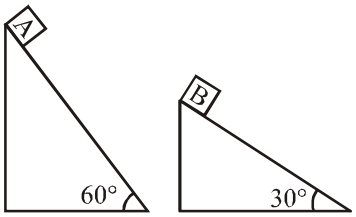
3. One end of massless rope, which passes over a massless and frictionless pulley P is tied to a hook C while the other end is free. Maximum tension that the rope can bear is 840 N. With what value of maximum safe acceleration (in ms^{-2}) can a man of 60 kg climb on the rope?



(1) 16 (2) 6 (3) 4 (4) 8

1. 30° 60°

A B B A



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

2.

$\frac{\lambda}{6}$ (λ) I I_0

I/I_0 -

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

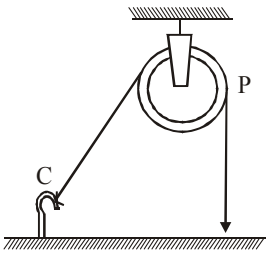
(3) $\frac{1}{2}$ (4) $\frac{3}{4}$

3. (C)

P

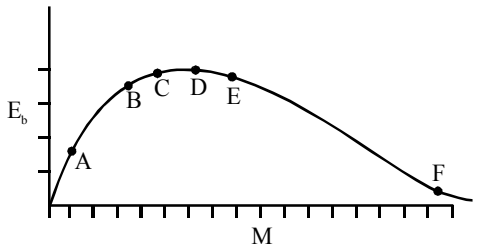
840

60



(1) 16 (2) 6
(3) 4 (4) 8

4.



The above is a plot of binding energy per nucleon E_b, against the nuclear mass M; A, B, C, D, E, F correspond to different nuclei. Consider four reactions :-

(i) $A + B \rightarrow C + \varepsilon$

(ii) $C \rightarrow A + B + \varepsilon$

(iii) $D + E \rightarrow F + \varepsilon$

(iv) $F \rightarrow D + E + \varepsilon$

where ε is the energy released ? In which reactions is ε positive ?

(1) (ii) and (iv) (2) (ii) and (iii)

(3) (i) and (iv) (4) (i) and (iii)

5. At time t = 0s particle starts moving along the x-axis. If its kinetic energy increases uniformly with time 't', the net force acting on it must be proportional to :-

(1) $\sqrt{t}$ (2) constant

(3) t (4) $\frac{1}{\sqrt{t}}$

6. In a transformer, number of turns in the primary are 140 and that in the secondary are 280. If current in primary is 4A, then that in the secondary is-

(1) 4 A (2) 2 A (3) 6 A (4) 10 A

7. The time period of a satellite of earth is 5 hours. If the separation between the centre of earth and the satellite is increased to 4 times the previous value, the new time period will become :-

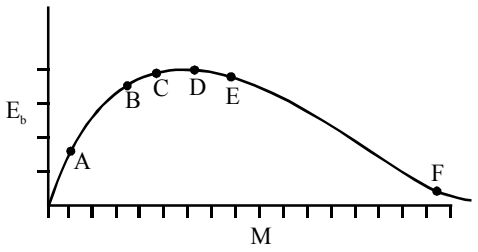
(1) 10 h (2) 80 h (3) 40 h (4) 20 h

8. One mole of ideal monoatomic gas ($\gamma = 5/3$) is mixed with one mole of diatomic gas ($\gamma = 7/5$). What is γ for the mixture ? γ denotes the ratio of specific heat at constant pressure, to that at constant volume :-

(1) 3/2 (2) 23/15

(3) 35/23 (4) 4/3

4.



E_b

M A, B, C, D, E, F

:-

(i) $A + B \rightarrow C + \varepsilon$

(ii) $C \rightarrow A + B + \varepsilon$

(iii) $D + E \rightarrow F + \varepsilon$

(iv) $F \rightarrow D + E + \varepsilon$

ε ε ?

(1) (ii) and (iv)

(2) (ii) and (iii)

(3) (i) and (iv)

(4) (i) and (iii)

5. t = 0s x-

't'

:-

(1) $\sqrt{t}$ (2) constant

(3) t (4) $\frac{1}{\sqrt{t}}$

6.

140 280

4A :-

(1) 4 A (2) 2 A

(3) 6 A (4) 10 A

7. 5

4

(1) 10 (2) 80

(3) 40 (4) 20

8. ($\gamma = 5/3$)

($\gamma = 7/5$)

γ γ

-

(1) 3/2 (2) 23/15

(3) 35/23 (4) 4/3

9. A projectile is given an initial velocity of $(\hat{i}+2\hat{j})$ m/s, where $\hat{i}$ is along the ground and $\hat{j}$ is along the vertical. If g = 10 m/s^2, the equation of its trajectory is :

(1) $y = x - 5x^2$ (2) $y = 2x - 5x^2$

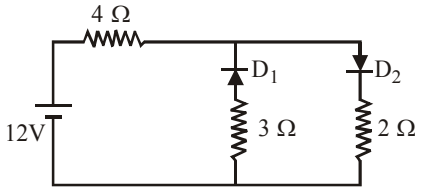
(3) $4y = 2x - 5x^2$ (4) $4y = 2x - 25x^2$

10. Two particles of equal mass 'm' go around a circle of radius R under the action of their mutual gravitational attraction. The speed of each particle with respect to their centre of mass is :-

(1) $\sqrt{\frac{Gm}{R}}$ (2) $\sqrt{\frac{Gm}{4R}}$

(3) $\sqrt{\frac{Gm}{3R}}$ (4) $\sqrt{\frac{Gm}{2R}}$

11. The circuit has two oppositely connected ideal diodes in parallel. What is the current flowing in the circuit



(1) 1.71 A (2) 2.00 A

(3) 2.31 A (4) 1.33 A

12. A circular disc X of radius R is made from an iron plate of thickness t and another disc Y of radius 4R is made from an iron plate of thickness t/4. Then the relation between the moment of inertia I_X and I_Y is :-

(1) $I_Y = 32\ I_X$ (2) $I_Y = 16 I_X$

(3) $I_Y = I_X$ (4) $I_Y = 64\ I_X$

13. Four charges equal to –Q are placed at the four corners of a square and a charge q is at its centre. If the system is in equilibrium, the value of q is:-

(1) $-\frac{Q}{4}(1 + 2\sqrt{2})$

(2) $\frac{Q}{4}(1 + 2\sqrt{2})$

(3) $-\frac{Q}{2}(1 + 2\sqrt{2})$

(4) $\frac{Q}{2}(1 + 2\sqrt{2})$

9. $(\hat{i}+2\hat{j})$ m/s

$\hat{i}$ $\hat{j}$

g = 10 m/s^2, :-

(1) $y = x - 5x^2$ (2) $y = 2x - 5x^2$

(3) $4y = 2x - 5x^2$ (4) $4y = 2x - 25x^2$

10. 'm'

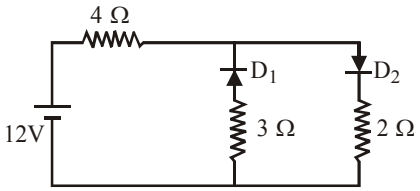
R

:-

(1) $\sqrt{\frac{Gm}{R}}$ (2) $\sqrt{\frac{Gm}{4R}}$

(3) $\sqrt{\frac{Gm}{3R}}$ (4) $\sqrt{\frac{Gm}{2R}}$

11.



(1) 1.71 (2) 2.00

(3) 2.31 (4) 1.33

12. X R t

4R Y,

t/4

I_X I_Y :-

(1) $I_Y = 32\ I_X$ (2) $I_Y = 16 I_X$

(3) $I_Y = I_X$ (4) $I_Y = 64\ I_X$

13. –Q

q

q :-

(1) $-\frac{Q}{4}(1 + 2\sqrt{2})$

(2) $\frac{Q}{4}(1 + 2\sqrt{2})$

(3) $-\frac{Q}{2}(1 + 2\sqrt{2})$

(4) $\frac{Q}{2}(1 + 2\sqrt{2})$

14. A ball of mass 0.2 kg is thrown vertically upwards by applying a force by hand. If the hand moves 0.2 m while applying the force and the ball goes upto 2m height further, find the magnitude of the force. Consider g = 10 m/s^2 :

(1) 4 N (2) 16 N

(3) 20 N (4) 22 N

15. A wire fixed at the upper end stretches by length ℓ by applying a force F. The work done in stretching is :-

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

16. If the terminal speed of a sphere of gold (density = 19.5 kg/m^3) is 0.2 m/s in a viscous liquid (density = 1.5 kg/m^3), find the terminal speed of a sphere of silver (density=10.5 kg/m^3) of the same size in the same liquid.

(1) 0.4 m/s (2) 0.133 m/s

(3) 0.1 m/s (4) 0.2 m/s

17. Two capacitors C_1 and C_2 are charged to 120V and 200V respectively. It is found that by connecting them together the potential on each one can be made zero. Then :-

(1) $5C_1 = 3C_2$ (2) $3C_1 = 5C_2$

(3) $3C_1 + 5C_2 = 0$ (4) $9C_1 = 4C_2$

18. A horizontal overhead powerline is at a height of 4m from the ground and carries a current of 100 A from east to west. The magnetic field directly below it one the ground is :-

($\mu_0 = 4\pi \times 10^{-7} TmA^{-1}$)

(1) 2.5×10^{-7} T southward

(2) 5×10^{-6} T northward

(3) 5×10^{-6} T southward

(4) 2.5×10^{-7} T northward

19. The change in the value of g at a height h above the surface of the earth is the same as at a depth d below the surface of earth. When both d and h are much smaller than the radius of earth, then which one of the following is correct ?

(1) $d = \frac{h}{2}$ (2) $d = \frac{3h}{2}$

(3) d = 2h (4) d = h

14. 0.1 0.2 2

g = 10 ^{2} :

(1) 4 (2) 16

(3) 20 (4) 22

15. F ℓ :-

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

16. (= 19.5 kg/m^3) (= 1.5 kg/m^3) 0.2 m/s (= 10.5 kg/m^3) :-

(1) 0.4 m/s (2) 0.133 m/s

(3) 0.1 m/s (4) 0.2 m/s

17. C_1 C_2 120V 200V

(1) $5C_1 = 3C_2$ (2) $3C_1 = 5C_2$

(3) $3C_1 + 5C_2 = 0$ (4) $9C_1 = 4C_2$

18. 4m 100 A :

($\mu_0 = 4\pi \times 10^{-7} TmA^{-1}$)

(1) 2.5×10^{-7} T

(2) 5×10^{-6} T

(3) 5×10^{-6} T

(4) 2.5×10^{-7} T

19. 'h' 'g' 'd' 'g' 'd' 'h' ?

(1) $d = \frac{h}{2}$ (2) $d = \frac{3h}{2}$

(3) d = 2h (4) d = h

Key Filling

20. A thin spherical conducting shell of radius R has a charge q. Another charge Q is placed at the centre of the shell. The electrostatic potential at a point P at a distance R/2 from the centre of the shell is :-

(1) $\frac{2Q}{4\pi\epsilon_0 R}$

(2) $\frac{2Q}{4\pi\epsilon_0 R} - \frac{2q}{4\pi\epsilon_0 R}$

(3) $\frac{2Q}{4\pi\epsilon_0 R} + \frac{q}{4\pi\epsilon_0 R}$

(4) $\frac{(q+Q)}{4\pi\epsilon_0}\frac{2}{R}$

21. Work done in increasing the size of a soap bubble from a radius of 3 cm to 5cm is nearly (Surface tension of soap solution = 0.03 Nm^{-1}) :-

(1) 2π mJ (2) 0.4 π mJ
(3) 4π mJ (4) 0.2 π mJ

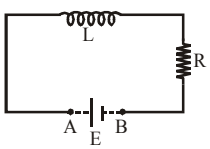
22 Speeds of two identical cars are u and 4u at a specific instant. The ratio of the respective distances at which the two cars are stopped from that instant is-

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

23. From a tower of height H, a particle is thrown vertically upwards with a speed u. The time taken by the particle, to hit the ground, is n times that taken by it to reach the highest point of its path. The relation between H, u and n is :

(1) $2g\,H = nu^2(n-2)$
(2) $g\,H = (n-2)u^2$
(3) $2g\,H = n^2u^2$
(4) $g\,H = (n-2)^2u^2$

24. An inductor (L = 100 mH), a resistor (R = 100Ω) and a battery (E = 100 V) are initially connected in series as shown in the figure. After a long time the battery is disconnected after short circuiting the points A and B. The current in the circuit 1 ms after the short circuit is-



(1) 1/e A (2) e A
(3) 0.1 A (4) 1 A

20. R q Q , R/2 P :-

(1) $\frac{2Q}{4\pi\epsilon_0 R}$

(2) $\frac{2Q}{4\pi\epsilon_0 R} - \frac{2q}{4\pi\epsilon_0 R}$

(3) $\frac{2Q}{4\pi\epsilon_0 R} + \frac{q}{4\pi\epsilon_0 R}$

(4) $\frac{(q+Q)}{4\pi\epsilon_0}\frac{2}{R}$

21. 3 cm 5cm (= 0.03 Nm^{-1}) :-

(1) 2π mJ (2) 0.4 π mJ
(3) 4π mJ (4) 0.2 π mJ

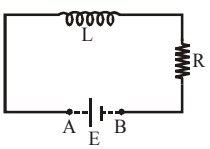
22 u 4u

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

23. H u n H, u n :-

(1) $2g\,H = nu^2(n-2)$
(2) $g\,H = (n-2)u^2$
(3) $2g\,H = n^2u^2$
(4) $g\,H = (n-2)^2u^2$

24. (L = 100) (R=100Ω) (E=100 V) A B 1ms :-



(1) 1/e A (2) e A
(3) 0.1 A (4) 1 A

25. A spherical ball of mass 20 kg is stationary at the top of a hill of height 100 m. It rolls down a smooth surface to the ground, then climbs up another hill of height 30 m and finally rolls down to a horizontal base at a height of 20 m above the ground. The velocity attained by the ball is :-

(1) 40 $\sqrt{\frac{5}{7}}$ m/s

(2) 20 m/s

(3) 10 m/s

(4) $10\sqrt{30}$ m/s

26. Consider the following two statements :-

(A) Linear momentum of a system of particles is zero.

(B) Kinetic energy of a system of particles is zero.

Then :-

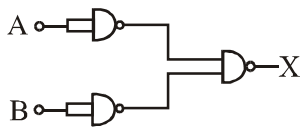
(1) A does not imply B and B does not imply A

(2) A implies B but B does not imply A

(3) A does not imply B but B implies A

(4) A implies B and B implies A

27. The combination of gates shown below yields:-



(1) NAND gate

(2) OR gate

(3) NOT gate

(4) XOR gate

28. A uniform chain of length 2 m is kept on a table such that a length of 60 cm hangs freely from the edge of the table. The total mass of the chain is 4 kg. What is the work done in pulling the entire chain on the table

(1) 7.2 J (2) 3.6 J

(3) 120 J (4) 1200 J

25. 20 100 m

30 m

20 m

:-

(1) 40 $\sqrt{\frac{5}{7}}$ m/s

(2) 20 m/s

(3) 10 m/s

(4) $10\sqrt{30}$ m/s

26.

(A)

(B)

:-

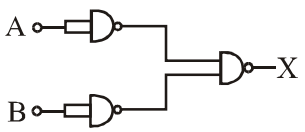
(1) A, B B, A

(2) A, B B, A

(3) A, B B, A

(4) A, B B, A

27. :-



(1) NAND

(2) OR

(3) NOT

(4) XOR

28. 2m

60 cm

4 kg

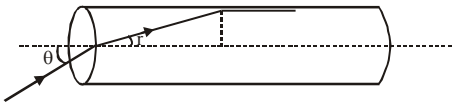
:-

(1) 7.2 J (2) 3.6 J

(3) 120 J (4) 1200 J

Use stop, look and go method in reading the question

29. A transparent solid cyclindrical rod has a refractive index of $\frac{2}{\sqrt{3}}$. It is surrounded by air. A light ray is incident at the mid-point of one end of the rod as shown in the figure.

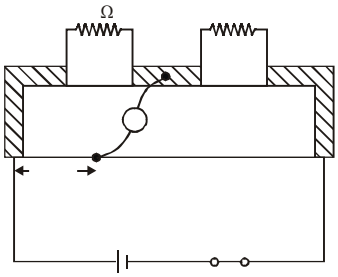


The incident angle θ for which the light ray grazes along the wall of the rod is :-

(1) $\sin^{-1}\left(\frac{2}{\sqrt{3}}\right)$ (2) $\sin^{-1}\left(\frac{1}{\sqrt{3}}\right)$

(3) $\sin^{-1}\left(\frac{1}{2}\right)$ (4) $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$

30. Shown in the figure below is a meter - bridge set up with null deflection in the galvanometer



The value of the unknown resistor R is

(1) 13.75Ω (2) 220 Ω (3) 110Ω (4) 55Ω

31. The physical quantities not having same dimensions are :-

(1) torque and work

(2) momentum and planck's constant

(3) stress and Young's modulus

(4) speed and $(\mu_0 \in_0)^{-1/2}$

32. A nucleus with Z = 92 emits the following in a sequence : $\alpha, \alpha, \beta^-, \beta^-, \alpha, \alpha, \alpha, \alpha, \beta^-, \beta^-, \alpha, \beta^+, \beta^+, \alpha$. The Z of the resulting nucleus is-

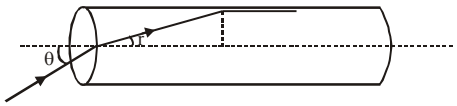
(1) 76 (2) 78 (3) 82 (4) 74

33. Consider a uniform square plat of side 'a' and mass 'm' the moment of inertia of this plate about an axis perpendicular to its plane and passing through one of its corners is

(1) $\frac{5}{6}ma^2$ (2) $\frac{1}{12}ma^2$

(3) $\frac{7}{12}ma^2$ (4) $\frac{2}{3}ma^2$

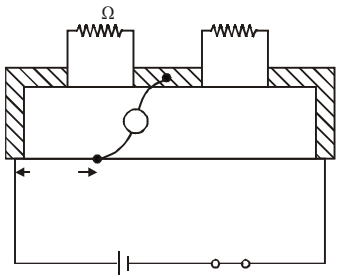
29. $\frac{2}{\sqrt{3}}$



(1) $\sin^{-1}\left(\frac{2}{\sqrt{3}}\right)$ (2) $\sin^{-1}\left(\frac{1}{\sqrt{3}}\right)$

(3) $\sin^{-1}\left(\frac{1}{2}\right)$ (4) $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$

30.



(1) 13.75Ω (2) 220 Ω (3) 110Ω (4) 55Ω

31.

(1)

(2)

(3)

(4) $(\mu_0 \in_0)^{-1/2}$

32. Z = 92

$\alpha, \alpha, \beta^-, \beta^-, \alpha, \alpha, \alpha, \alpha, \beta^-, \beta^-, \alpha, \beta^+, \beta^+, \alpha$. Z :-

(1) 76 (2) 78 (3) 82 (4) 74

33. 'a' 'm'

:-

(1) $\frac{5}{6}ma^2$ (2) $\frac{1}{12}ma^2$

(3) $\frac{7}{12}ma^2$ (4) $\frac{2}{3}ma^2$

34. The resistance of the series combination of two resistance is S. When they are joined in parallel, the total resistance is P. If S = nP, then the minimum possible value of n is :-
(1) 4 (2) 3 (3) 2 (4) 1

35. A charge Q is uniformly distributed over a long rod AB of length L as shown in the figure. The electric potential at the point O lying at a distance L from the end A is :-

(1) $\frac{Q}{8\pi\in_0 L}$ (2) $\frac{3Q}{4\pi\in_0 L}$

(3) $\frac{Q}{4\pi\in_0 L\ln 2}$ (4) $\frac{Q\ln 2}{4\pi\in_0 L}$

36. The respective number of significant figures for the numbers 23.023, 0.0003 and 2.1×10^{-3} are:-
(1) 4, 4, 2 (2) 5, 1, 2
(3) 5, 1, 5 (4) 5, 5, 2

37. A magnetic needle laying parallel to a magnetic field requires W unit of work to turn it through 60°. The torque needed to maintain the needle in this position will be-
(1) $\sqrt{3}$ W (2) W (3) ($\sqrt{3}$ /2)W (4) 2W

38. If 13.6 eV energy is required to ionize the hydrogen atom, then the energy required to remove an electron from n = 2 is-
(1) 10.2 eV (2) 0 eV
(3) 3.4 eV (4) 6.8 eV

39. A rocket which has a mass of 3.5×10^4 kg is blasted upwards with an initial acceleration of 10 m/s^2. Then the initial thrust of the blast is-
(1) 3.5×10^5 N (2) 7.0×10^5 N
(3) 14.0×10^5 N (4) 1.75×10^5 N

40. A bob of mass m attached to an inextensible string of length ℓ is suspended from a vertical support. The bob rotates in a horizontal circle with an angular speed ω rad/s about the vertical. About the point of suspension :
(1) Angular momentum changes in direction but not in magnitude
(2) Angular momentum changes both in direction and magnitude
(3) Angular momentum is conserved
(4) Angular momentum changes in magnitude but not in direction.

34. S
P
S = nP n :-
(1) 4 (2) 3
(3) 2 (4) 1

35. Q L AB
A L O :-

(1) $\frac{Q}{8\pi\in_0 L}$ (2) $\frac{3Q}{4\pi\in_0 L}$

(3) $\frac{Q}{4\pi\in_0 L\ln 2}$ (4) $\frac{Q\ln 2}{4\pi\in_0 L}$

36. 23.023, 0.0003 2.1×10^{-3}
:-
(1) 4, 4, 2 (2) 5, 1, 2
(3) 5, 1, 5 (4) 5, 5, 2

37. 60°
W
(1) $\sqrt{3}$ W (2) W (3) ($\sqrt{3}$ /2)W (4) 2W

38. 13.6 eV
n = 2
:-
(1) 10.2 eV (2) 0 eV
(3) 3.4 eV (4) 6.8 eV

39. 3.5×10^4 kg
10 m/s^2
-
(1) 3.5×10^5 N (2) 7.0×10^5 N
(3) 14.0×10^5 N (4) 1.75×10^5 N

40. ℓ m
ω rad/s
:
(1)
(2)
(3)
(4)

41. Wavelength of light used in a optical instrument are $\lambda_1 = 4000$ Å and $\lambda_2 = 5000$ Å, then ratio of their respective resolving powers (corresponding to λ_1 and λ_2) is :-

(1) 16 : 25 (2) 9 : 1 (3) 4 : 5 (4) 5 : 4

42. A car, starting from rest, accelerates at the rate f through a distance S, then continues at constant speed for time t and then decelerates at the rate f/2 to come to rest. If the total distance travelled is 15 S, then-

(1) $S = ft$ (2) $S = \frac{1}{6}ft^2$

(3) $S = \frac{1}{72}ft^2$ (4) $S = \frac{1}{4}ft^2$

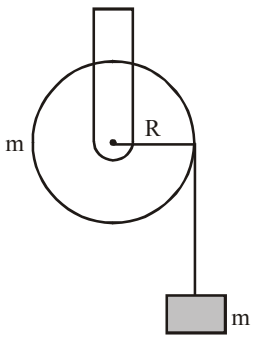
43. An object 2.4 m in front of a lens forms a sharp image on a film 12 cm behind the lens. A glass plate 1 cm thick, of refractive index 1.50 is interposed between lens and film with its plane faces parallel to film. At what distance (from lens) should object be shifted to be in sharp focus on film ?

(1) 5.6 m (2) 7.2 m
(3) 2.4 m (4) 3.2 m

44. A circular disc of radius R is removed from a bigger circular disc of radius 2R such that the circumferences of the discs coincide. The centre of mass of the new disc is αR from the centre of the bigger disc. The value of α is : -

(1) $\frac{1}{3}$ (2) $\frac{1}{2}$ (3) $\frac{1}{6}$ (4) $\frac{1}{4}$

45. A mass 'm' is supported by a massless string wound around a uniform hollow cylinder of mass m and radius R. If the string does not slip on the cylinder, with what acceleration will the mass fall on release?



(1) $\frac{5g}{6}$ (2) g (3) $\frac{2g}{3}$ (4) $\frac{g}{2}$

41. $\lambda_1 = 4000$ Å $\lambda_2 = 5000$ Å

:-

(1) 16 : 25 (2) 9 : 1
(3) 4 : 5 (4) 5 : 4

42. S f
t
f/2
15 S
:-

(1) $S = ft$ (2) $S = \frac{1}{6}ft^2$

(3) $S = \frac{1}{72}ft^2$ (4) $S = \frac{1}{4}ft^2$

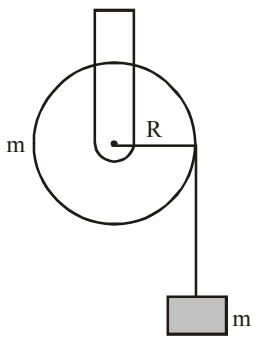
43. 2.4 m 12 cm
1.50 1 cm
?

(1) 5.6 m (2) 7.2 m
(3) 2.4 m (4) 3.2 m

44. R 2R
αR α :-

(1) $\frac{1}{3}$ (2) $\frac{1}{2}$ (3) $\frac{1}{6}$ (4) $\frac{1}{4}$

45. R 'm'
'm'

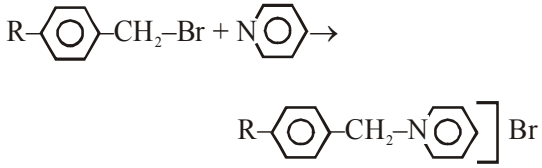


(1) $\frac{5g}{6}$ (2) g (3) $\frac{2g}{3}$ (4) $\frac{g}{2}$

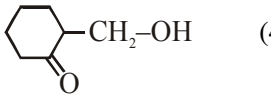
46. The number of moles of $CaCl_2$ needed to react with excess of $AgNO_3$ to produce 4.31 g of AgCl.
(1) 0.030 (2) 0.015
(3) 0.045 (4) 0.060

47. How many grams of CaC_2O_4 will dissolve in one liter of saturated solution ? K_{sp} of CaC_2O_4 is 2.5×10^{-9} and its molecular weight is 128
(1) 0.0064 g (2) 0.0128 g
(3) 0.0032 g (4) 0.0640 g

48. Rate of following reaction is Influence by hyper conjugation of 'R' :



The rate of reaction will be maximum when 'R' will be :-
(1) CH_3- (2) CH_3-CH_2-
(3) $CH_3-\underset{\displaystyle CH_3}{\overset{}{\underset{|}{CH}}}-$ (4) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\underset{|}{\overset{|}{C}}}}$

49. Which of the following will react fastest with Na :-
(1) $Ph-CH_2-OH$ (2) 
(3)  (4) $(CH_3)_3C-OH$

50. Which of the following species is more reactive?
(1) F_2 (2) IBr
(3) ICl (4) ClF

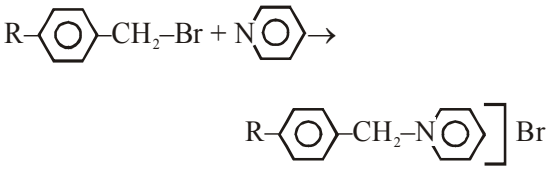
51. The kinetic energy (in kcal) of 80 g of methane gas at 227ºC is :-
(1) 15 (2) 2.5 (3) 25 (4) 7.5

52. In the reaction $4I^- + Hg^{2+} \rightarrow HgI_4^{2-}$ moles of HgI_4^{-2} made from 1 mol each of Hg^{2+} and I^- will be :-
(1) 1 mol (2) 0.5 mol
(3) 0.25 mol (4) 2 mol

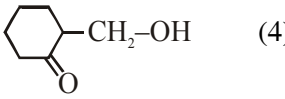
46. 4.31 AgCl $CaCl_2$ $AgNO_3$
(1) 0.030 (2) 0.015
(3) 0.045 (4) 0.060

47. 1 CaC_2O_4 CaC_2O_4 K_{sp} 2.5×10^{-9} 128
(1) 0.0064 g (2) 0.0128 g
(3) 0.0032 g (4) 0.0640 g

48.



R :-
(1) CH_3- (2) CH_3-CH_2-
(3) $CH_3-\underset{\displaystyle CH_3}{\overset{}{\underset{|}{CH}}}-$ (4) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\underset{|}{\overset{|}{C}}}}$

49. Na :-
(1) $Ph-CH_2-OH$ (2) 
(3)  (4) $(CH_3)_3C-OH$

50.
(1) F_2 (2) IBr
(3) ICl (4) ClF

51. 80 227ºC
(1) 15 (2) 2.5 (3) 25 (4) 7.5

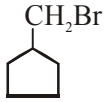
52. $4I^- + Hg^{2+} \rightarrow HgI_4^{2-}$ 1 Hg^{2+} 1 I^- HgI_4^{-2}
(1) 1 mol (2) 0.5 mol
(3) 0.25 mol (4) 2 mol

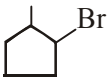
53. Which halide will be most reactive towards SN^2 reaction :-

(1) $Ph–CH_2CH_2CH_2Br$ (2) $Ph–\underset{\displaystyle CH_3}{\underset{|}{CH}}–CH_2–Br$

(3) $Ph–\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}–Br$ (4) $Ph–CH_2–\underset{\displaystyle Br}{\underset{|}{CH}}–CH_3$

54.  $\xrightarrow[R_2O_2]{HBr}$ Product is :-

(1)  (2) 

(3)  (4) 

55. Which of the following acid known as aprotic acid ?

(1) H_3PO_4 (2) H_3BO_3

(3) H_2SO_4 (4) HNO_3

56. NH_3 gas is liquefied more easily than N_2 thereby:-

(1) Vander Waals constants a and b of NH_3 is higher than that of N_2

(2) Vander Waals constant a and b of NH_3 is less than that of N_2

(3) a of NH_3 > a of N_2, but b of NH_3 < b of N_2

(4) a of NH_3 < a of N_2, but b of NH_3 > b of N_2

57. The useful work done during the reaction $Ag(s) + \frac{1}{2}Cl_2(g) \rightarrow AgCl(s)$ would be :-

Given $E^{\circ}_{Cl_2/Cl^-} = 1.36\ V, E^{\circ}_{AgCl/Ag/Cl^-} = 0.220V$,

p_{Cl_2} = 1 atm and T = 298 K.

(1) 110 kJ mol^{-1} (2) 220 kJ mol^{-1}

(3) 55 kJ mol^{-1} (4) 100 kJ mol^{-1}

58. Petroleum is obtained from water gas, name of reaction involved is :-

(1) Fischer-tropsh (2) Bergius

(3) Dow's (4) Kjeldahl

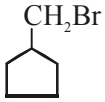
53. SN^2

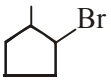
:-

(1) $Ph–CH_2CH_2CH_2Br$ (2) $Ph–\underset{\displaystyle CH_3}{\underset{|}{CH}}–CH_2–Br$

(3) $Ph–\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}–Br$ (4) $Ph–CH_2–\underset{\displaystyle Br}{\underset{|}{CH}}–CH_3$

54.  $\xrightarrow[R_2O_2]{HBr}$:-

(1)  (2) 

(3)  (4) 

55.

(1) H_3PO_4 (2) H_3BO_3

(3) H_2SO_4 (4) HNO_3

56. NH_3 N_2

(1) NH_3 a b N_2

(2) NH_3 a b N_2

(3) a (NH_3) > a (N_2) $b(NH_3) < b(N_2)$

(4) a (NH_3) < a (N_2), b $(NH_3) > b(N_2)$

57. $Ag(s) + \frac{1}{2}Cl_2(g) \rightarrow AgCl(s)$

$E^{\circ}_{Cl_2/Cl^-} = 1.36\ V, E^{\circ}_{AgCl/Ag/Cl^-} = 0.220V$,

p_{Cl_2} = 1 atm and T = 298 K.

(1) 110 kJ mol^{-1} (2) 220 kJ mol^{-1}

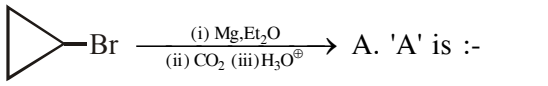
(3) 55 kJ mol^{-1} (4) 100 kJ mol^{-1}

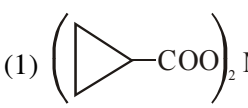
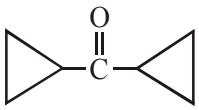
58.

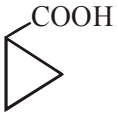
:-

(1) (2)

(3) (4)

59.  A. 'A' is :-

(1)  (2) 

(3)  (4) 

60. Which of the following reaction gives laughing gas ?

(1) Cu + Conc. HNO_3

(2) Zn + very dil. HNO_3

(3) Zn + dil. HNO_3

(4) Cu + dil. HNO_3

61. A solid PQ has rock salt type structure in which Q atoms are at the corners of the unit cell. If the body centered atoms in all the unit cells are missing, the resulting stoichiometry will be :-

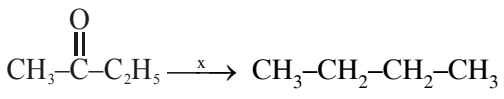
(1) PQ (2) PQ_2 (3) P_3Q_4 (4) P_4Q_3

62. Graph between log k and (1/T) is linear of slope S (magnitude) Hence E_a is k= rate constant, T= temperature :-

(1) R × S (2) S/R

(3) R/S (4) 2.303 RS

63. In given reaction :



'X' is :-

(1) $LiAlH_4$ (2) $NaBH_4$

(3) $NH_2–NH_2/\overset{\ominus}{O}H$ (4) All

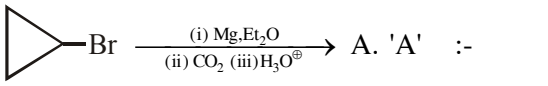
64. Which of the following order is not correct ?

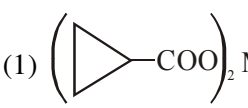
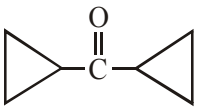
(1) K > Sr > Y Size

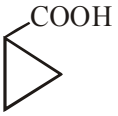
(2) $Ne^{\oplus}$ > F > Ne Electron affinity

(3) $Ne^{\oplus}$ > Ne > F > F^- Ionisation energy

(4) None of these

59.  A. 'A' :-

(1)  (2) 

(3)  (4) 

60.

(1) Cu + Conc. HNO_3

(2) Zn + very dil. HNO_3

(3) Zn + dil. HNO_3

(4) Cu + dil. HNO_3

61. PQ Q

(1) PQ (2) PQ_2 (3) P_3Q_4 (4) P_4Q_3

62. log k (1/T)

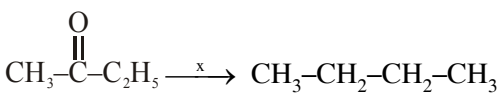
S E_a k =

T =

(1) R × S (2) S/R

(3) R/S (4) 2.303 RS

63. -



'X' is :-

(1) $LiAlH_4$ (2) $NaBH_4$

(3) $NH_2–NH_2/\overset{\ominus}{O}H$ (4)

64.

(1) K > Sr > Y

(2) $Ne^{\oplus}$ > F > Ne

(3) $Ne^{\oplus}$ > Ne > F > F^-

(4)

65. Which of the following species gives colourless and odourless gas on thermal decomposition :

(1) $(NH_4)_2Cr_2O_7$ (2) $Pb(NO_3)_2$

(3) $ZnSO_4.7H_2O$ (4) $(NH_4)_2SO_4$

66. CsBr has bcc structure with edge length 4.3Å. The shortest interionic distance in between Cs^+ and Br^- is :-

(1) 3.72 Å (2) 1.86 Å

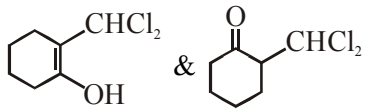
(3) 7.44 Å (4) 4.3 Å

67. Which of the following electralytes will have maximum flocculation value for $Fe(OH)_3$ Sol ?

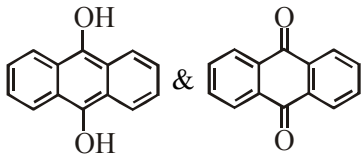
(1) NaCℓ (2) Na_2S

(3) $(NH_4)_3PO_4$ (4) K_2SO_4

68. Which of the following are tautomers :-

(1) 

(2) $HO–CH_2–CH=CH_2$ & $O=CH–CH_2–CH_3$

(3) 

(4) $CH_3–\underset{\underset{O}{\|}}{C}–\underset{\underset{O}{\|}}{C}–CH_3$ & $CH_3–\underset{\underset{HO}{|}}{C}=\underset{\underset{OH}{|}}{C}–CH_3$

69. Which of the following species represent maximum ionisation energy ?

(1) $Li^{\oplus}$ (2) He (3) $He^{\ominus}$ (4) Be^{2+}

70. $[Pt(NH_3)_2(NO_2)_2]$, How many geometrical isomer show above complex ?

(1) 2 (2) 3 (3) 6 (4) 9

71. 2 mol of an ideal gas expanded isothermally and reversibly from 1 L to 10 L at 300 K. What is the enthalpy change ?

(1) 4.98 kJ (2) 11.47 kJ

(3) –11.47 kJ (4) 0 kJ

72. Energy required to remove both the electrons from He atom is 79.0 ev. The energy required to remove one of the electron from He atom.

(1) 38.2 ev (2) 49.2 e

(3) 51.8 ev (4) 24.6 ev

65.

(1) $(NH_4)_2Cr_2O_7$ (2) $Pb(NO_3)_2$

(3) $ZnSO_4.7H_2O$ (4) $(NH_4)_2SO_4$

66. CsBr BCC

4.3Å Cs^+ Br^-

(1) 3.72 Å (2) 1.86 Å

(3) 7.44 Å (4) 4.3 Å

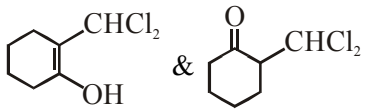
67. $Fe(OH)_3$

?

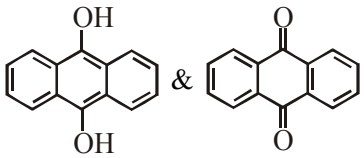
(1) NaCℓ (2) Na_2S

(3) $(NH_4)_3PO_4$ (4) K_2SO_4

68. :-

(1) 

(2) $HO–CH_2–CH=CH_2$ & $O=CH–CH_2–CH_3$

(3) 

(4) $CH_3–\underset{\underset{O}{\|}}{C}–\underset{\underset{O}{\|}}{C}–CH_3$ & $CH_3–\underset{\underset{HO}{|}}{C}=\underset{\underset{OH}{|}}{C}–CH_3$

69.

(1) $Li^{\oplus}$ (2) He (3) $He^{\ominus}$ (4) Be^{2+}

70. $[Pt(NH_3)_2(NO_2)_2]$,

(1) 2 (2) 3 (3) 6 (4) 9

71. 2 300 K

1 10

(1) 4.98 kJ (2) 11.47 kJ

(3) –11.47 kJ (4) 0 kJ

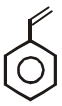
72. He

79.0 ev He

(1) 38.2 ev (2) 49.2 e

(3) 51.8 ev (4) 24.6 ev

73. Decreasing order of reactivity with HCl for :-

(A)  (B)  (C) 

(1) A < C < B (2) C > B > A

(3) C > A > B (4) None

74. Which of the following species show maximum bond length ?

(1) NaNO (2) NOCl

(3) KO_2 (4) All are equal

75. Which of the following complex represent maximum stability ?

(1) $[Co(CN)_6]^{3-}$ (2) $[Co(H_2O)_6]^{3+}$

(3) $[Co(CN)_6]^{4-}$ (4) $[Co(C_2O_4)_3]^{3-}$

76. $H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l)$; $\Delta H_{H-H} = x_1$; $\Delta H_{O=O} = x_2$ and $\Delta H_{O-H} = x_3$. The latent heat of vaporization of water liquid into water vapour $= x_4$, then ΔH_f^o (heat of formation of liquid water) is :-

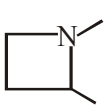
(1) $x_1 + \frac{x_2}{2} - x_3 + x_4$

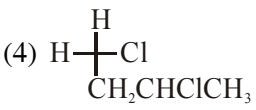
(2) $2x_1 - x_1 - \frac{x_2}{2} + x_4$

(3) $x_1 + \frac{x_2}{2} - 2x_3 - x_4$

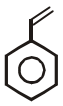
(4) $x_1 + \frac{x_2}{2} - 2x_3 + x_4$

77. Which of the following does not have an asymmetric carbon :-

(1)  (2) 

(3) $C_2HClBrI$ (4) 

73. HCl :-

(A)  (B)  (C) 

(1) A < C < B (2) C > B > A

(3) C > A > B (4)

74.

(1) NaNO (2) NOCl

(3) KO_2 (4)

75.

(1) $[Co(CN)_6]^{3-}$ (2) $[Co(H_2O)_6]^{3+}$

(3) $[Co(CN)_6]^{4-}$ (4) $[Co(C_2O_4)_3]^{3-}$

76. $H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O(l)$; $\Delta H_{H-H} = x_1$;

$\Delta H_{O=O} = x_2$ $\Delta H_{O-H} = x_3$

$= x_4$ ΔH_f^o (

) :-

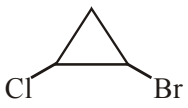
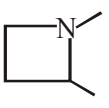
(1) $x_1 + \frac{x_2}{2} - x_3 + x_4$

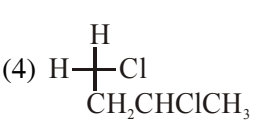
(2) $2x_1 - x_1 - \frac{x_2}{2} + x_4$

(3) $x_1 + \frac{x_2}{2} - 2x_3 - x_4$

(4) $x_1 + \frac{x_2}{2} - 2x_3 + x_4$

77. :-

(1)  (2) 

(3) $C_2HClBrI$ (4) 

78. $CH_3–C\equiv C–CH_3 \xrightarrow[(ii)\ Zn/H_2O]{(i)\ X} CH_3–\underset{\underset{O}{\|}}{C}–\underset{\underset{O}{\|}}{C}–CH_3$

'X' is :-

(1) HNO_3 (2) O_2

(3) O_3 (4) $KMnO_4$

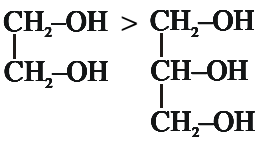
79. Which of the following order is not correct ?

(1) LiF > LiCl > LiBr > LiI

Solubility

(2) $NaCl < MgCl_2 < AlCl_3$

lattice energy

(3) $CH_3OH >$  $>$

Vapour pressure

(4) $(CH_3)_3NO > (CH_3)_3PO$

Dipole moment

80. Aluminium is used as a reducing agent in the reduction of :

(1) Cr_2O_3 (2) SnO_2 (3) ZnO (4) HgO

81. Equimolal solutions KCl and compound X in water show depression in freezing point in the ratio of 4 : 1. Assuming KCl to be completely ionized, the compound X in solution must.

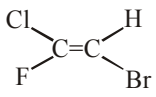
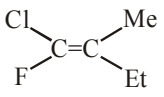
(1) dissociate to the extent of 50%

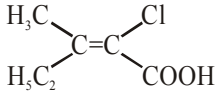
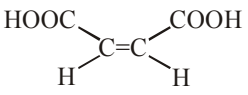
(2) hydrolyze to the extent of 80%

(3) dimerize to the extent of 50%

(4) trimerize to the extent of 75%

82. 'Z' isomer is :-

(1)  (2) 

(3)  (4) 

83. $C_2H_5Cl \xrightarrow[Ag_2O]{Moist} A \xrightarrow[360°C]{Al_2O_3} B \xrightarrow{S_2Cl_2} C$

'C' will be :-

(1) Chloretone (2) Chloropicrin

(3) Mustard gas (4) Lewisite gas

78. $CH_3–C\equiv C–CH_3 \xrightarrow[(ii)\ Zn/H_2O]{(i)\ X} CH_3–\underset{\underset{O}{\|}}{C}–\underset{\underset{O}{\|}}{C}–CH_3$

'X' :-

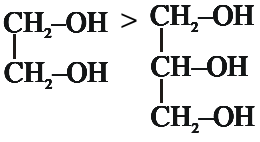
(1) HNO_3 (2) O_2

(3) O_3 (4) $KMnO_4$

79.

(1) LiF > LiCl > LiBr > LiI

(2) $NaCl < MgCl_2 < AlCl_3$

(3) $CH_3OH >$  $>$

(4) $(CH_3)_3NO > (CH_3)_3PO$

80.

(1) Cr_2O_3 (2) SnO_2 (3) ZnO (4) HgO

81. KCl X

4 : 1 KCl

X

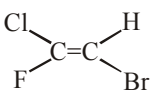
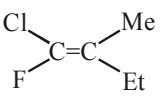
(1) 50%

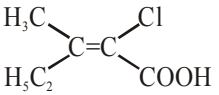
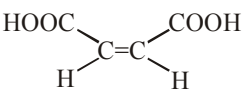
(2) 80%

(3) 50%

(4) 75%

82. 'Z' :-

(1)  (2) 

(3)  (4) 

83. $C_2H_5Cl \xrightarrow[Ag_2O]{Moist} A \xrightarrow[360°C]{Al_2O_3} B \xrightarrow{S_2Cl_2} C$

'C' :-

(1) (2)

(3) (4)

84. How many bond angle of 90º are present in IF_5:-

(1) 0 (2) 12 (3) 8 (4) 4

85. Which of the following reaction gives H_2 gas :-

(1) Zn + dil. H_2SO_4

(2) Al + NaOH excess

(3) Zn + NaOH excess

(4) All of these

86. In the equilibrium $SO_2Cl_2 \rightleftharpoons SO_2 + Cl_2$ at 2000 K and 10 atm pressure, %, Cl_2 = % SO_2 = 40 by volume. Then

(1) K_p = 2 atm

(2) $\frac{n(SO_2Cl_2)}{n(SO_2)} = \frac{1}{4}$ at equilibrium

(3) K_p = 8 atm

(4) $n(SOCl_2) = n(SO_2) = n(Cl_2)$

87. $(CH_3)_3$ C–Br $\xrightarrow{H_2O}$ $(CH_3)_3$ C–OH is :-

(1) Elimination reaction

(2) Substitution reaction

(3) Free radical addition

(4) Addition reaction

88.  'X' will be :-

(1) $CH_3OH/H^{\oplus}$ (2) $CH_3CH_2OH/H^{\oplus}$

(3) $H_2O/H^{\oplus}$ (4) $HOCl/H^{\oplus}$

89. Which of the following species does exist :

(1) PbI_4 (2) BiF_5

(3) $Cl_3^{\ominus}$ (4) IBr_7

90. Which of the following species do not exist :-

(1) $NaOH + NaHCO_3$

(2) NaOH + KOH

(3) $H_2SO_4 + HNO_3$

(4) $SO_3 + Cl_2O_7$

84. IF_5 90º

(1) 0 (2) 12 (3) 8 (4) 4

85. H_2 :-

(1) Zn + dil. H_2SO_4

(2) Al + NaOH excess

(3) Zn + NaOH excess

(4) All of these

86. $SO_2Cl_2 \rightleftharpoons SO_2 + Cl_2$ 2000 K 10 atm
Cl_2 = $SO_2 = 40$

(1) K_p = 2 atm

(2) $\frac{n(SO_2Cl_2)}{n(SO_2)} = \frac{1}{4}$ at equilibrium

(3) K_p = 8 atm

(4) $n(SOCl_2) = n(SO_2) = n(Cl_2)$

87. $(CH_3)_3$ C–Br $\xrightarrow{H_2O}$ $(CH_3)_3$ C–OH :-

(1)

(2)

(3)

(4)

88.  'X' :-

(1) $CH_3OH/H^{\oplus}$ (2) $CH_3CH_2OH/H^{\oplus}$

(3) $H_2O/H^{\oplus}$ (4) $HOCl/H^{\oplus}$

89.

(1) PbI_4 (2) BiF_5

(3) $Cl_3^{\ominus}$ (4) IBr_7

90. :-

(1) $NaOH + NaHCO_3$

(2) NaOH + KOH

(3) $H_2SO_4 + HNO_3$

(4) $SO_3 + Cl_2O_7$

91. In flowering plant, male gametes are formed by:-
(1) Meiosis (2) Mitosis
(3) Free nuclear division (4) Endomitosis

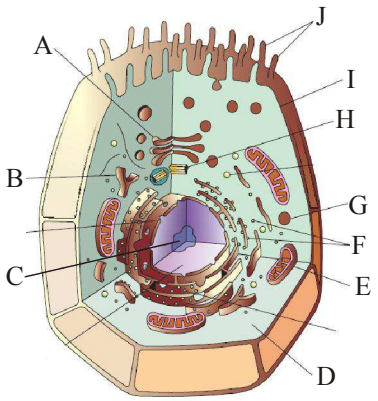
92. Following are some facts about World and Indian demography. Which statement is incorrect ?
(1) The world population was 2 million in 1900 which increased to 6 million in 2000.
(2) At the time of independence, Indian population was 350 million
(3) According to 2001 census population growth rate is still 1.7%.
(4) Decline is death rate, MMR and IMR are causes of rapid increase in population.

93. Dikaryophase is observed in :-
(1) *Aspergillus* (2) *Agaricus*
(3) *Puccinia* (4) All of above

94. Name the cnidoblast bearing ctenophore.
(1) *Pleurobrachia* (2) *Ctenoplana*
(3) *Euchlora* (4) *Cestum*

95. Who proved that the DNA in chromosome also replicate semiconservatively :-
(1) Taylor (2) Mendel
(3) Morgan (4) Meselson and stahl

96. Correlate the given features of animal cells (I to IV) with their respective parts :-



(I) The structure replicates during division and organizes the spindle.
(II) Main arena for cellular activities
(III) Power house of the cell.
(IV) Increases the surface area for the absorption of materials.

The **correct** option is :-

	I	II	III	IV
(1)	B	E	H	J
(2)	H	D	E	J
(3)	H	B	E	G
(4)	H	D	G	E

91. :-
(1) (2)
(3) (4)

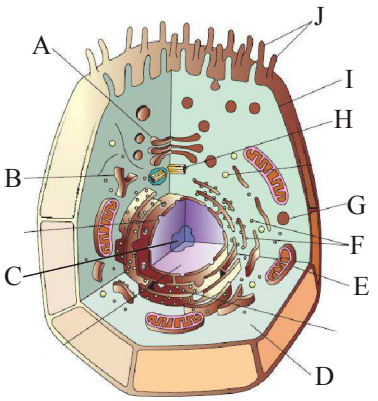
92. ?
(1) 1900 2
2000 6
(2) 350
(3) 2001 1.7%
(4) MMR IMR

93.
(1) (2)
(3) (4)

94.
(1) (2)
(3) (4)

95. DNA :-
(1) Taylor (2) Mendel
(3) Morgan (4) Meselson and stahl

96. (I IV) :-



(I)
(II)
(III)
(IV)

:-

	I	II	III	IV
(1)	B	E	H	J
(2)	H	D	E	J
(3)	H	B	E	G
(4)	H	D	G	E

97. Which of the following statement is not correct about enzyme nitrogenase ?
(1) It is highly sensitive to molecular oxygen
(2) It has the ability to oxidise molecular nitrogen through-nitrogen fixation
(3) It is an Fe-Mo-Protein complex
(4) Nitrogenase is not active when *Rhizobium* is freely present in soil.

98.

Above diagram shows.
(1) Adaptive radiation
(2) Convergent evolution
(3) Reproductive isolation
(4) Artificial selection

99. Which is incorrect with respect to regulation of cardiac activity :-
(1) Neural centre in medulla oblongata can moderate the cardiac function.
(2) Parasympathetic nerves can increase the heart rate.
(3) Sympathetic nerves can increase the strength of ventricular contraction.
(4) Adrenal medullary hormones can also increase the cardiac output.

100. Which of the following is an example of co-evolution ?
(1) Barnacle and whale
(2) Clown fish and sea anemone
(3) Hermit crab and sea anemone
(4) Bees and orchid flower

101. Pollen grain of which plant causes allergy :-
(1) Myosotis
(2) Typha
(3) Capparis
(4) Parthenium

102. Which of the following cannot be considered as accessory sex duct in male reproductive system:-
(1) Seminiferous tubule
(2) Vas deference
(3) Epididymis
(4) Rete testis

97.
?
(1)
(2)
(3) Fe-Mo-
(4)

98.

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

99. :-
(1)
(2)
(3)
(4)

100. ?
(1)
(2)
(3)
(4)

101. :-
(1)
(2)
(3)
(4)

102. :-
(1)
(2)
(3)
(4)

103. Consider the following statements. How many statements are **correct** ?

(a) Diatoms form kieselgurh

(b) Neurospora is used for the study of genetics in plant kingdom.

(c) Heterospory is a characteristic feature in the life cycle of a few members of pteridophytes and all spermatophytes.

(d) Most algal genera show haplontic life cycle.

(1) Three (2) One

(3) Four (4) Two

104. Name the amphibian which does not have two pairs of limbs.

(1) *Bufo* (2) *Ichthyophis*

(3) *Hyla* (4) *Rana*

105. Which of the following enzyme did not affect transformation in griffith experiment :-

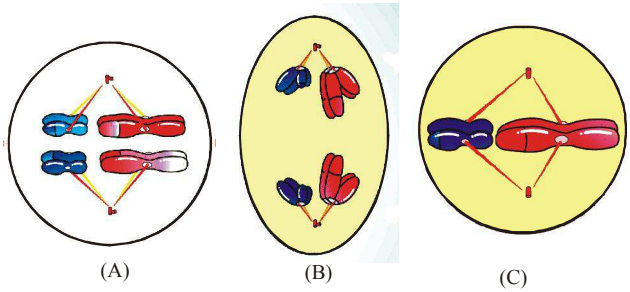
(1) Proteases

(2) RNAases

(3) DNAases

(4) 1 & 2 both

106. Carefully observe the diagram given below and read the statement :-



(A) (B) (C)

(a) Chromosomes are moved to spindle equator

(b) Chromosome is made up of two chromatids

(c) Centromere split and chromatid separates

(d) Chromatids start move to opposite poles

From the above events how many are **correct** for diagram B :-

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

107. Regarding photosynthesis, Jan Ingenhousz established the essentiality of sunlight and green colour respectively by using :-

(1) Bell jar setup

(2) An aquatic plant and radioisotopic technique

(3) Cladophora algae and purple sulphur bacteria

(4) Bell jar setup and green sulphur bacteria

103.

(a)

(b)

(c)

(d)

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

104.

(1) (2)

(3) (4)

105.

:-

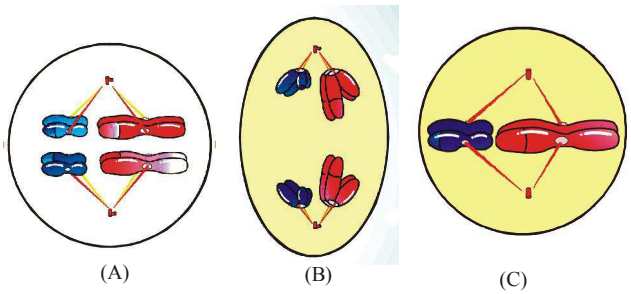
(1) Proteases

(2) RNAases

(3) DNAases

(4) 1 & 2

106. :-



(A) (B) (C)

(a)

(b)

(c)

(d)

B

(1) 1 (2) 4

(3) 2 (4) 3

107.

(1)

(2)

(3)

(4)

108. Read the following statements (A-D).

(A) *Haemophillus influenzae* is responsible for the disease pneumonia in human.

(B) *Rhino* Viruses cause one of the most infectious human *ailments* common cold.

(C) *Wuchereria* cause filariasis.

(D) Many fungi like *Microsporum*, *Trichophyton* and *Epidermophyton* are responsible for ringworms.

How many of the above statement are true :-

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

109. Which of the following is most appropriate with respect to secretion of gastric glands in adults :-

(1) Mucus, Bicarbonates

(2) Mucus, Renin, HCl, Bicarbonates

(3) Mucus, Lipase, HCl, Bicarbonates

(4) Lipase, Renin, HCl, Pepsin

110. Which of the following option correctly represent basis of stratification in Lake ?

(1) Mode of arrangement of various growth forms

(2) Need of light

(3) Species diversity

(4) Type of soil

111. Filliform apparatus is present in :-

(1) Suspensor cell

(2) Egg cell

(3) Synerigids

(4) Zygote

112. A couple is unable to produce a child even after two years of marriage. After medical investigations it is found that female ovary is not able to produce the egg but her fallopian tubes and uterus are suitable for reproductive events. Male has no reproductive dysfunction. Which artificial technique would be followed to help the couple to get a child :-

(1) ICSI (2) GIFT (3) ZIFT (4) IUI

108. (A-D)

(A)

(B)

(C)

(D)

:-

(1) 4 (2) 3

(3) 2 (4) 1

109.

:-

(1)

(2) HCl,

(3) , HCl,

(4) HCl,

110.

?

(1)

(2)

(3)

(4)

111. :-

(1)

(2)

(3)

(4)

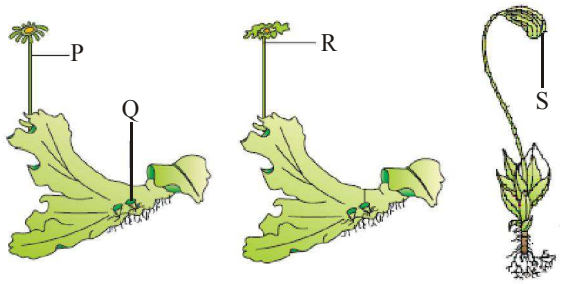
112. 2

:-

(1) ICSI (2) GIFT

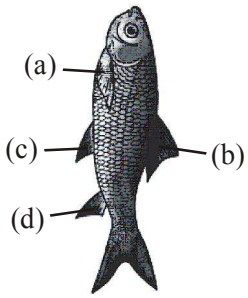
(3) ZIFT (4) IUI

113. Observe the following figures and identify the labelled structures P, Q, R, and S:-



	P	Q	R	S
1.	Archegonio-phore	Gemma cup	Antheridio-phore	Seta
2.	Antheridio-phores	Rhizoids	Archegonio-phore	Capsule
3.	Antheridio-phore	Seta	Archegonio-phore	Leaves
4.	Archegonio-phore	Gemma cup	Antheridio-phore	Capsule

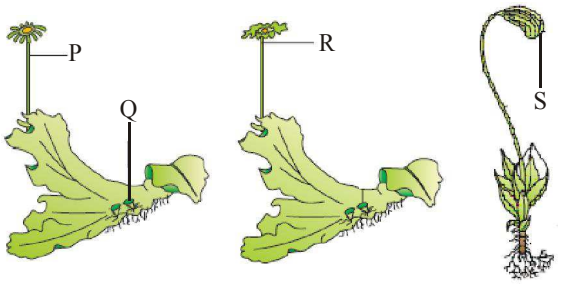
114. Identify the types of fins (a), (b), (c) and (d) in the figure of *Catla* bony fish shown below.



Options :-

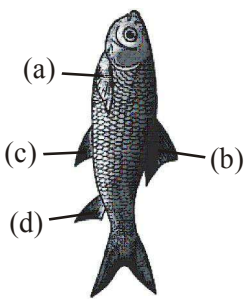
	(a)	(b)	(c)	(d)
(1)	Pelvic	Anal	Pectoral	Dorsal
(2)	Pectoral	Dorsal	Pelvic	Anal
(3)	Pelvic	Dorsal	Pectoral	Anal
(4)	Pectoral	Anal	Pelvic	Dorsal

113. P, Q, R S :-



	P	Q	R	S
1.				
2.				
3.				
4.				

114. (a), (b), (c) (d)



:-

	(a)	(b)	(c)	(d)
(1)				
(2)				
(3)				
(4)				

115. Selectable markers used in RDT because :-
(1) Selection of marker gene
(2) Selection of vector
(3) Selection of transformants and eliminating non-transformants
(4) Selection of non-transformants and eliminating transformants

116. Read the following four statements (A-D) :-
(A) Depending on the ease of extraction, membrane proteins can be classified as hydrophobic and hydrophilic.
(B) Cell membrane is composed of lipids that are arranged in monolayer.
(C) The lipids are arranged within the membrane with the non polar head towards outer side and the hydrophilic tail towards the inner side.
(D) Phagocytosis and pinocytosis are collectively termed as endocytosis.
Which of the above statements are **wrong**?
(1) C & D (2) A, B & C
(3) Only D (4) B & D

117. The fact, that C_3 plants respond to higher CO_2 concentration and show higher productivity, has been used for some greenhouse crops such as :-
(1) Maize and tomatoes
(2) Bell pepper and Sorghum
(3) Maize and Sorghum
(4) Bell pepper and tomatoes

118. (a) The lymph nodes are small solid structures
(b) The thymus is quite large at the time of birth
(c) Spleen is secondary lymphoid organ
(d) MALT constitutes about 50% of the lymphoid tissue in human body.
Identify the correct statement :-
(1) a. c only (2) c only
(3) a, b, d only (4) all are correct

119. Consider the following vertebrates :- Fishes, Birds, Mammals, reptiles and Amphibians which of the following option correctly represent the decreasing order in relation to number of species?
(1) Amphibians < Mammals < Reptiles < Fishes < Birds
(2) Mammals < Amphibians < Reptiles < Birds < Fishes
(3) Mammals < Amphibians < Birds < Reptiles < Fishes
(4) Amphibians < Mammals < Birds < Fishes < Reptiles

115. RDT :-
(1)
(2)
(3)
(4)

116. (A-D):-
(A)
(B)
(C)
(D)
(1) C D (2) A, B C
(3) D (4) B D

117. C_3 CO_2
:-
(1)
(2)
(3)
(4)

118. (a)
(b)
(c)
(d) MALT
50%
:-
(1) a. c (2) c
(3) a, b, d (4)

119. :-
, , ,
?
(1) < < < <
(2) < < < <
(3) < < < <
(4) < < < <

120. Which of the following acts as ATPase during muscle contraction :-
(1) Troponin (2) Actin
(3) Myosin (4) Tropomyosin

121. Entomophily is present in :-
(1) Wheat (2) Sunflower
(3) Rice (4) All of the above

122. Morphogenetic movements in embryonic development are seen in :-
(1) during fertilization
(2) Blastulation
(3) Gastrulation
(4) during implantation

123. In earlier classification system which organisms were included under "Plants" :-
(1) Bacteria, BGA, Fungi, Bryophyte, Ferns and Spermatophytes
(2) Bacteria, protozoa, Green algae, Porifera & Moss
(3) Green algae, Moss, Bryophytes, Protozoa & Porifera
(4) Moss, Ferns, Gymnosperms, Protozoa and Porifera

124. Read the following statements :-
(a) Characters are controlled by same units called factors
(b) In an dissimilar pair of factor one member dominates the other
(c) The law of dominance is used for explain the expression of only one parents in F_2
(d) Factors occors in pairs
Which of the above statements explain mendel's law of dominance ?
(1) Only a (2) Only b & d
(3) a, b, c, d (4) Only a & b

125. Match the following with respect to the average composition of cells :-

Component		% of the total cellular mass	
a.	Protein	(i)	5-7%
b.	Carbohydrates	(ii)	3%
c.	Lipids	(iii)	10-15
d.	Nucleic acid	(iv)	2

(1) a - i, b - iii, c - ii, d - iv
(2) a - iii, b - ii, c - iv, d - i
(3) a - iii, b - i, c - iv, d - ii
(4) a - i, b - ii, c - iii, d - iv

120. ATPase :-
(1) (2)
(3) (4)

121. :-
(1) (2)
(3) (4)

122. :-
(1)
(2)
(3)
(4)

123. :-
(1)
(2)
(3)
(4)

124. :-
(A)
(B)
(C) F_2
(D)
(1) a (2) b d
(3) a, b, c, d (4) a b

125. :-

a.	Protein	(i)	5-7%
b.	Carbohydrates	(ii)	3%
c.	Lipid	(iii)	10-15
d.	Nucleic acid	(iv)	2

(1) a - i, b - iii, c - ii, d - iv
(2) a - iii, b - ii, c - iv, d - i
(3) a - iii, b - i, c - iv, d - ii
(4) a - i, b - ii, c - iii, d - iv

126. Which of the following are **incorrect** with respect to reduction division ?

(1) Interkinesis is short lived phase which is followed by prophase-II, a much simpler phase than prophase-I

(2) Diakinesis is marked by terminalization of chiasmata

(3) Pairing of homologous chromosomes occurs in prophase-I

(4) Spliting of centromere of each chromosome occurs in anaphase-I

127. A synthetic growth regulator used to promote synchronized flowering in pineapples :-

(1) Benzyl aminopurine

(2) Phenyl mercuric acetate

(3) Indole butyric acid

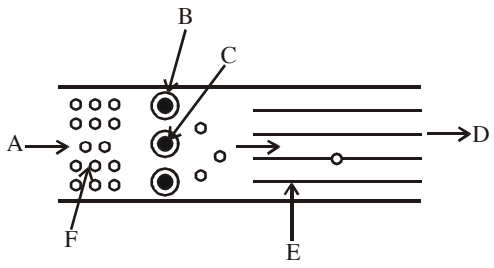
(4) Ethephon

128. In severe cases finger nails and lips may turn gray to bluish in colour in which of the following disease :-

(1) Pneumonia (2) Malaria

(3) Typhoid (4) Filariasis

129. In the given diagram of Electrostatic precipitator. which of the following option correctly represent A,B,C,D,E and F ?



	A	B	C	D	E	F
(1)	Clean air	Dust particles	Negatively charged wire	Dirty air	Collection plate grounded	Discharged corona
(2)	Clean air	Discharge corona	Dust particles	Dirty air	Collection plate grounded	Negatively charged wire
(3)	Dirty air	Discharge corona	negatively charged wire	Clean air	Collection plate grounded	Dust particles
(4)	Dirty air	Negatively charged wire	Discharge corona	Clean air	Collection plate grounded	Dust particles

126.

(1)

-II -I

(2)

(3) -I

(4) -I

127. pineapples

:-

(1) Benzyl aminopurine

(2) Phenyl mercuric acetate

(3) Indole butyric acid

(4) Ethephon

128.

:-

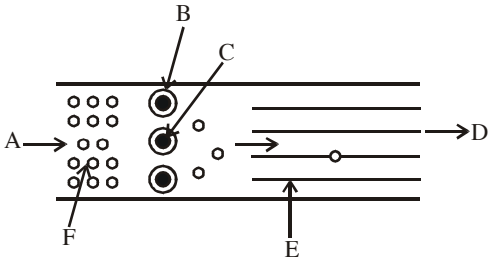
(1) (2)

(3) (4)

129.

A,B,C,D,E F

?



	A	B	C	D	E	F
(1)						
(2)						
(3)						
(4)						

130. Olecranon process present in :-
(1) Proximal end of humrus
(2) Proximal end of ulna
(3) Distal end of ulna
(4) Distal end of humrus

131. Junction between ovule and funicle is :-
(1) Hilum (2) Chalaza
(3) Micropyle (4) Raphe

132. If there is no fertilization then corpus luteum start degeneration on 9th day of its formation. Reason of start of degeneration is :-
(1) Increase in amount of LH
(2) Decrease in amount of LH
(3) Increase in amount of GnRH
(4) Decrease in level of progesteron

133. Read the following four statements (A-D) with respect to epithelial tissue.
(A) It has a free surface, which faces either a body fluid or the outside environment and thus provides a covering or a lining for some part of the body.
(B) The cuboidal epithelium of proximal convoluted tubules of nephron in the kidney lacks microvilli.
(C) The function of ciliated epithelium is to move particles or mucus in all directions over the epithelium
(D) Compound epithelium cover the dry surface of the skin, moist surface of buccal cavity, pharynx, inner lining of ducts of salivary glands and of pancreatic ducts.
How many of the above statements are right ?
(1) One (2) Two (3) Three (4) Four

134. Select the correct combination :-

	Interection	Ratio	Example
(1)	Complimentary gene	9 : 7	Garden pea
(2)	Dominant epistasis	9 : 3 : 4	Hair colour in dog
(3)	Recessive epistasis	12 : 3 : 1	Coat colour in mice
(4)	Supplementary gene	9 : 3 : 4	Coat colour in mice

130. :-
(1)
(2)
(3)
(4)

131. :-
(1) (2)
(3) (4)

132.
9
:-
(1) LH
(2) LH
(3) GnRH
(4)

133. (A-D)
(A) -
(B)
(C)
(D)
?
(1)
(2)
(3)
(4)

134. :-

(1)		9 : 7	
(2)		9 : 3 : 4	
(3)		12 : 3 : 1	
(4)		9 : 3 : 4	

135. Match the column I with column II :-

Column - I		Column - II	
(a)	Restriction enzyme	(i)	Molecular glue
(b)	DNA ligase	(ii)	Molecular scissor
(c)	Lysozyme	(iii)	Antimicrobial
(d)	Tag polymerase	(iv)	PCR

(1) a - ii, b - i, c - iv, d - iii

(2) a - ii, b - iv, c - iii, d - i

(3) a - ii, b - i, c - iii, d - iv

(4) a - i, b - ii, c - iii, d - iv

136. How many of the following concern with nucleus?

Oxysomes, Cristae, Double membrane, Stroma, Nucleoplasm, Porins, Chromatin, Nuclear pores, Nucleolus, Thylakoids, 9 + 2 arrangement of Microtubules, Chlorophyll, r-RNA synthesis, Lamins protein

(1) Seven (2) Five (3) Nine (4) Ten

137. Exponential growth in plant can be expressed as:-

(1) $L_t = L_0 \times rt$

(2) $L_0 = L_u \times rt$

(3) $W_t = W_0 e^{rt}$

(4) $W_t = W_0 e^{rt}$

138. Which of the following is example of active immunity:-

(1) foetus receives antibodies from mother through placenta during pregnancy.

(2) colostrum secreted by mother during initial days of lactation has abundant antibodies to protect the infant.

(3) Injecting the microbes deliberately during immunisation.

(4) All of the above.

135. I II :-

Column - I		Column - II	
(a)	Restriction enzyme	(i)	Molecular glue
(b)	DNA ligase	(ii)	Molecular scissor
(c)	Lysozyme	(iii)	Antimicrobial
(d)	Tag polymerase	(iv)	PCR

(1) a - ii, b - i, c - iv, d - iii

(2) a - ii, b - iv, c - iii, d - i

(3) a - ii, b - i, c - iii, d - iv

(4) a - i, b - ii, c - iii, d - iv

136.

9 + 2 r-RNA

(1) (2)

(3) (4)

137. :-

(1) $L_t = L_0 \times rt$

(2) $L_0 = L_u \times rt$

(3) $W_t = W_0 e^{rt}$

(4) $W_t = W_0 e^{rt}$

138. :-

(1)

(2)

(3)

(4)

139. Identify the correct match from the column I,II and III :-

	Column-I	Column-II	Column-III
(1)	Mutualism	(a) (+,–)	(i) Visiting flamingoes and resident fishes in south american lakes
(2)	Competition	(b) (+, 0)	(ii) Starfish pisaster in American pacific coast
(3)	Predation	(c) (+, +)	(iii) Cattle egret birds and cattle
(4)	Commensalism	(d) (–, –)	(iv) Lichens

(1) 1-d-(iv),2-c-(i),3-a-(ii),4-b-(iii)
(2) 1-c-(iv),2-d-(i),3-a-(ii),4-b-(iii)
(3) 1-c-(iv),2-d-(iii),3-a-(ii),4-b-(i)
(4) 1-d-(iv),2-c-(i),3-b-(ii),4-a-(iii)

140. Person suffering from diabetes inspidus will show which of the following symptom/s :-
(1) Dilute urine (2) Debydration
(3) Polydipsia (4) All of the above

141. Match the following and choose correct option :-

	Column-I		Column-II
(a)	Brassicaceae	(i)	Placenta swollen
(b)	Fabaceae	(ii)	Flowers trimerous
(c)	Solanaceae	(iii)	Stamens tetradynamous
(d)	Liliaceae	(iv)	Gynoecium monocarpellary

Option :-
(1) a-(iv), b-(iii), c-(ii), d-(i)
(2) a-(i), b-(ii), c-(iii), d-(iv)
(3) a-(iii), b-(iv), c-(i), d-(ii)
(4) a-(iii), b-(iv), c-(ii), d-(i)

139. I,II III :-

	-I	-II	-III
(1)		(a) (+,–)	(i)
(2)		(b) (+, 0)	(ii)
(3)		(c) (+, +)	(iii)
(4)		(d) (–, –)	(iv)

(1) 1-d-(iv),2-c-(i),3-a-(ii),4-b-(iii)
(2) 1-c-(iv),2-d-(i),3-a-(ii),4-b-(iii)
(3) 1-c-(iv),2-d-(iii),3-a-(ii),4-b-(i)
(4) 1-d-(iv),2-c-(i),3-b-(ii),4-a-(iii)

140.
:-
(1) (2)
(3) (4)

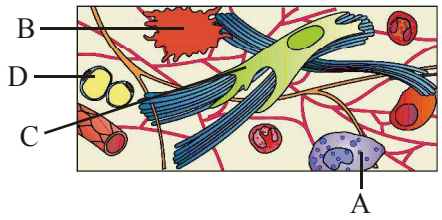
141.

	-I		-II
(a)		(i)	
(b)		(ii)	
(c)		(iii)	
(d)		(iv)	

:-
(1) a-(iv), b-(iii), c-(ii), d-(i)
(2) a-(i), b-(ii), c-(iii), d-(iv)
(3) a-(iii), b-(iv), c-(i), d-(ii)
(4) a-(iii), b-(iv), c-(ii), d-(i)

142. List some of the plants are given below.
Dryopteris, *Pteridium*, *Pteris*, *Adiantum*, *Selaginella*, *Salvinia*, *Azolla*, *Marsilea*
How many above plants are heterosporous?
(1) Three (2) Four
(3) Five (4) Two

143. Given below is the diagrammatic sketch of a Areolar loose connective tissue. Identify the parts labelled A, B, C and D and select the right option about them.



	Part-A	Part-B	Part-C	Part-D
(1)	Mast cell	Macrophage	Fibroblast	Adipocyte
(2)	Macrophage	Mast cell	Collagen fibre	Lymphocyte
(3)	Mast cell	Fibroblast	Lymphocyte	Adipocyte
(4)	Macrophage	Mast cell	Fibroblast	Plasma cell

144. In a population albinism is present is 60 individuals out of 6000. What is number of normal offspering in population :-
(1) 4860 (2) 5460
(3) 5940 (4) 2000

145. Which statement is not correct for GM crops ?
(1) Crops more tolerant to abiotic stresses
(2) Enhanced nutritional value of food
(3) Reduced reliance on chemical pesticides
(4) Decresed efficiency of mineral usage by plants

146. Which of the following statements regarding cofactors of enzymes is **correct** ?
(1) Zinc is a cofactor for the proteolytic enzyme carboxypeptidase
(2) Nicotinamide adenine dinucleotide contain the vitamine riboflavin
(3) Cofactor is the part of enzyme which does not affect the catalytic activity of the enzyme
(4) Prosthetic groups are distinguished from other cofactors in that prosthetic groups are loosely bound to the apoenzyme

142.
(1) (2)
(3) (4)

143. A, B, C D
-

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

144. 6000 60
:-
(1) 4860 (2) 5460
(3) 5940 (4) 2000

145. GM ?
(1)
(2)
(3)
(4)

146. ?
(1)
(2)
(3)
(4)

147. Out of following which statement is incorrect ?
(1) The universe is almost 20 billion years old
(2) Earth was supposed to have been formed about 4.5 billion years back
(3) Life appeared 500 million years after the formation of earth
(4) The big bang theory erxplain the origin of earth

148. Most of the nutrients like amino acids, glucose, electrolytes like Na^+ are absorbed through :-
(1) Facilitated transport
(2) Active transport
(3) Osmotic gradient
(4) Small protein coated fat globules

149. Find out the correct match from the following table ?

	Act	Year
(i)	The National Environment protection Act	1981
(ii)	The insecticide Act	1968
(iii)	The water (prevention and control of pollution) Act	1974
(iv)	The air(Prevention and control of pollution) Act	1986

(1) (i),(ii) and (iii) (2) (ii) and (iv) only
(3) (ii) and (iii) only (4) (i),(iii) and (iv)

150. ANF is secreted by :-
(1) Atrial wall and increase blood pressure
(2) Atrial wall and decrease blood pressure
(3) Ventrical wall and decrease blood pressure
(4) Both atrial and ventricular wall to decrease blood pressure

151. The floral formula of Petunia is :-
(1) $\oplus \male\!\female\, K_{(5)}\, C_{(5)}\, A_5\, \underline{G}_{(2)}$ (2) $\oplus \male\!\female\, K_5\, \overset{\frown}{C_5}\, A_{(5)}\, \underline{G}_{(2)}$
(3) $\oplus \male\!\female\, K_{(5)}\, \overset{\frown}{C_{(5)}}\, A_5\, \underline{G}_2$ (4) $\oplus \male\!\female\, K_{(5)}\, C_{(5)}\, A_{(5)}\, \underline{G}_{(2)}$

152. List some of the plants are given below :-
Cedrus, Pinus, Cycas, Marchantia, Castor, *Polytrichum*, Mustard.
How many above plants have an independent free living existance of male and female gametophyte
(1) Three (2) Two
(3) Five (4) Four

147.
(1) 20
(2) 4.5
(3) 500
(4)

148. Na^+ :-
(1)
(2)
(3)
(4)

149. ?

(i)		1981
(ii)		1968
(iii)	( )	1974
(iv)	( )	1986

(1) (i),(ii) and (iii) (2) (ii) and (iv) only
(3) (ii) and (iii) only (4) (i),(iii) and (iv)

150. ANF :-
(1)
(2)
(3)
(4)

151. :-
(1) $\oplus \male\!\female\, K_{(5)}\, C_{(5)}\, A_5\, \underline{G}_{(2)}$ (2) $\oplus \male\!\female\, K_5\, \overset{\frown}{C_5}\, A_{(5)}\, \underline{G}_{(2)}$
(3) $\oplus \male\!\female\, K_{(5)}\, \overset{\frown}{C_{(5)}}\, A_5\, \underline{G}_2$ (4) $\oplus \male\!\female\, K_{(5)}\, C_{(5)}\, A_{(5)}\, \underline{G}_{(2)}$

152. :-
, , , , ,
:-
(1) (2)
(3) (4)

153. Many species of cockroaches are :-

(1) Wild

(2) Pests

(3) Have economic importance

(4) Both (1) & (3)

154. Consider the following four statement A, B, C and D and select the right option for two correct statements :-

(A) Dominance is not an autonomous feature of a gene

(B) In case of co-dominance the f_1 generation resembled either of two parents

(C) Due to dominance alleles do not show any blending

(D) In ABO blood type four types or phenotypes are formed

The correct statement are

(1) A and B (2) B and C

(3) C and D (4) A and D

155. In transgenics, expression of transgene in target tissue is determined by :-

(1) Reporter

(2) Enhancer

(3) Transgene

(4) Promoter

156. Read the following four statements (A–D) :-

(A) Thermal stability is an important quality of enzymes which are isolated from thermophilic organisms

(B) Formation of Enzyme substrate complex, during enzymatic reaction, is an facultative phenomenon

(C) Enzymes bring down the energy barrier between substrate and transition state to make the transition of substrate to product easy

(D) The essential chemical components of many coenzymes are proteins and vitamins

How many of the above statements are **right** ?

(1) Four (2) One (3) Two (4) Three

153.

(1)

(2)

(3)

(4) (1) (3)

154. A, B, C D

:-

(A)

(B) f_1

(C)

(D) ABO 4

(1) A B

(2) B C

(3) C D

(4) A D

155.

:-

(1) Reporter

(2) Enhancer

(3) Transgene

(4) Promoter

156. (A–D) :-

(A)

(B)

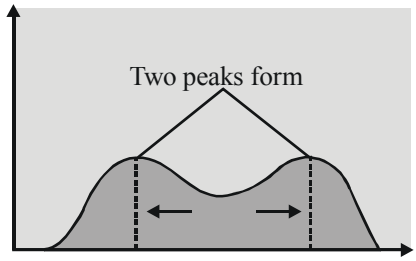
(C)

(D)

(1) (2)

(3) (4)

157.



In above diagram :-

(1) It favours average value and eliminate the extreme value.

(2) It favours one extreme value and eliminate the another extreme and average value.

(3) It favours both extreme values and eliminate average value.

(4) It favours one extreme and average value and eliminate the another extreme value.

158. Total volume of air a person can expire after a normal inspiration. This is termed as :-

(1) Residual volume

(2) Expiratory capacity

(3) Vital capacity

(4) Inspiratory capacity

159. Identify the correct match from column-I and column-II :-

Air pollutant	Effect
(i) Carbon monoxide	(a) cancer causes lungs
(ii) unburn hydrocarbons	(b) Responsible for acid rain
(iii) Ethylene	(c) it impairs respiration and it causes death
(iv) Nitrogen oxide	(d) Falling of leaves with out particular season

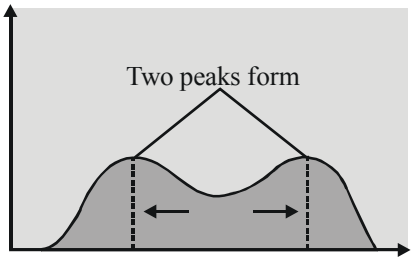
(1) →(i)-(b),(ii)-a,(iii)-(d),(iv)-(c)

(2) →(i)-(c),(ii)-(a),(iii)-(d),(iv)-(b)

(3) →(i)-(c),(ii)-(d),(iii)-(a),(iv)-(b)

(4) →(i)-(c),(ii)-(b),(iii)-(d),(iv)-(a)

157.



:-

(1)

(2)

(3)

(4)

158.

:-

(1)

(2)

(3)

(4)

159. -I -II :-

(i)	(a)
(ii)	(b)
(iii)	(c)
(iv)	(d)

(1) →(i)-(b),(ii)-a,(iii)-(d),(iv)-(c)

(2) →(i)-(c),(ii)-(a),(iii)-(d),(iv)-(b)

(3) →(i)-(c),(ii)-(d),(iii)-(a),(iv)-(b)

(4) →(i)-(c),(ii)-(b),(iii)-(d),(iv)-(a)

160. Cerebellum of brain is responsible for :-
(1) Maintainence of posture
(2) Skillfull movements
(3) Muscular co-ordination
(4) All of the above

161. Which of the following is an example of lateral meristem ?
(1) Root apex
(2) Shoot apex
(3) Intercalary meristem
(4) Inter fascicular cambium

162. In which of the following sexual reproduction is oogamous and accompained by complex post fertilization developments :-
(1) *Ulothrix* (2) *Spirogyra*
(3) *Polysiphonia* (4) *Ectocarpus*

163. The third layer around spermatophore of cockroach is secreted by _____, When double layered spermatophore is released outside from male genital pore during copulation.
(1) Ejaculatory duct
(2) Seminal vesicle
(3) Long tubules of mushroom gland
(4) Phallic gland

164. In this B-DNA assume that 10,000 bp is present than calculate length of DNA ?

(1) 34000 Å (2) 3400 Å
(3) 340 Å (4) 10000 Å

165. Monascus purpureus is a yeast used commercially:-
(1) citric acid
(2) blood chlolesterol lowering agent
(3) ethanol
(4) streptokinase

160. :-
(1)
(2)
(3)
(4)

161.
(1)
(2)
(3)
(4)

162.
:-
(1) (2)
(3) (4)

163. _____
(1)
(2)
(3)
(4)

164. B-DNA 10,000

(1) 34000 Å (2) 3400 Å
(3) 340 Å (4) 10000 Å

165. Monascus purpureus
:-
(1) citricacid
(2) blood chlolesterol
(3) ethanol
(4) streptokinase

166. Which one of the following will yield more energy:-

(1) $C_6H_{12}O_6 \longrightarrow 2CH_3COCOOH$

(2) $C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2$

(3) $C_6H_{12}O_6 \longrightarrow 2C_3H_6O_3$

(4) $C_6H_{12}O_6 + 6O_2 \longrightarrow 6CO_2 + 6H_2O$

167. Which is not a feature of neodarwinism ?

(1) Rapid multiplication

(2) Struggle for existence

(3) Natural selection

(4) Inheritance of acquired characters

168. The sequential event in the heart which is cyclically repeated is called :-

(1) Systole of both atria

(2) Diastole of both atria

(3) Systole of both ventricles

(4) Cardiac cycle

169. Match the following columns :-

Column-I	Column-II
(A) Incineration	(i) Solid waste burning in absence of oxygen
(B) Pyrolysis	(ii) Smoke which release from chimnies
(C) Flu gas	(iii) Solid wastes burning in presence of oxygen
(D) Plume	(iv) Gas which release of from chimnies

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

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

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

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

170. Attraction to opposite sex is controlled by :-

(1) Thalamus located on dorsal side of diencephalon

(2) Hypothalumus located on dorsal side of diencephalon

(3) Hypothalumus located on ventral side of diencephalon

(4) Thalumus located on ventral side of diencephalon

166. :-

(1) $C_6H_{12}O_6 \longrightarrow 2CH_3COCOOH$

(2) $C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2$

(3) $C_6H_{12}O_6 \longrightarrow 2C_3H_6O_3$

(4) $C_6H_{12}O_6 + 6O_2 \longrightarrow 6CO_2 + 6H_2O$

167.

(1)

(2)

(3)

(4)

168.

:-

(1)

(2)

(3)

(4)

169. :-

-I	-II
(A)	(i)
(B)	(ii)
(C)	(iii)
(D)	(iv)

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

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

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

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

170. :-

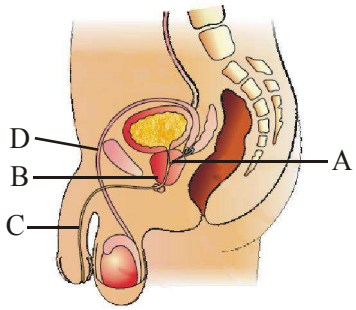
(1)

(2)

(3)

(4)

171.



Identify the A, B, C and D in given diagram of male reproductive system and choose correct option.

(1) A - Ejaculatory duct - Receive both urine as well as semen

(2) B - Prostate - Unpaired accessory sex gland in male

(3) C - Urethra - Carry urine and semen and passess through corpora cavernosa

(4) D - Vas deference - Carry secretion of prostate, seminal vesicle and sperms.

172. In the five kingdom system of classification of Whittaker, how many kingdom are for eukaryotes?

(1) Three (2) Four

(3) Five (4) Two

173. How many characters in the list given below are true regarding aschelminthes.

(a) Circular in cross section, hence the name flatworms.

(b) Pseudocoelomate animals

(c) Alimentary canal is complete with muscular pharynx.

(d) Sexes are separate (Dioecious)

(e) Fertilisation is external

(f) Development is indirect only

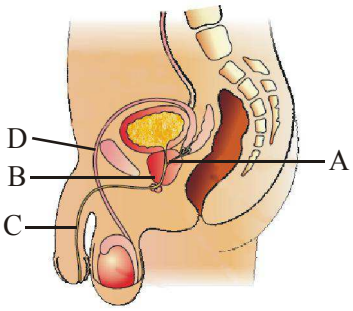
(1) Two (2) Three (3) Four (4) Five

174. The essential life processes such as metabolism, translation and splicing evolved around :-

(1) DNA (2) Protein

(3) RNA (4) Lipid

171.



A, B, C D

(1) A - -

(2) B - -

(3) C - -

(4) D - -

172.

(1) (2)

(3) (4)

173.

(a)

(b)

(c)

(d) -

(e)

(f)

(1) (2)

(3) (4)

174. :-

(1) DNA (2) Protein

(3) RNA (4) Lipid

175. Parbhani kranti is resistance to :-
(1) rust
(2) smut
(3) yellow mosaic virus
(4) blight

176. Engelmann's experiment with cladophora demonstrated that :-
(1) The full spectrum of sunlight is needed for photosynthesis
(2) Only red wavelengths are effective in causing photosynthesis
(3) Only blue wavelengths are effective
(4) Both blue and red wavelengths are effective

177. Out of following in which method herd size increase in a short time.
(1) Cross breeding
(2) Out crossing
(3) Artificial insemination
(4) M.O.E.T.

178. Each kidney is located at the levels of :-
(1) 1st thoracic and 3rd lumbar vertebrae
(2) Last lumbar and 3rd sacral vertebrae
(3) 3rd thoracic and last lumbar vertebrae
(4) Last thoracic and 3rd lumbar vertebrae

179. Match the following :-

(a) Mutualism	(i) Epiphytes
(b) Commensalism	(ii) Lac insects and plants
(c) Protocooperation	(iii) Fig tree and wasp species
(d) Parasitism	(iv) Crocodile and Bird

(1) (a)-(ii),(b)-(i),(c)-(iv),(d)-(iii)
(2) (a)-(iii),(b)-(i),(c)-(iv),(d)-(ii)
(3) (a)-(iii),(b)-(iv),(c)-(i),(d)-(ii)
(4) (a)-(ii),(b)-(iv),(c)-(i),(d)-(iii)

180. If GABA is released at synapse than it would make post synaptic membrane :-
(1) Depolarised (2) Hyperpolarised
(3) More negative (4) Both (2) and (3)

175. Parbhani kranti resistance :-
(1) rust
(2) smut
(3) yellow mosaic virus
(4) blight

176. :-
(1)
(2)
(3)
(4)

177.
(1)
(2)
(3)
(4) M.O.E.T.

178. :-
(1) 1st 3rd
(2) 3rd
(3) 3rd
(4) 3rd

179. :-

(a)	(i)
(b)	(ii)
(c)	(iii)
(d)	(iv)

(1) (a)-(ii),(b)-(i),(c)-(iv),(d)-(iii)
(2) (a)-(iii),(b)-(i),(c)-(iv),(d)-(ii)
(3) (a)-(iii),(b)-(iv),(c)-(i),(d)-(ii)
(4) (a)-(ii),(b)-(iv),(c)-(i),(d)-(iii)

180. GABA
:-
(1) (2)
(3) (4) (2) (3)

SPACE FOR ROUGH WORK /