

NEW STANDARD ACADEMY

Marks: 720

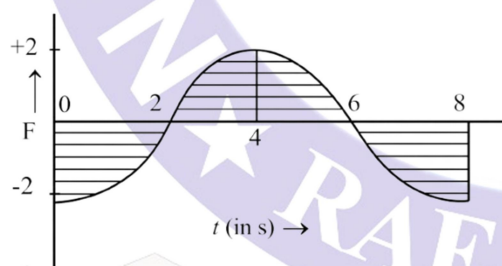
Date : 04-08-2026

CLASS : 12TH NEET

Time: 3 hours

PHYSICS

1. A man is at rest in the middle of a pond on perfectly smooth ice. He can get himself to the shore by making use of Newton's :-
(1) First law (2) Second law
(3) Third law (4) Law of gravitation
2. The velocity acquired by a mass m in travelling a certain distance d starting from rest under the action of a constant force is directly proportional to :-
(1) $\sqrt{m}$ (2) m^0
(3) $1/\sqrt{m}$ (4) m
3. The ratio of gravitational mass to inertial mass is equal to:
(1) $\frac{1}{2}$ (2) 2
(3) 1 (4) None of these
4. Force-time graph for the motion of a body is shown in fig. Change in linear momentum between 0 to 8 s is:-

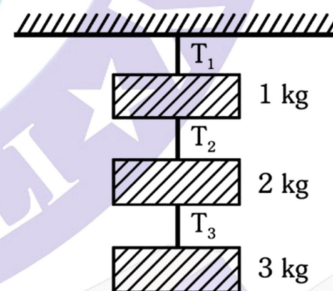


- (1) Zero (3) 8 N-s
(2) 4 N-s (4) None
5. A tennis ball is dropped on the floor from a height of 20 m. It rebounds to a height of 5 m. The ball was in contact with the floor for 0.01 s. What was its average acceleration during the contact? ($g = 10 \text{ m/s}^2$)
(1) 3000 m/s^2 (2) 2000 m/s^2
(3) 1000 m/s^2 (4) 500 m/s^2

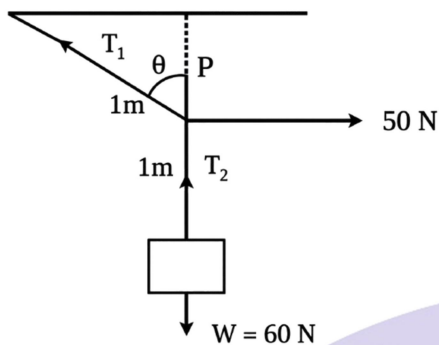
6. n bullet strike per second elastically on a wall and rebound. What will be the force exerted on the wall by bullets if mass of each bullet is m :-

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

7. Ten one-rupee coins are put on top of each other on a table. Each coin has a mass m . Which of the following statements is not true? (counted from the bottom)
(1) The force on the 6th coin due to all the its top is equal to $4mg$ (downwards).
(2) The force on the 6th coin due to the 7th coin is $4mg$ (downwards)
(3) The reaction of the 6th coin on the 7th coin is $4mg$ (upwards).
(4) The total force on the 10th coin is $9mg$ (downwards)
8. Find the tension T_2 dagger the system shown in fig.



- (1) 1g N (2) 2g N
(3) 5g N (4) 6g N
9. A mass of 6 kg is suspended by a rope of length 2 m from a ceiling. A force of 50 N is applied in horizontal direction at the mid point of the rope. What is the angle between the rope and the vertical in equilibrium :-

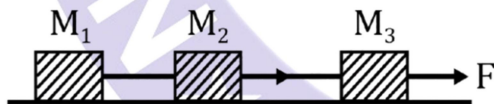


- (1) $\tan^{-1}(4/5)$ (2) $\tan^{-1}(5/4)$
 (3) $\tan^{-1}(5/6)$ (4) None

10. A block of mass 4 kg is suspended through two light spring balances A and B in series. Then A and B will read respectively.

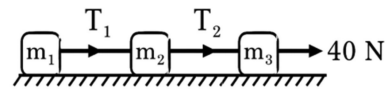
- (1) 4 kg and zero kg
 (2) zero kg and 4 kg
 (3) 4 kg and 4 kg
 (4) 2 kg and 2 kg.

11. Three masses M_1 , M_2 and M_3 are lying on a frictionless table. The masses are connected by massless threads as shown. The mass M_3 is pulled by a constant force F as shown. The tension in the thread between masses M_2 and M_3 is



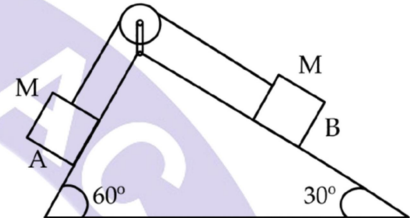
- (1) $\left(\frac{M_1+M_2}{M_1+M_2+M_3}\right) F$
 (2) $\left(\frac{M_2+M_3}{M_1+M_2+M_3}\right) F$
 (3) $\left(\frac{M_1+M_3}{M_1+M_2+M_3}\right) F$
 (4) $\left(\frac{M_1-M_2}{M_1+M_2+M_3}\right) F$

12. Three blocks of masses m_1 , m_2 and m_3 are connected by massless strings as shown in the figure on a frictionless table. They are pulled with a force of 40 N. If $m_1 = 10$ kg, $m_2 = 6$ kg, $m_3 = 4$ kg, then tension T_2 be :



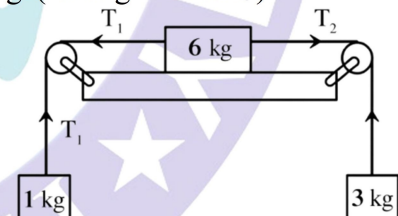
- (1) 10 N (2) 20 N
 (3) 32 N (4) 40 N

13. Two blocks each of mass M are resting on a frictionless inclined planes as shown in fig. then



- (1) The block A moves down the plane
 (2) The block B moves down the plane
 (3) Both the blocks remain at rest
 (4) Both the blocks move down the plane.

14. Three masses of 1 kg, 6 kg and 3 kg are connected to each other with threads and are placed on a table as shown in figure. What is the acceleration with which the system is moving? (Take $g = 10 \text{ m/s}^2$)



- (1) Zero (3) 4 m/s^2
 (2) 2 m/s^2 (4) 3 m/s^2

15. The coefficient of static friction between two surfaces depend on

- (1) the nature of surface
 (2) the shape of the surface in contact
 (3) the area of contact
 (4) all of the above

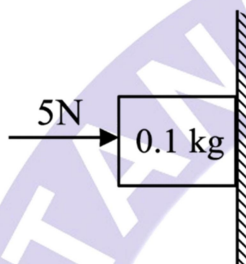
16. A car is moving along a straight horizontal road with a speed v_0 . If the coefficient of friction between tyres and the road is μ . The shortest distance in which the car can be stopped is:

- (1) $\frac{v_0^2}{2\mu g}$ (2) $\frac{v_0^2}{\mu g}$

(3) $\left(\frac{v_0}{\mu g}\right)^2$

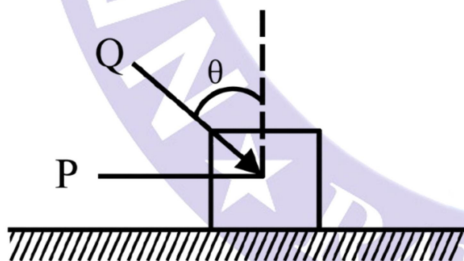
(4) $\frac{2v_0^2}{2\mu g}$

17. A block of mass 0.1 kg. is pressed against a wall with a horizontal force of 5N as shown in the figure. If the coefficient of friction between the wall and the block is 0.5 then the frictional force acting on the block will be ($g = 9.8 \text{ m/s}^2$) :-



- (1) 9.8 N
(2) 2.5 N
(3) 0.98 N
(4) 0.49 N

18. A block of mass m lying on a rough horizontal plane is acted upon by a horizontal force P and another force Q inclined at an angle θ to the vertical. The block will remain in equilibrium if the coefficient of friction between it and the surface is :-



- (1) $\frac{P+Q \sin \theta}{mg+Q \cos \theta}$
(2) $\frac{P \cos \theta + Q}{mg - Q \sin \theta}$
(3) $\frac{P+Q \cos \theta}{mg+Q \sin \theta}$
(4) $\frac{P \sin \theta + Q}{mg+Q \cos \theta}$

19. A given object takes n times as much time to slide down a 45° rough incline as it takes to slide down a perfectly smooth 45° incline. The coefficient of kinetic friction between the object and the incline is given by: by

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

20. The capacitance C of a capacitor is :-

- (1) independent of the charge and potential

of the capacitor.

- (2) dependent on the charge and independent of potential.

- (3) independent of the geometrical configuration of the capacitor.

- (4) independent of the dielectric medium between the two conducting surfaces of the capacitor.

21. The net charge on a capacitor is :-

- (1) $2q$
(2) $q/2$
(3) 0
(4) infinity

22. The earth has Volume ' V ' and Surface area ' A '; then its capacitance would be :

- (1) $4\pi\epsilon_0 \frac{A}{V}$
(2) $4\pi\epsilon_0 \frac{V}{A}$
(3) $12\pi\epsilon_0 \frac{V}{A}$
(4) $12\pi\epsilon_0 \frac{A}{V}$

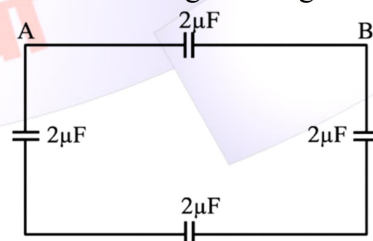
23. A charged parallel plate capacitor of distance d has U_0 energy. A slab of dielectric constant (K) and thickness (d) is then introduced between the plates of the capacitor. The new energy of the system is given by:

- (1) KU_0
(2) K^2U_0
(3) $\frac{U_0}{K}$
(4) $\frac{U_0}{K^2}$

24. A glass slab is put within the plates of a charged parallel plate condenser. Which of the following quantities does not change?

- (1) energy of the condenser
(2) capacity
(3) intensity of electric field
(4) charge

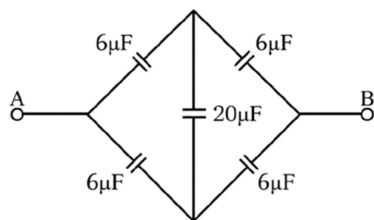
25. The equivalent capacitance between the points A and B in the given diagram is:



- (1) $8 \mu\text{F}$
(2) $6 \mu\text{F}$
(3) $\frac{8}{3} \mu\text{F}$
(4) $\frac{3}{8} \mu\text{F}$

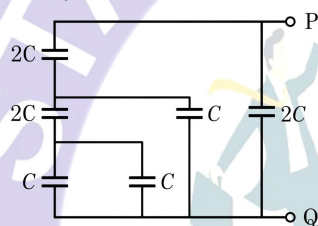
26. The effective capacity of the network

between terminals A and B is:



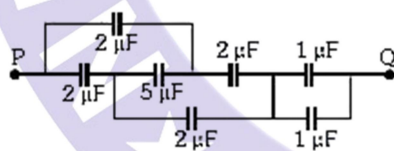
- (1) $6 \mu\text{F}$ (2) $20 \mu\text{F}$
(3) $3 \mu\text{F}$ (4) $10 \mu\text{F}$

27. The value of equivalent capacitance of the combination shown in figure, between the points P and Q is:



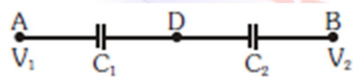
- (1) $3C$ (2) $2C$
(3) C (4) $C/3$

28. The effective capacitance between the points P and Q of the arrangement shown in the figure is:



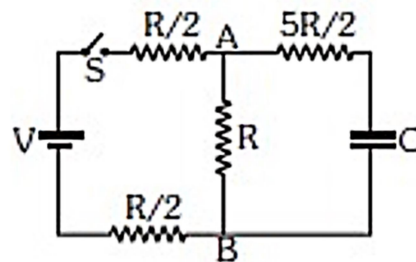
- (1) $(1/2) \mu\text{F}$ (2) $1 \mu\text{F}$
(3) $2 \mu\text{F}$ (4) $1.33 \mu\text{F}$

29. Two capacitances C_1 and C_2 in a circuit are joined as shown in figure. The potential of point A is V_1 and that of B is V_2 . The potential of point D will be:



- (1) $\frac{1}{2}(V_1 + V_2)$ (2) $\frac{C_2 V_1 + C_1 V_2}{C_1 + C_2}$
(3) $\frac{C_1 V_1 + C_2 V_2}{C_1 + C_2}$ (4) $\frac{C_2 V_1 - C_1 V_2}{C_1 + C_2}$

30. In the circuit shown in figure, the battery is an ideal one with emf V . The capacitor is initially uncharged. Switch S is closed at time $t = 0$.



The final charge Q on the capacitor is:

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

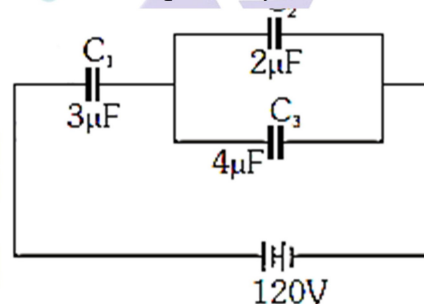
31. In previous question, what is the current in the steady state is?

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

32. A capacitor is charged with a battery and energy stored is U . After disconnecting the battery another capacitor of same capacity is connected in parallel with it. The energy stored in each capacitor is:

- (1) $U/2$ (2) $U/4$
(3) $4U$ (4) $2U$

33. The charge on each capacitors shown in figure and the potential difference across them will be respectively :-



- (1) $240 \mu\text{C}$, $80 \mu\text{C}$, $160 \mu\text{C}$ and 80 V , 40 V ,
(2) $300 \mu\text{C}$, $75 \mu\text{C}$, $150 \mu\text{C}$ and 40 V , 80 V ,
(3) $220 \mu\text{C}$, $70 \mu\text{C}$, $140 \mu\text{C}$ and 60 V , 50 V ,
(4) none of these

34. Two capacitor each having a capacitance C and breakdown voltage V are joined in series. The effective capacitance and maximum working voltage of the

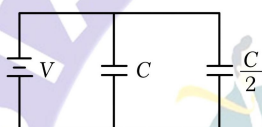
combination is :-

- (1) $2C, 2V$ (2) $\frac{C}{2}, \frac{V}{2}$
 (3) $2C, V$ (4) $\frac{C}{2}, 2V$

35. Total energy stored in a $900 \mu\text{F}$ capacitor at 100 volts is transferred into a $100 \mu\text{F}$ capacitor. The potential drop across the new capacitor is (in volts)

- (1) 900 (2) 200
 (3) 100 (4) 300

36. Two condensers, one of capacity C and the other of capacity $\frac{C}{2}$, are connected to a V -volt battery, as shown.



The work done by battery in charging fully both the condensers is :-

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

37. The energy required to charge a parallel plate condenser of plate separation d and plate area of cross-section A such that the uniform electric field between the plates is E , is :-

- (1) $\epsilon_0 E^2 Ad$ (2) $\frac{1}{2} \epsilon_0 E^2 Ad$
 (3) $\frac{1}{2} \epsilon_0 E^2 / Ad$ (4) $\epsilon_0 E^2 / Ad$

38. A series combination of n_1 capacitors, each of value C_1 , is charged by a source of potential difference $4V$. When another parallel combination of n_2 capacitors, each of value C_2 , is charged by a source of potential difference V , it has the same (total) energy stored in it, as the first combination has. The value of C_2 , in terms of C_1 , is then :-

- (1) $\frac{16 C_1}{n_1 n_2}$ (2) $\frac{2 C_1}{n_1 n_2}$
 (3) $16 \frac{n_1}{n_2} C_1$ (4) $2 \frac{n_1}{n_2} C_1$

39. A parallel plate condenser has a uniform electric field E (V/m) in the space between the plates. If the distance between the plates is d (m) and area of each plate is A (m^2) the

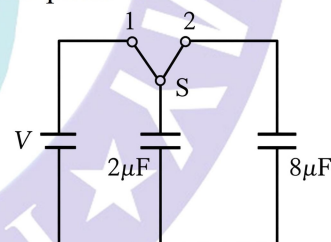
energy (joules) stored in the condenser is :-

- (1) $E^2 Ad / \epsilon_0$ (2) $\frac{1}{2} \epsilon_0 E^2$
 (3) $\epsilon_0 E Ad$ (4) $\frac{1}{2} \epsilon_0 E^2 Ad$

40. A parallel plate air capacitor of capacitance C is connected to a cell of emf V and then disconnected from it. A dielectric slab of dielectric constant K , which can just fill the air gap of the capacitor, is now inserted in it. Which of the following is incorrect?

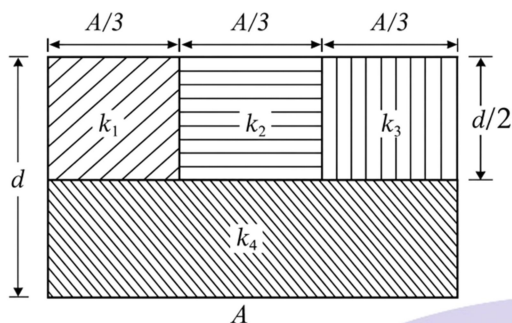
- (1) The energy stored in the capacitor decreases K times.
 (2) The change in energy stored is $\frac{1}{2} CV^2 \left(\frac{1}{K} - 1 \right)$
 (3) The charge on the capacitor is not conserved.
 (4) The potential difference between the plates decreases K times.

41. A capacitor of $2\mu\text{F}$ is charged as shown in the diagram. When the switch S is turned to position 2, the percentage of its stored energy dissipated is:



- (1) 0% (2) 20%
 (3) 75% (4) 80%

42. A Parallel-plate capacitor of area A , plate separation d and capacitance C is filled with four dielectric materials having dielectric constants k_1, k_2, k_3 and k_4 as shown in the figure below. If a single dielectric material is to be used to have the same capacitance C in this capacitor, then its dielectric constant k is given by :-



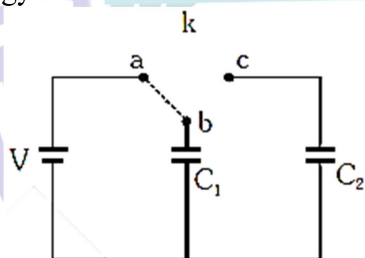
$$(1) \frac{2}{k} = \frac{3}{k_1 + k_2 + k_3 + k_4} + \frac{1}{k_4}$$

$$(2) \frac{1}{k} = \frac{1}{k_1} + \frac{1}{k_2} + \frac{1}{k_3} + \frac{3}{2k_4}$$

$$(3) k = k_1 + k_2 + k_3 + 3k_4$$

$$(4) k = \frac{2}{3}(k_1 + k_2 + k_3) + 2k_4$$

43. Two identical capacitors C_1 and C_2 of equal capacitance are connected as shown in the circuit. Terminals a and b of the key k are connected to charge capacitor C_1 using battery of emf V volt. Now disconnecting a and b the terminals b and c are connected. Due to this, what will be the percentage loss of energy ?



- (1) 75% (2) 0%
(3) 50% (4) 25%

44. Two parallel metal plates having charges $+Q$ and $-Q$ face each other with a certain separation between them. If the plates are now dipped in kerosene oil tank, the electric field between the plates will :-

- (1) increase (2) decrease
(3) remain same (4) become zero

45. A capacitor is charged by a battery. The battery is removed and another identical uncharged capacitor is connected in parallel. The total electrostatic energy of resulting system :-

- (1) Decreases by a factor of 2
(2) Remains the same

(3) Increases by a factor of 2

(4) Increases by a factor of 4

CHEMISTRY

46. Match block and general electronic configuration.

List I (Block)	List I (Electronic configuration)
(a) s-block	(i) ns^2np^{l-6}
(b) p-block	(ii) $(n-1)d^{l-10}ns^2$
(c) d-block	(iii) $(n-2)f^{l-14}(n-1)d^{l-1}ns^2$
(d) f-block	(iv) ns^{l-2}

- (1) a $\rightarrow$ i ; b $\rightarrow$ ii ; c $\rightarrow$ iii ; d $\rightarrow$ iv
(2) a $\rightarrow$ iv ; b $\rightarrow$ ii ; c $\rightarrow$ iii ; d $\rightarrow$ i
(3) a $\rightarrow$ iv ; b $\rightarrow$ i ; c $\rightarrow$ ii ; d $\rightarrow$ iii
(4) a $\rightarrow$ iv ; b $\rightarrow$ iii ; c $\rightarrow$ ii ; d $\rightarrow$ i

47. Match list I with list II and select the correct answer using the codes given below:

List I (Element)	List II (Electronic configuration)
(a) Gallium	(i) $1s^22s^22p^63s^23p^64s^23d^1$
(b) Vanadium	(ii) $1s^22s^22p^63s^23p^64s^23d^{10}$
(c) Zinc	(iii) $1s^22s^22p^63s^23p^64s^23d^{10}4p^1$
(d) Scandium	(iv) $1s^22s^22p^63s^23p^64s^23d^3$

- (1) a $\rightarrow$ ii ; b $\rightarrow$ i ; c $\rightarrow$ iii ; d $\rightarrow$ iv
(2) a $\rightarrow$ iii ; b $\rightarrow$ iv ; c $\rightarrow$ i ; d $\rightarrow$ ii
(3) a $\rightarrow$ iii ; b $\rightarrow$ iv ; c $\rightarrow$ ii ; d $\rightarrow$ i
(4) a $\rightarrow$ i ; b $\rightarrow$ ii ; c $\rightarrow$ iv ; d $\rightarrow$ iii

48. Match List I with List II.

List I	List II
(A) $1s^2$	(p) Positive electron gain enthalpy
(B) $1s^2 2s^2 2p^5$	(q) Highest ionization energy
(C) $1s^2 2s^1$	(r) Lowest ionization energy
(D) $1s^2 2s^2 2p^6$	(s) Highest electron gain enthalpy

- (1) A - p q ; B - p s ; C-r ; D - p
(2) A - p q ; B-r ; C-s ; D - p
(3) A - p q ; B-s ; C-r ; D - p
(4) A - p q ; r ; B-r ; s ; C-r ; D - p

49. The ions O^{2-} F, Na^+ Mg^{2+} and Al^{3+} are

isoelectronic. Their ionic radii show

- (1) a increase from O^{2-} to F^- and then decrease from Na to Al^{3+}
- (2) a decrease from O^{2-} to F^- and then increase from Na^+ to Al^{3+}
- (3) a singnificant increase from O^{2-} to Al^{3+}
- (4) a singnificant decrease from O^{2-} to Al^{3+}

50. Ionic radii are

- (1) Directly proportional to square of effective nuclear charge
- (2) Inversely proportional to effective nuclear charge
- (3) Inversely proportional to square of effective nuclear charge
- (4) Directly proportional to effective nuclear charge

51. Lanthanoids are

- (1) 14 elements in the seventh period (Atomic no. = 58 to 71) that are filling 4f sublevel
- (2) 14 elements in the sixth period (atomic no. = 90 to 103) that are filling 4f sublevel
- (3) 14 elements in the seventh period (atomic no. = 90 to 103) that are filling 5f sublevel
- (4) 14 elements in the sixth period (atomic no. = 58 to 71) that are filling 4f sublevel

52. Which one of the following arrangement represents the correct order of electron gain enthalpy (with negative sign) of the given atomic species?

- (1) $F < Cl < O < S$ (2) $S < O < Cl < F$
- (3) $O < S < F < Cl$ (4) $Cl < F < S < O$

53. Four successive members of the first row transition elements are listed below with their atomic numbers. Which one of them is expected to have the highest third ionisation enthalpy?

- (1) Vanadium ($Z = 23$)
- (2) Manganese ($Z = 25$)
- (3) Chromium ($Z = 24$)
- (4) Iron ($Z = 26$)

54. The pair of amphoteric hydroxide is

- (1) $Al(OH)_3$, $LiOH$
- (2) $Be(OH)_2$, $Mg(OH)_2$
- (3) $B(OH)_3$, $Be(OH)_2$
- (4) $Be(OH)_2$, $Zn(OH)_2$

55. Identify the correct order of the size of the following?

- (1) $Ca^{2+} < K^+ < Ar < Cl^- < S^{2-}$
- (2) $Ar < Ca^{2+} < K^+ < Cl^- < S^{2-}$
- (3) $Ca^{2+} < Ar < K^+ < Cl^- < S^{2-}$
- (4) $Ca^{2+} < K^+ < Ar < S^{2-} < Cl^-$

56. The correct order of decreasing second ionisation enthalpy of Ti (22), V (23), Cr (24) and Mn (25) is: [AIPMT 2008]

- (1) $Mn > Cr > Ti > V$
- (2) $Ti > V > Cr > Mn$
- (3) $Cr > Mn > V > Ti$
- (4) $V > Mn > Cr > Ti$

57. Among the following which is the strongest oxidising agent?

- (1) Cl_2 (2) F_2
- (3) Br_2 (4) I_2

58. Among the elements Ca, increasing atomic radii is Mg, P and Cl, the order of

- (1) $Cl < P < Mg < Ca$
- (2) $P < Cl < Ca < Mg$
- (3) $Ca < Mg < P < Cl$
- (4) $Mg < Ca < Cl < P$

59. The correct order of the decreasing ionic radii among the following isoelectronic species is

- (1) $K^+ > Ca^{2+} > Cl^- > S^{2-}$
- (2) $Ca^{2+} > K^+ > S^{2-} > Cl^-$
- (3) $Cl^- > S^{2-} > Ca^{2+} > K^+$
- (4) $S^{2-} > Cl^- > K^+ > Ca^{2+}$

60. Which is correct order of IP_1

- (1) $Na > Al$ (2) $Mg > Al$
- (3) $Ga > Ca$ (4) $Mg > Be$

61. Identify the wrong statement in the following:

- (1) Atomic radius of the elements increases as one moves down the first group of the

periodic table.

(2) Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the periodic table.

(3) Amongst isoelectronic species, smaller the positive charge on the cation, smaller is the ionic radius.

(4) Amongst isoelectronic species, greater the negative charge on the anion, larger is the ionic radius.

62. Which of the following orders of ionic radii is correctly represented?

- (1) $H^- > H > H^+$ (2) $Na^+ > F^- > O^{2-}$
(3) $F^- > O^{2-} > Na^+$ (4) $Al^{3+} > Mg^{2+} > N^{3-}$

63. The species Ar, K^+ and Ca^{2+} contain the same number of electrons. In which order do their radii increase?

- (1) $Ca^{2+} < K^+ < Ar$ (2) $K^+ < Ar < Ca^{2+}$
(3) $Ar < K^+ < Ca^{2+}$ (4) $Ca^{2+} < Ar < K^+$

64. Match the element in column I with that in

Column I

- (a) Copper
(b) Fluorine
(c) Silicon
(d) Cerium

Column II

- (i) Non-metal
(ii) Transition Metal
(iii) Lanthanoid
(iv) Metalloid

Identify the correct match:

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

65. Which of the following oxide is amphoteric in nature?

- (1) CO_2 (2) SnO_2
(3) SiO_2 (4) GeO_2

66. Arrange the following elements in increasing order of electronegativity:

N, O, F, C, Si

Choose the correct answer from the options given below:

- (1) $O < F < N < C < Si$
(2) $F < O < N < C < Si$
(3) $Si < C < N < O < F$

(4) $Si < C < O < N < F$

67. Arrange the following elements in increasing order of first ionization enthalpy:

Li, Be, B, C, N

Choose the correct answer from the options given below:

- (1) $Li < Be < C < B < N$
(2) $Li < Be < N < B < C$
(3) $Li < Be < B < C < N$
(4) $Li < B < Be < C < N$

68. Match List I with List II. Select the correct answer using the codes given below the list.

List I	List II
(A) NH_3	(p) sp^3d^3
(B) PCl_3	(q) sp^3d
(C) SF_4	(r) sp^3
(D) IF_7	(s) sp^3d^2

- (1) $A \rightarrow r$ $B \rightarrow q$ $C \rightarrow s$ $D \rightarrow p$
(2) $A \rightarrow p$ $B \rightarrow q$ $C \rightarrow r$ $D \rightarrow s$
(3) $A \rightarrow q$ $B \rightarrow r$; $C \rightarrow p$ $D \rightarrow s$
(4) $A \rightarrow s$ $B \rightarrow p$; $C \rightarrow q$ $D \rightarrow r$

69. Match column I with column II, and choose the correct combination from the options given below.

Column I (Molecule)	Column II (Bond angle)
a. BCl_3	i. 107°
b. NH_3	ii. 109.5°
c. H_2O	iii. 104.5°
d. CH_4	iv. 120°

- (1) $a \rightarrow ii$ $b \rightarrow iii$ $c \rightarrow i$ $d \rightarrow iv$
(2) $a \rightarrow iv$ $b \rightarrow i$ $c \rightarrow iii$ $d \rightarrow ii$
(3) $a \rightarrow iii$ $b \rightarrow ii$ $c \rightarrow vi$; $d \rightarrow i$
(4) $a \rightarrow i$ $b \rightarrow iv$ $c \rightarrow ii$ $d \rightarrow iii$

70. Which of the following molecules has trigonal planar geometry?

- (1) NH_3 (2) BF_3
(3) PCl_3 (4) IF_3

71. The isoelectronic pair is

- (1) Cl_2O , ICl_2^- (2) ICl_2^- , ClO_2
(3) IF_2^+ , I_3^+ (4) ClO_2 , ClF_2^+

72. The correct order of increasing bond angles in the following triatomic species is
- (1) $\text{NO}_2^+ < \text{NO}_2 < \text{NO}_2^-$
 - (2) $\text{NO}_2^+ < \text{NO}_2^- < \text{NO}_2$
 - (3) $\text{NO}_2^- < \text{NO}_2^+ < \text{NO}_2$
 - (4) $\text{NO}_2^- < \text{NO}_2 < \text{NO}_2^+$
73. The correct order of increasing bond length of C-H, C-O, C-C and C=C is
- (1) $\text{C-H} < \text{C}=\text{C} < \text{C}-\text{O} < \text{C}-\text{C}$
 - (2) $\text{C}-\text{C} < \text{C}=\text{C} < \text{C}-\text{O} < \text{C}-\text{H}$
 - (3) $\text{C}-\text{O} < \text{C}-\text{H} < \text{C}-\text{C} < \text{C}=\text{C}$
 - (4) $\text{C}-\text{H} < \text{C}-\text{O} < \text{C}-\text{C} < \text{C}=\text{C}$
74. In solid ice, oxygen atom is surrounded
- (1) tetrahedrally by 4 hydrogen atoms
 - (2) octahedrally by 2 oxygen and 4 hydrogens atoms
 - (3) tetrahedrally 2 hydrogen and 2 oxygens atoms
 - (4) octahedrally by 6 hydrogens atoms
75. Decreasing order of bond angle is
- (1) $\text{BeCl}_2 > \text{NO}_2 > \text{SO}_2$
 - (2) $\text{BeCl}_2 > \text{SO}_2 > \text{NO}_2$
 - (3) $\text{SO}_2 > \text{BeCl}_2 > \text{NO}_2$
 - (4) $\text{SO}_2 > \text{NO}_2 > \text{BeCl}_2$
76. Four diatomic species are listed below. Identify the correct order in which the bond order is increasing in them
- (1) $\text{C}_2^{2-} < \text{He}_2^+ < \text{O}_2^- < \text{NO}$
 - (2) $\text{He}_2^+ < \text{O}_2^- < \text{NO} < \text{C}_2^{2-}$
 - (3) $\text{NO} < \text{O}_2^- < \text{C}_2^{2-} < \text{He}_2^+$
 - (4) $\text{O}_2^- < \text{NO} < \text{C}_2^{2-} < \text{He}_2^+$
77. The correct bond order in the following species is
- (1) $\text{O}_2^{2+} < \text{O}_2^- < \text{O}_2^+$
 - (2) $\text{O}_2^+ < \text{O}_2^- < \text{O}_2^{2+}$
 - (3) $\text{O}_2^- < \text{O}_2^+ < \text{O}_2^{2+}$
 - (4) $\text{O}_2^{2+} < \text{O}_2^+ < \text{O}_2^-$
78. Among the following, which one is a wrong statement?
- (1) I_3^+ has bent geometry
 - (2) PH_5 and BiCl_5 do not exist
 - (3) $p\pi - d\pi$ bonds are present in SO_2

(4) SeF_4 , and CH_4 have same shape

79. Match the compounds given in column I with the hybridisation and shape given in column II and mark the correct option.

Column I	Column II
(A) XeF_6	(i) distorted octahedral
(B) XeO_3	(ii) square planar
(C) XeOF_4	(iii) pyramidal
(D) XeF_4	(iv) square pyramidal

Code:

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

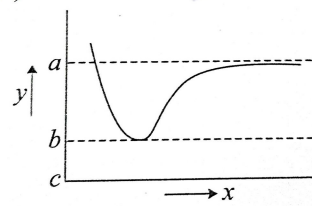
80. Predicted the correct order among the following:

- (1) lone pair-bond pair > bond pair-bond pair > lone pair-lone pair
- (2) lone pair-lone pair > lone pair-bond pair > bond pair-bond pair
- (3) lone pair-lone pair > bond pair-bond pair > lone pair-bond pair
- (4) bond pair-bond pair > lone pair-bond pair > lone pair-lone pair

81. Which of the following diatomic molecular species has only a bonds according to Molecular Orbital Theory?

- (1) O_2
- (2) N_2
- (3) C_2
- (4) Be_2

82. The potential energy (y) curve for H_2 formation as a function of internuclear distance (x) of the H atoms is shown below.



83. The bond energy of H_2 is

- (1) (c - a) (2) (b - a)
 (3) (c - a)/2 (4) (b - a)/2

84. Match the compounds of Xe in column I with the molecular structure in column II.

Column I	Column II
(a) XeF ₂ ,	(i) Square planar
(b) XeF ₄	(ii) Linear
(c) XeO ₃	(iii) Square pyramidal
(d) XeOF ₄	(iv) Pyramidal

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

85. Match List-I with List-II.

List-I	List-II
(a) PCl ₅	(i) Square pyramidal
(b) SF ₆	(ii) Trigonal planar
(c) BrF ₅	(iii) Octahedral
(d) BF ₃	(iv) Trigonal bipyramidal

Choose the correct answer from the options given.

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

86. Which amongst the following is incorrect statement?

- (1) H₂⁺ ion has one electron.
 (2) O₂⁺ ion is diamagnetic.
 (3) The bond orders of O₂⁺, O₂, H₂⁻ and O₂²⁻ are 2.5, 2, 1.5 and 1, respectively.
 (4) C₂ molecule has four electrons in its two degenerate π molecular orbitals

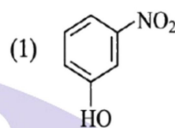
87. The correct order of energies of molecular orbitals of N₂ molecule is

- (1) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi 2p_x = \pi 2p_y) < \sigma^* 2p_z < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$
 (2) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma^* 2p_z < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z$
 (3) $\sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < \sigma 2p_z < \sigma^* 2p_z$

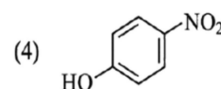
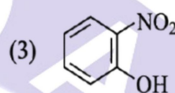
$$(\pi^* 2p_x = \pi^* 2p_y) < (\pi^* 2p_x = \pi^* 2p_y)$$

$$(4) \sigma 1s < \sigma^* 1s < \sigma 2s < \sigma^* 2s < (\pi 2p_x = \pi 2p_y) < (\pi^* 2p_x = \pi^* 2p_y) < \sigma^* 2p_z < \sigma^* 2p_z$$

88. Intramolecular hydrogen bonding is present in



(2) HF



89. Match List I with List II.

List I (Compound)	List II (Shape/geometry)
A. NH ₃	I. Trigonal Pyramidal
B. BrF ₃	II. Square Planar
C. XeF ₄	III. Octahedral
D. SF ₆	IV. Square Pyramidal

Choose the correct answer from the options given below:

- (1) A-III, B-IV, C-I, D-II
 (2) A-II, B-III, C-IV, D-I
 (3) A-I, B-IV, C-II, D-III
 (4) A-II, B-IV, C-III, D-I

90. Identify the correct answer.

- (1) Dipole moment of NF₃ is greater than that of NH₃
 (2) Three canonical forms can be drawn for CO₃²⁻ ion.
 (3) Three resonance structures can be drawn for ozone.
 (4) BF₃ has non-zero dipole moment

BIOLOGY

91. Given below are two statements:

Statement I:

In pinnately compound leaf, leaflet are present on a common axis, the rachis and it found in silk cotton.

Statement-II:

In compound leaf, lamina is divided into number of leaflet.

Choose the correct answer from the option given below:

- (1) Both Statement I and Statement II are incorrect
 (2) Statement I is correct but Statement II is incorrect
 (3) Statement I is incorrect but Statement II is correct
 (4) Both Statement I and Statement II are correct

92. Find the correct matching of the following

- | | |
|---------------------------|---------------|
| (A) Marginal placentation | (i) Sunflower |
| (B) Parietal placentation | (ii) Gram |
| (C) Axile placentation | (iii) Mustard |
| (D) Basal placentation | (iv) Chinrose |

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

93. Floral formula of a plant is

$$\% \text{ } \overline{\text{K}}_{(5)} \text{ } \overline{\text{C}}_{1+2+(2)} \text{ } \overline{\text{A}}_{(9)+1} \text{ } \overline{\text{G}}_1.$$

Which of the following feature is correct w.r.t. this plant?

- (1) Leaves have parallel venation
 (2) Roots are adventitious and fibrous
 (3) Seeds are endospermous
 (4) Roots may have root nodules

94. Match the following column I and column II

- | Column -I | Column -II |
|------------------|-----------------|
| a. Epipetalous | i. Brinjal |
| b. Epiphylous | ii. Lilly |
| c. Monodelphous | iii. China rose |
| d. Diadelphous | iv. Pea |
| e. Polyadelphous | v. Citrus |

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

95. Find out the correct statements

- a. The roots which store food in Turnip are modified tap roots
 b. Stems of maize & sugarcane have stilt roots coming out from upper nodes
 c. In Monstera, roots arise from parts other

than radicle

d. Colocasia has organ of perennation

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

96. Read the following statements and choose correct answer:

- (i) Tap root system present in dicotyledonous plants
 (ii) Fibrous root system present in monocotyledonous
 (iii) Roots arise from parts of plants other than radicle are called adventitious roots
 (iv) Fibrous roots arise from the base of the stem after death of primary root.
 (1) i, ii correct and iii, iv incorrect
 (2) i, ii, iii correct and iv incorrect
 (3) i, iii correct and ii, iv incorrect
 (4) i, ii, iii and iv correct

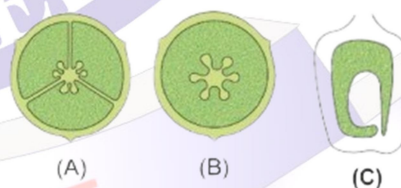
97. Chlorophyll containing fleshy cylindrical structure found in Euphorbia are the modification of:

- (1) Roots (2) Stems
 (3) Leaves (4) Fruits

98. The hanging structure that support banyan tree are called:

- (1) Stilt roots (2) Prop roots
 (3) Fusiform roots (4) Pneumatophores

99. In following diagram placentation represent



- (1) A-Axile, B-Free central, C - in marigold
 (2) A-Axile, B-Free central, C - in Primrose
 (3) A-Free central, B-Axile, C - in Dianthus
 (4) A-Free central, B-Parietal, C - in pea

100. 5 petals are found in the flower of which of the following plant

- (1) Tomato (2) Ashwagandha
 (3) Petunia (4) All

101. Which among the following statement

regarding 'Leaf' is incorrect:

- (a) These are lateral generally flattened structure borne on stem
(b) It originates from shoot axillary parenchyma
(c) These are arranged basipetally
(d) The leaf is attached to stem by lamina
(1) a, b and c (2) b, c, and d
(3) a, c, and d (4) a, b and d
102. A typical flower has four different kind of whorl, arranged successively on the swollen end of the stalk called:
(1) Receptacle (2) Carpel
(3) Pedicel (4) Calyx
103. Which among the following statement is false with respect to drupe:
(1) They develops from multicarpellary superior ovary
(2) These are single seeded
(3) Mango and coconut are drupe
(4) Mesocarp of coconut is fibrous
104. What is correct about ovary of Dianthus:
(1) Ovules are present on central axis and septa present
(2) Ovules are present on periphery & septa absent
(3) Ovules are present on central axis & septa absent
(4) Ovary contains one ovule only
105. Apocarpous condition is found in
(1) Lotus & tomato (2) Tomato & rose
(3) Mustards tomato (4) Lotus & rose
106. Which among the following is described as reduced leaf found at the base of the pedicel:
(1) Rachis (2) Rachilla
(3) Bract (4) Sepal
107. Androecium is composed of stamens, which have pollen sacs, producing pollen grains. However, some stamens do not produce pollen grains are :
(1) Diadelphous (2) Adnate
(3) Adelphous (4) Staminode

108. In a cereal grain the single cotyledon of embryo is represented by:
(1) Scutellum (2) Aleurone layer
(3) Endosperm (4) Coleorhiza
109. In dicots, radicle elongates to form :
(1) Primary root (2) Tap root
(3) Adventitious root
(4) Both 1 and 2
110. Axillary buds which develop into tendrils are found in:
(1) Cucumber (2) Pumpkins
(3) Grapevine (4) All of these
111. The monocots can be distinguished easily from dicots in:
(1) Aestivation (2) Phyllotaxy
(3) Venation (4) None
112. Phyllotaxy is:
(1) Arrangement of young leaves in floral bud
(2) Arrangement of leaves on branches
(3) Arrangement of branches
(4) Arrangement of floral leaves in a floral bud
113. Match the following Column I and II
- | Column -I | Column-II |
|----------------------|----------------------|
| a. Hypogynous | i. Mustard |
| b. Perigynous | ii. Peach |
| c. Epigynous | iii. Guava |
| (1) a-iii, b-ii, c-i | (2) a-ii, b-iii, c-i |
| (3) a-i, b-iii, c-ii | (4) a-i, b-ii, c-iii |
114. The covering of radicle in monocot seed is known as:
(1) Coleoptile (2) Coleorhiza
(3) Testa (4) Tegmen
115. Alstonia is known for :
(1) Alternante phyllotaxy
(2) Tendrils (3) Phyllode
(4) Whorled phyllotaxy
116. Select the correct match:
(i) Tomato -Actinomorphic flower
(ii) Canna -Asymmetric flower

- (iii) Trifolium - Zygomorphic flower
 (iv) Cassia - Asymmetric flower
 (1) (i), (ii) & (iii) only
 (2) (i) and (iii) only
 (3) (ii) and (iv) only
 (4) (ii), (iii) and (iv) only

117. In which leaf base expands into a sheath covering the stem partially or wholly :

- (1) Leguminous plants
 (2) Solanaceae (3) Monocotyledons
 (4) Cucurbitaceae

118. Given below are two statements:

Statement I:

Actinomorphic flower can be divided in to two equal halves by any radial plane passing through the centre.

Statement-II:

Asymmetric flower cannot be divided in to two similar half by any vertical plane passing through the centre.

Choose the correct answer from the option given below:

- (1) Both Statement I and Statement II are incorrect
 (2) Statement I is correct but Statement II is incorrect
 (3) Statement I is incorrect but Statement II is correct
 (4) Both Statement I and Statement II are correct

119. Given below are two statements:

Statement I:

In twisted aestivation, one margin of sepals or petals overlaps that of the next one and soon.

Statement-II:

In imbricate aestivation, margins of sepals or petals overlap on another but not in any particular direction.

Choose the correct answer from the option given below:

- (1) Both Statement I and Statement II are

incorrect

(2) Statement I is correct but Statement II is incorrect

(3) Statement I is incorrect but Statement II is correct

(4) Both Statement I and Statement II are correct

120. Identify the figure and choose correct option



- (a) Dicotyledonous seed, example - gram
 (b) Monocotyledonous seed, example- maize
 (c) Generally non- albuminous
 (d) Generally endospermic

- (1) Only b, d correct (2) Only a, d correct
 (3) Only b, c correct (4) Only a, c correct

121. Variation in the length of stamens is found in:

- (1) Pea (2) Potato
 (3) Petunia (4) Salvia

122. A lateral Branch with short internodes and each node bearing a rosette of leaves and tuft of root is found in water is:

- (1) Mint and Jasmine
 (2) Pistia and Eichhornia
 (3) Banana (4) Zaminkand

123. Which of the following stem are modified to store food:

- (1) Potato, ginger, turmeric
 (2) Sweet potato, turmeric, ginger
 (3) Potato, carrot, turnip
 (4) All of these

124. Vexillary aestivation is characteristic of the family

- (1) Fabaceae (2) Asteraceae
 (3) Solanaceae (4) Brassicaceae

125. The morphological nature of the edible part of coconut is

- (1) perisperm (2) cotyledon
 (3) endosperm (4) pericarp

126. Identify the tissue in which cells are much thickened at the corners due to a deposition of cellulose, hemicellulose and pectin: -
 (1) Parenchyma (2) Collenchyma
 (3) Sclerenchyma (4) Xylem
127. _____ provides mechanical support to the growing parts of the plant such as young stem and petiole of a leaf:
 (1) Parenchyma (2) Collenchyma
 (3) Sclerenchyma (4) Xylem
128. The main mechanical tissue of plant is:
 (1) Parenchyma (2) Collenchyma
 (3) Sclerenchyma (4) Xylem
129. constitute the complex tissues in plants.
 (1) Xylem, phloem
 (2) Phloem, metaxylem
 (3) Parenchyma, xylem
 (4) Xylem, metaxylem
130. The chief water containing cavities are present in:
 (1) Monocotyledonous stem
 (2) Dicotyledonous stem
 (3) Monocot root
 (4) Dicot root
131. The secondary growth occurs in most of the dicotyledonous roots and stems and it increases the girth or diameter of the organs because of the activity of:
 (1) Vascular cambium
 (2) Cork cambium
 (3) Both 1 and 2
 (4) Secondary cortex
132. In dicot root the vascular cambium is
 (1) Completely primary in origin
 (2) Completely secondary in origin
 (3) Mixed in origin
 (4) None of these
133. Which one of the following plants shows vexillary aestivation and diadelphous stamens?
 (1) Pisum sativum (2) Allium cepa
 (3) Solanum nigrum
 (4) Colchicum autumnale
134. Select the incorrect statement in the followings:
 (1) The meristems which occurs between mature tissues is known as intercalary meristems
 (2) Apical meristems and intercalary meristems are primary meristems
 (3) Parenchyma and xylem are tissue respectively. simple and complex
 (4) The newly formed cells become structurally and functionally specialised and have the ability to divide, such cells are - permanent tissue or mature cells.
135. Read the following statements and choose correct answer:
 (i) First formed primary xylem elements are called Protoxylem
 (ii) The later formed primary xylem is called Metaxylem
 (iii) In stem the Protoxylem lies towards the Periphery
 (iv) In roots the Protoxylem lies towards centre
 (1) i, ii correct and iii, iv incorrect
 (2) i, iii correct and ii, iv incorrect
 (3) iii, iv correct and i, ii incorrect
 (4) i, ii, iii, iv correct
136. Type of meristems occur in grasses and regenerate parts removed by the grazing herbivores is:
 (1) Apical meristems
 (2) Lateral meristems
 (3) Intercalary meristem
 (4) None is correct
137. Semilunar patches of sclerenchyma are found in
 (1) Dicot stem (2) Dicot root
 (3) Monocot root (4) All of these
138. The food material produced in leaves is conducted through the plant with the help of:
 (1) Xylem (2) Phloem
 (3) Collenchyma (4) Sclerenchyma
139. Trichomes in shoot system are :
 (1) Rarely multicellular

- (2) Usually multicellular
(3) Usually unicellular
(4) Always unicellular
140. Phloem parenchyma cells have characteristics like:
(1) Broad cells and with nucleus
(2) Elongated cells and a nucleus
(3) Dense cytoplasm, tapering cells
(4) 2 and 3
141. What constitutes the ground tissue of a plant :
(1) All tissues including epidermis and vascular bundle
(2) All tissue except outermost covering of plant and vascular bundles
(3) Xylem, phloem and pith
(4) Phloem and mesophyll
142. Tracheids differ from other tracheary elements in:
(1) Having casparian strips
(2) Being imperforate
(3) Lacking nucleus
(4) Being lignified
143. Tissue is a group of cells having:
(1) Common origin & always performing a common function
(2) Common origin & different function
(3) Different origin
(4) Common origin & usually performing a common function
144. Protophloem & metaphloem have :
(1) Narrow & bigger sieve tubes respectively
(2) Bigger & narrow sieve tubes respectively
(3) Both have bigger sieve tubes
(4) Both have narrow sieve tubes
145. Which of the following statement about early wood is incorrect
(1) Formed during spring
(2) It has large number of xylary elements
(3) The spring wood is lighter in colour
(4) It has a higher density than late wood
146. Find the correct statements from the statements given below-(about dorsiventral leaf):
(a) Size of the vascular bundle in leaves depends on the size of the veins
(b) Vascular bundle are surrounded by thin reticulate bundle sheath cells
(c) The veins vary in thickness in the reticulate venation of dicot leaves
(d) Abaxially placed palisade parenchyma in dicot leaf is made up of elongated cells
(1) Only a, b (2) Only b, c
(3) Only b, c, d (4) Only a, c
147. Companion cells are closely associated with:
(1) Trichomes (2) Guard cells
(3) Sieve elements (4) Vessel elements
148. Closed vascular bundles lack:
(1) Cambium (2) Pith
(3) Ground tissue (4) Conjunctive tissue
149. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A): Radial vascular bundles present in roots.
Reason (R): Xylem and phloem with in a vascular bundle are arranged in an alternate manner on different radii.
In the light of the above statements, choose the correct answer from the options given below
(1) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(2) (A) is true but (R) is false
(3) (A) is false but (R) is true
(4) Both (A) and (R) are true and (R) is the correction explanation of (A)
150. Which one is correct
(1) Permanent tissues having all cells similar in structure and function are simple tissues
(2) Permanent tissues having different types

of cell are complex tissues

- (3) Parenchyma, collenchyma and sclerenchyma are simple tissues
- (4) All of the above

151. Conjoint, collateral, closed, scattered vascular bundles with sclerenchymatous sheath are characteristic of
- (1) Dicot root
 - (2) Monocot stem
 - (3) Monocot root
 - (4) Dicot stem

152. The xylem in which protoxylem lies towards periphery and metaxylem lies towards the centre. Such arrangement of primary xylem is called:

- (1) Endarch
- (2) Exarch
- (3) Mesarch
- (4) All of these

153. During the formation of the primary plant body, specific regions of the apical meristem produces:

- (1) Dermal tissues
- (2) Ground tissues
- (3) Vascular tissues
- (4) All of these

154. Hypodermis of dicotyledonous plants is made up of:

- (1) Sclerenchyma
- (2) Collenchyma
- (3) Parenchyma
- (4) Companion cells

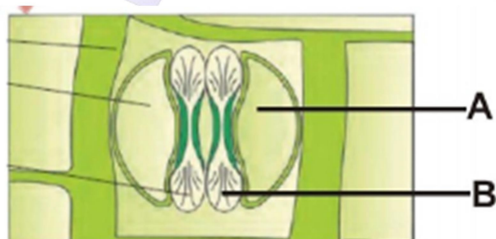
155. Elongated or tube-like cells with thick and lignified walls and tapering ends is a character of :

- (1) Tracheids
- (2) Vessels
- (3) Xylem fibre
- (4) Xylem parenchyma

156. Tracheids differ from other tracheary elements in:

- (1) Lacking nucleus
- (2) Being lignified
- (3) Having casparian strips
- (4) Being imperforate

157. In given figure A and B are:



- (1) A-Epidermal cell, B - Guard cell

- (2) A-Subsidiary cell, B-Stomatal pore
- (3) A-Guard cell, B - Subsidiary cell
- (4) A-Subsidiary cell, B - Guard cell

158. Cortex is the region found between :

- (1) Endodermis and pith
- (2) Endodermis and vascular bundle
- (3) Epidermis and stele
- (4) Pericycle and endodermis

159. Which one of the following is not a part of phloem?

- (1) Sieve tubes
- (2) Companion cells
- (3) Phloem parenchyma
- (4) Vessels

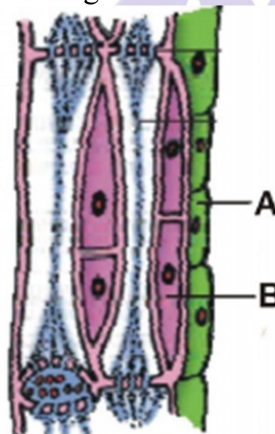
160. Which of the following is made up of dead cells :

- (1) Xylem parenchyma
- (2) Collenchyma
- (3) Phellem
- (4) Phloem

161. In which character a monocot root differs from a dicot root:

- (1) Open vascular bundles
- (2) Scattered vascular bundles
- (3) Large pith
- (4) Radial vascular bundles

162. According to given figure which of the following is correct:



- (1) A-Absent in monocot
- (2) B-Absent in monocot
- (3) B-Absent in Gymnosperm
- (4) 1 and 3 both

163. Given below are two statements :

Statement I:

Companion cells help in maintaining the

pressure gradient in Sieve tubes.

Statement-II:

In gymnosperm companion cells absent and albuminous cells present

Choose the correct answer from the option given below:

- (1) Both Statement I and Statement II are incorrect
- (2) Statement I is correct but Statement II is incorrect
- (3) Statement I is incorrect but Statement II is correct
- (4) Both Statement I and Statement II are correct

164. The triangular structure that joins the right atrium and receives unoxygenated blood from the vena cava is the:

- (1) Conus arteriosus (2) Sinus venosus
- (3) Truncus arteriosus
- (4) Ventricle

165. Which of the following correctly describes the vocal sacs in frogs?

- (1) Structures present in both sexes for gas exchange
- (2) Sound-amplifying organs present only in male frogs
- (3) Auditory organs that act as outer ears
- (4) Air reservoirs present only in female frogs

166. The cloaca in frogs is a common chamber for the exit of:

- (1) Fecal matter and urine only
- (2) Digestive products and gametes only
- (3) Alimentary tract, urinary tract, and reproductive tract products
- (4) Respiratory gases only 'nitrogenous wastes

167. In male frogs, Bidder's canal is located inside the:

- (1) Testis (2) Kidney
- (3) Cloaca (4) Urinary bladder

168. The transparent membrane that protects the

eye of a frog while underwater is called the:

- (1) Tympanic membrane
- (2) Sclerotic membrane
- (3) Nictitating membrane
- (4) Pleural membrane

169. Vomerine teeth in frogs are located on the:

- (1) Lower jaw
- (2) Roof of the buccal cavity
- (3) Surface of the tongue
- (4) Wall of the pharynx

170. Which structural adaptation enables cutaneous respiration in frogs?

- (1) Thick, heavily keratinized dry skin
- (2) Thin, moist, and highly vascularized skin
- (3) Presence of microscopic epidermal scales
- (4) Presence of spiracles on the dorsal side

171. Which of the following external features is present ONLY in male frogs?

- (1) Tympanum behind the eyes
- (2) Webbed digits in the hindlimbs
- (3) Nuptial pad on the first digit of the forelimb
- (4) Moist and slippery skin

172. Select the correct statement regarding the digits of the frog's limbs:

- (1) Forelimbs have 5 digits; hindlimbs have 4 digits
- (2) Forelimbs have 4 digits; hindlimbs have 5 digits
- (3) Both forelimbs and hindlimbs have 5 webbed digits
- (4) Both forelimbs and hindlimbs have 4 non-webbed digits

173. The tongue of a frog is unique because it is:

- (1) Non-muscular and fixed at the back
- (2) Bilobed and attached at the anterior end
- (3) Unilobed and attached at the posterior end
- (4) Covered with calous teeth

174. Roots associated with nitrogen fixing bacteria are :-

- (1) Fusiform roots (2) Napiform roots

- (3) Nodulated roots (4) Conical roots

175. Shoot/Stem develops from :-2.

- (1) Plumule (2) Radicle
(3) Both (1) & (2) (4) Endosperm

176. Which is an example of offset?

- (1) Cynodon dactylon
(2) Eichhornia (3) Fragaria
(4) Mentha

177. Rhizome of ginger is a modification of stem because :-

- (1) It bears Adventitious roots
(2) It bears nodes and internodes
(3) It is underground
(4) It stores food material

178. Phylloclade is found in :-

- (1) Opuntia (2) Cactus
(4) Both (1) & (2) (3) Acacia

179. Nodulated roots occurs in:-

- (1) Liliaceae (2) Solanaceae
(3) Malvaceae (4) Fabaceae

180. Thorns and spines are :-

- (1) Defensive organs
(2) Respiratory organs
(3) Both (1) & (2) (4) Storage organs

