NEW STANDARD ACADEMY

Review Test: 01

11-11-24

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

PRE-MEDICAL :11th Undergoing Students

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

Important Instructions :

1. On the answer sheet, fill in the particulars on Side-1 and Side -2 carefully with blue/black ball point pen only.
2. The test The test is of 3 hours 20 minutes duration and this Test Booklet contains 200 questions. Each question carries 4 marks. For each correct response, the candidate will get 4 marks. For each incorrect response, one mark will be deducted from the total scores. The maximum marks are 720.
3. In this Test Paper, each subject will consist of two sections. Section A will consist of 35 questions (all questions are mandatory) and Section B will have15 questions. Candidate can choose to attempt any 10 question out of these 15 questions. In case if candidate attempts more than 10 questions, first 10 attempted questions will be considered for marking
4. In case of more than one option correct in any question, the best correct option will be considered as answer.
5. Use Blue/Black Ball Point Pen only for writing particulars on this page/marking responses.
6. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
7. On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator before leaving the Room/Hall. The candidates are allowed to take away this Test Booklet with them.
8. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Form No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
9. Use of white fluid for correction is not permissible on the Answer Sheet.

Name of the Candidate(In Capitals) _____

Date of Examintation _____

Candidate`s Signature:_____ Invigilator`s Signature: _____

PHYSICS
SECTION-A

1. A body of mass 5 kg at rest explodes into three fragments with masses in the ratio 1 : 1 : 3. The fragments with equal masses fly in mutually perpendicular directions with speeds of 21 m/s. The velocity of the heaviest fragment in m/s will be
   (A) $7\sqrt{2}$ (B) $5\sqrt{2}$
   (C) $3\sqrt{2}$ (D) $\sqrt{2}$
2. A particle starting from the origin (0, 0) moves in a straight line in the (x, y) plane. Its coordinates at a later time are ($\sqrt{3}$, 3). The path that the particle makes with the x-axis is at an angle of
   (A) 45° (B) 60°
   (C) 0° (D) 30°
3. A particle moves in x – y plane according to rule x = asin ωt and y = acos ωt. The particle follows:
   (A) an elliptical path
   (B) a circular path
   (C) a parabolic path
   (D) a straight line path inclined equally to x – axes and y – axes
4. The maximum range of a gun of horizontal terrain is 16 km. If g = 10 ms^{-2}, then muzzle velocity of a shell must be
   (A) 160 ms^{-1} (B) 200 $\sqrt{2}$ ms^{-1}
   (C) 400 ms^{-1} (D) 800 ms^{-1}
5. If a body A of mass M is thrown with velocity v at an angle of 30° to the horizontal and another body B of the same mass is thrown with the same speed at an angle of 60° to the horizontal, the ratio of horizontal range of A to B will be
   (A) 1 : 3 (B) 1 : 1
   (C) 1 : $\sqrt{3}$ (D) $\sqrt{3}$: 1
6. Two projectiles of same mass and with same velocity are thrown at an angle 60° and 30° with the horizontal, then which will remain same?
   (A) time of flight
   (B) range of projectile
   (C) maximum height acquired
   (D) all of them.
7. A particle A is dropped from a height and another particle B is projected in horizontal direction with speed of 5 m/s from the same height then correct statement is
   (A) particle A will reach ground first with respect to particle B.
   (B) particle B will reach ground first with respect to particle A.
   (C) both particles will reach ground simultaneously.
   (D) both particles will reach ground with same speed.
8. For angles of projection of a projectile at angle (45° – θ) and (45° + θ), the horizontal range described by the projectile are in the ratio of
   (A) 2 : 1 (B) 1 : 1
   (C) 2 : 3 (D) 1 :2
9. The speed of a projectile at its maximum height is half of its initial speed. The angle of projection is
   (A) 60° (B) 15°
   (C) 30° (D) 45°
10. A projectile is fired at an angle of 45° with the horizontal. Elevation angle of the projectile at its highest point as seen from the point of projection, is
    (A) 45° (B) 60°
    (C) $\tan^{-1}$ 1/ 2 (D) $\tan^{-1}$ $\sqrt{3}$/ 2
11. A missile is fired for maximum range with an initial velocity of 20 m/s. If g = 10 m/s^2 , the range of the missile is
    (A) 40 m (B) 50 m
    (C) 60 m (D) 20 m
12. A body is moving with a constant speed *v* in a circle of radius r. Its angular acceleration is
    (a) Zero (b) $\frac{v}{r}$
    (c) $\frac{v^2}{r^2}$ (d) $\frac{v^2}{r}$
13. A projectile is fired from the surface of the earth with a velocity of 5 m s^{-1} and angle θ with the horizontal. Another projectile fired from another planet with a velocity of 3 m s^{-1} at the same angle follows a trajectory which is identical with the trajectory of the projectile fired from the earth. The value of the acceleration due to gravity on the planet is (in m s^{-2}) (given g = 9.8 m s^{-2})
    (A) 3.5 (B) 5.9
    (C) 16.3 (D) 110.8
14. When an object is shot from the bottom of a long smooth inclined plane kept at an angle 60° with horizontal, it can travel a distance x1 along the plane. But when the inclination is decreased to 30° and the same object is shot with the same velocity, it can travel x2 distance. Then x1 : x2 will be :
    (A) 1 : $\sqrt{3}$ (B) 1 : $2\sqrt{3}$
    (C) 1 : $\sqrt{2}$ (D) $\sqrt{2}$: 1
15. Two bullets are fired horizontally and simultaneously towards each other from roof

tops of two buildings 100 m apart and of same height of 200 m, with the same velocity of 25 m/s. When and where will the two bullets collide? (g = 10 m/s^2)

(A) They will not collide

(B) After 2 s at a height of 180 m

(C) After 2 s at a height of 20 m

(D) After 4 s at a height of 120 m

16. The trajectory of a projectile as seen from another projectile is a

(a) straight line (b) ellipse

(c) hyperbola (d) parabola.

17. A particle moves in a circular path of radius 'r'. In half the period of revolution, its displacement and distance covered

(a) 2r 2πr

(b) r/2, πr

(c) 2r. πr

(d) r, πr

18. Path of the bomb released from an aeroplane moving with uniform velocity at certain height is observed by the pilot is

(a) straight line

(b) a parabola

(c) a circle

(d) None of these.

19. Two stones A and B are thrown at angles θ and (90^0 - θ) with horizontal. The ratio of their horizontal range is

(a) 1:1

(b) tan θ: 1

(c) tan^2 θ / 1

(d) 1 / tan θ

20. A projectile is fired at an angle of **45°** with the horizontal. **Elevation angle** of the projectile at **its highest point** as seen from the point of projection is

(a) 45° (b) 60 deg

(c) tan^{-1}(1/2) (d) tan^{-1}($\sqrt{3}$/2)

21. The **horizontal range** and **maximum height** of a projectile are equal. The angle of **projection of the projectile** is

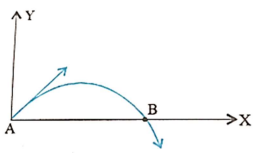
(a) θ = tan^{-1}(1/4)

(b) θ = tan^{-1}(4)

(c) θ = tan^{-1}(2)

(d) $\theta = 45^0$

22. The velocity of a projectile at the initial point **A** is (2 $\hat{\imath}$ +3 $\hat{\jmath}$) m / s . Its velocity (inm / s) at point B is



(a) (- 2 $\hat{\imath}$ -3 $\hat{\jmath}$)

(b) (- 2 $\hat{\imath}$ +3 $\hat{\jmath}$)

(c) (2 $\hat{\imath}$ -3$\hat{\jmath}$)

(d) (2$\hat{\imath}$ +3 $\hat{\jmath}$) .

23. A projectile is fired from the surface of the earth with a velocity of 5 m s^{-1} and angle θ with horizontal. Another projectile is fired from another planet with a velocity of 3 m s^{-1} at the same angle follows a trajectory which is identical with the trajectory of the projectile fired from the earth. The value of gravity on the planet (in m s^{-2}) is (given g = 9.8m s^{-2})

(a) 3.5 (b) 5.9

(c) 16.3 (d) 110.8.

24. When an object is shot from the bottom of a long smooth inclined plane kept at an angle $\mathbf{60^0}$ with horizontal, it can travel a distance $\boldsymbol{x_1}$ along the plane. But when the inclination is decreased to $\mathbf{30^0}$ and the same object is shot with the same velocity, it can travel $\boldsymbol{x_2}$ distance. Then $\boldsymbol{x_1 : x_2}$ will be

(a) 1/2 $\sqrt{3}$)

(b) 1 / $\sqrt{2}$

(c) $\sqrt{2}$ / 1

(d) 1 / $\sqrt{3}$

25. A particle is projected at an angle of 60^0 above the horizontal with a speed of 10 m s^{-1}. After some time the direction of velocity makes an angle of 30^0 above the horizontal. The speed of the particle at this instant is

(a) 5/$\sqrt{3}$ m s^{-1}

(b) 5$\sqrt{3}$ ms^{-1}

(c) 5m s^{-1}

(d) 10/$\sqrt{3}$ m s^{-1}

26. Two particles A and B are moving in uniform circular motion in concentric circles of radii $\mathbf{r_A}$ **and** $\mathbf{r_B}$ with speed $\boldsymbol{v_A}$ **and** $\boldsymbol{v_B}$ respectively. Their **time period** of rotation is the sameThe ratio of angular speed of **A** to that of **B** will be

(a) 1:1

(b) r_A / r_B

(c)v_A: v_B

(d) r_B / r_A

27. A ball is projected with a velocity, 10ms^{-1} at an angle of 60° with the vertical direction. Its speed at the highest point of its trajectory will be

(a) zero

(b) 5$\sqrt{3}$ ms^{-1}

(c) 5m s^{-1}

(d) 10m s^{-1}

28. At an instant t, the co-of a particle are $x = a t^2$, $y = b t^2$ and $z = 0$ The magnitude of velocity of particle at an instant t is
(1) $t\sqrt{a^2 + b^2}$
(2) $v/\sqrt{2}$
(3) $v/\sqrt{3}$
(4) $2t\sqrt{a^2 + b^2}$

29. A particle is moving eastwards with velocity of 5 m/s. In 10 sec the velocity changes to 5 m/s northwards. The average acceleration in this time is
(1) Zero
(2) $1/\sqrt{2}$ m / s^2 toward north-west
(3) $1/\sqrt{2}$ m / s^2 toward north-east
(4) 1/2 m / s^2) toward north-west

30. A particle moves in the x - y plane with velocity $\vec{v} = 2\hat{\imath} + 4x\hat{\jmath}$ where $\hat{\imath}$ and $\hat{\jmath}$ are unit vectors in the direction of x and y-axis. At the initial moment of time, the particle was located at the point x = y = 0 Find the equation of the trajectory of the particle.
(1) $y = (x^2)/4$
(2) $y = (x^2)/16$
(3) $y = (x^2)/2$
(4) $y = x^2$

31. A ball rolls off the top of a staircase with a horizontal velocity u m/s. If the steps are h meter high and b meter wide, the ball will hit the edge of the nth step, if
(1) $n = (2hu)/(g b^2)$
(2) $n = (2hu^2)/(gb)$
(3) $n = (2h u^2)/(g b^2)$
(4) $n = (h u^2)/(g b^2)$

32. An aeroplane is flying horizontally at a height of 490 m with a velocity of 150ms^{-1} A bag containing food is to be dropped to the jawans on the ground. How far from them should the bag he dropped so that it directly reaches them?
(1) 1000 m
(2) 1500 m
(3) 750 m
(4) 2000 m

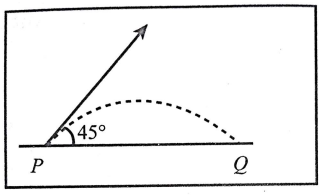
33. A body is thrown horizontally from the top of a tower of height 5 m. It touches the ground at a distance of 10 m from the foot of the tower. The initial velocity of the body is (g = 10m s^{-2})
(1) 2.5m s^{-1}
(2) 5m s^{-1}
(3) 10m s^{-3}
(4) 20m s^{-1}

34. A bomber plane moves horizontally with 500 m/s and a bomb released from it, strikes the ground in 10 sec. Angle at which it strikes the ground will be (g = 10m / (s^2)
(1)$\tan^{-1}(1/5)$ (2) $\tan^{-1}(1/2)$
(3) $\tan^{-1}(1)$ (4) $\tan^{-1}(5)$

SECTION-B

35. A cart is moving horizontally along a straight line with 20 constant speed 30 m/s. A projectile is to be fired from the moving cart in such a way that it will return to the cart after the cart has moved 80 m. At what speed (relative to the cart must the projectile be fired (Take g = 10m / s^2)
(1) 10 m/s (2) $10\sqrt{8}$ m / s
(3) 40/3 m / s (4) None of these

36. A stone is just released from the window of a train moving along a horizontal straight track. The stone will hit the ground following a



(1) straight line path
(2) circular path
(3) parabolic path
(4) hyperbolic path

37. The trajectory of a projectile fired horizontally with velocity *u* is parabola given by
(1) $y = g/(2u^2) x^2$
(2) $y = -g/(2u^2) x^2$
(3) $y = g/(2u^2) y^2$
(4) $y = g/(2u^2) y^2$

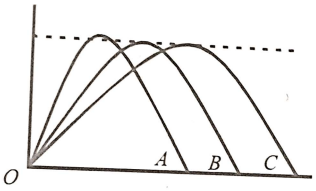
38. A body projected from the top of a tower horizontally with an initial velocity 20 m/s hits the ground at an angle of 45^0 .The vertical component of velocity at the times of hitting is
(1) 20 m/s
(2) $20\sqrt{2}$ m / s
(3) $20/\sqrt{2}$ m / s
(4) $10\sqrt{3}$ m / s

39. From a tower of height h a particle is projected horizontally with velocity u and another thrown down with the same velocity *u*. If the time taken by these be t_1 and t_2 what is true?
(1) $t_1 = t_2$
(2) $t_1 > l_2$
(3) $t_1 < t_2$
(4) $t_1 = 3t_2$

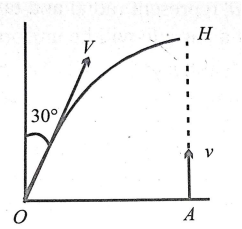
40. A body is thrown horizontally with velocity $\sqrt{(2gh)}$ from the top of a tower of height h. It strikes the level through the foot of tower at a distance x from the tower. The value of x is
(1) h (2) h/2

(3) 2h (4) 2h/3

41. Two bullets are fired simultaneously, horizontally and with different speeds from the same place. Which bullet will hit the ground first?
    (1) The faster one
    (2) The slower one
    (3) Both will reach simultaneously
    (4) Depends on the masses
42. An aeroplane is moving with a horizontal velocity u at a height h above the ground. If a packet is dropped from it, the speed of the packet when it reaches the ground will be
    (1) $\sqrt{u^2 + 2gh}$
    (2) $\sqrt{2gh}$
    (3) $\sqrt{u^2 - 2gh}$
    (4) 2gh
43. A projectile can have the same range R for two angles of projection when projected with the same speed. If t_1 and t_2 be the times of flight in two cases, then the product times of flight will be
    (1) $t_1\, t_2 \propto R$
    (2) $t_1\, t_2 \propto R^2$
    (3) $t_1\, t_2 \propto 1/R$
    (4) $t_1\, t_2 \propto 1/R^2$
44. The height y and the distance x along the horizontal plane of a projectile on a certain planet (with no surrounding atmosphere) are given by $y = (3t - 2t^2)$ meter and $x = 4t$ meter where t is time in seconds. The velocity with which the projectile is projected is
    (1) 8 m/s
    (2) 6 m/s
    (3) 5 m/s
    (4) 10 m/s
45. Three projectile A, B and C are thrown from the same point in the same plane. Their trajectories are shown in the figure. 46 Then which of the following statement is true



    (1) the time of flight is the same for all the three
    (2) the launch speed is greatest for particle C
    (3) the horizontal velocity component is greatest for particle C
    (4) all of the above
46. A particle is projected with a speed I from a point O making an angle of 30° with the vertical. At the same instant, a second particle is thrown vertically upwards with a speed v from a point A. The two particle reach H, the highest point own the parabolic path of particle one simultaneously. Then ratio V/v is



    (1) $3\sqrt{2}$) (2) $2\sqrt{(3)}$
    (3) $2 / \sqrt{(3)}$ (4)$\sqrt{3} / 2$
47. A projectile is thrown with an initial velocity of $V = a\,\hat{\imath} + b\,\hat{\jmath}$, if the range of projectile is double, the maximum reached by it then
    (1) a = 2b
    (2) b = a
    (3) b = 2a
    (4) b = 4a
48. The horizontal range of a projectile is $4\sqrt{(3)}$ times its maximum height. Then the angle of projection is
    (1) 90°
    (2) 60°
    (3) 45°
    (4) 30°
49. A particle is projected with velocity *u* at an angle α from a point P on a horizontal plane strikes the plane at the average velocity of the particle for its journey from P to s
    (1) $(u \sin\alpha)/2$
    (2) $u\cos\alpha$
    (3) u/2
    (4) $(u \sin\alpha)/4$
50. A student is able to throw a ball vertically to maximum height of 40 m. The maximum distance the student can throw the ball in the horizontal direction
    (1) 40 (2) $^{1/2}$ m
    (2) 20 $(2)^{1/2}$ m
    (3) 20 m
    (4) 80 m

CHEMISTRY

SECTION-A

1. Among the following which is the strongest oxidising agent?
    (a) Cl_2 (b) F_2
    (c) Br_2 (d) I_2

2. Amongst the elements with following electronic configuration, Which one of them may have the highest ionisation energy

(a) Ne[$3s^2 3p^1$] (b) Ne[$3s^2 3p^3$]
(c) Ne [$3s^2 3p^2$] (d) Ar[$3d^{10} 4s^2 4p^3$]

3. Which of the following exhibits only +3 oxidation state?
(a) U (b) Th
(c) Pa (d) Ac

4. Which of the following lanthanoids ions is diamagnetic?
(At.no: Ce =58, Sm=62, Eu=63, Yb=70)
(a) Sm^{2+} (b) Eu^{2+}
(c) Ce^{2+} (d) Yb^{2+}

5. Which of the following orders of ionic radii is correctly represented?
(a) $H^- > H > H^+$
(b) $Na^+ > F^- > O^{2-}$
(c) $F^- > O^{2-} > Na^+$
(d) $Al^{3+} > Mg^{2+} > N^{3-}$

6. The formation of oxide ion, $O^{2-}(g)$, from oxygen atom requires first an exothermic and then an endothermic step as shown below:
$O(g) + e^- \rightarrow O^-_{(g)}$; $\Delta_f H^\ominus = -141$ kJ mol^{-1}
$O^-(g) + e^- \rightarrow O^{2-}_{(g)}$; $\Delta_f H^\ominus = +780$ kJ mol^{-1}
Thus the process of formation of O^{2-} in gas phase is unfavourable even thought O^{2-} is isoelectric with neon. It is due to the fact that,
(a) Oxygen is more electronegative
(b) Addition of electron in oxygen results in larger size of the ion
(c) Electron repulsion outweighs the stability gained by achieving noble gas configuration
(d) O ion has comparatively smaller size than oxygen atom

7. The species Ar. K^+ and Ca^{2+} contain the same number of electrons. In which order do their radii increases?
(a) $Ca^{2+} < K^+ < Ar$
(b) $Ar < K^+ < Ca^{2+}$
(c) $K^+ < Ar < Ca^{2+}$
(d) $Ca^{2+} < Ar < K^+$

8. Which of the following oxides is most acidic in nature?
(a) MgO
(b) BeO
(c) BaO
(d) CaO

9. Identify the incorrect match

Name	IUPAC Official Name
(a) Unnilunium	(i) Mendelevium
(b) Unniltrium	(ii) Lawrencium
(c) Unnilhexium	(iii) Seaborgium
(d) Ununnunnium	(iv) Darmstadtium

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

10. Match the element in column I with that in column II.

Column I	Column II
(a) Copper	(i) Non-metal
(b) Fluorine	(ii) Transition Metal
(c) Silicon	(iii) Lanthanoid
(d) Cerium	(iv) Metalloid

Identify the correct match:
(a) (a)-(i) (b)-(ii) (c)-(iii) (d)-(iv)
(b) (a)-(ii) (b)-(iv) (c)-(i) (d)-(iii)
(c) (a)-(ii) (b)-(i) (c)-(iv) (d)-(iii)
(d) (a)-(iv) (b)-(iii) (c)-(i) (d)-(ii)

11. In Bohr series of lines of hydrogen spectrum, third line from the red end corresponds to which one of the following inner orbit jumps of electron for Bohr's orbit in atom of hydrogen
(a) $4 \rightarrow 1$
(b) $2 \rightarrow 5$
(c) $3 \rightarrow 2$
(d) $5 \rightarrow 2$

12. Which sel is correct for an electron in 4f-orbital?
(a) n = 3 l = 2 m_i = - 2 m_s = 1/2
(b) n = 4 1=4 m_l = - 4 m_s = - 1/2
(d) n = 4 I = 3 m_l = +1 m_s = l/2
(c) n = 4 l = 3 m_l = 1 m_s = 1/2

13. The wavelength of the radiations emitted, when in a hydrogen atom from infinity to stationary state, is ($R_H = 1.097 \times 10^7$ m^{-1})
(a) 9.1×10^{-8} nm
(b) 192 nm
(c) 406 nm
(d) 91 nm

14. Of the following outer electronic configurations of atoms, the highest oxidation state is achieved by which one of them
(a) (n - 1) d^5 ns^2
(b) (n - 1) $d^5 ns^1$
(c) (n - 1) d^3 ns^2
(d) (n - 1) d^3 ns^+

15. Which of the following statement is correct in relation to the hydrogen atom?
(a) 3s-orbital is lower in energy than 3p-orbital
(b) 3p-orbital is lower in energy than 3d-orbital
(c) 3s and 3p-orbitals are of lower energy than 3d-orbitals
(d) 3s and 3p-orbitals all have the same energy

16. A measured temperature on Fahrenheit scale is 200 °F. What will this readingbe on Celsius scale?
(a) 40 °C
(b) 94 °C

(c) 93.3 °C

(d) 30 °C

17. If 500 mL of a 5M solution is diluted to 1500 mL, what will be the molarity of the solution obtained?

(a) 1.5 M

(b) 1.66 M

(c) 0.017 M

(d) 1.59 M

18. The number of atoms present in one mole of an element is equal to Avogadronumber. Which of the following element contains the greatest number ofatoms?

(a) 4g He

(b) 46g Na

(c) 0.40g Ca

(d) 12g He

19. If the concentration of glucose ($C_6H_{12}O_6$) in blood is 0.9 g L^{-1}, what will be the molarity of glucose in blood?
(a) 5M (b) 50M
(c) 0.005 M (d) 0.5M

20. One mole of any substance contains 6.022 $\times 10^{23}$ atoms/molecules. Number of molecules of H_2SO_4 present in 100 mL of 0.02M H_2SO_4 solution is _____.
(a) 12.044×10^{20} molecules
(b) 6.022×10^{23} molecules
(c) 1×10^{23} molecules
(d) 12.044×10^{23} molecules

21. What is the mass percent of carbon in carbon dioxide?
(a) 0.034%
(b) 27.27%
(c) 3.4%
(d) 28.7%

22. If the density of a solution is 3.12 g mL^{-1}, the mass of 1.5 mL solution in significant figures is _____.
(a) 4.7g
(b) 4680×10^{-3}g
(c) 4.680g
(d) 46.80g

23. Which of the following statements is correct about the reaction given below:

$$4Fe(s) + 3O_2(g) \longrightarrow 2Fe_2O_3(g)$$

(a) Total mass of iron and oxygen in reactants = total mass of iron and oxygen in product therefore it follows law of conservation of mass.
(b) Total mass of reactants = total mass of product; therefore, law of multiple proportions is followed.
(c) Amount of Fe_2O_3 can be increased by taking any one of the reactants (iron or oxygen) in excess.
(d) Amount of Fe_2O_3 produced will decrease if the amount of any one of the reactants (iron or oxygen) is taken in excess

24. Which of the following statements indicates that law of multiple proportion is being followed.
(a) Sample of carbon dioxide taken from any source will always have carbon and oxygen in the ratio 1:2.
(b) Carbon forms two oxides namely CO_2 and CO, where masses of oxygen which combine with fixed mass of carbon are in the simple ratio 2:1.
(c) When magnesium burns in oxygen, the amount of magnesium taken for the reaction is equal to the amount of magnesium in magnesium oxide formed.
(d) At constant temperature and pressure 200 mL of hydrogen will combine with 100 mL oxygen to produce 200 mL of water vapour.

25. Which of the following conclusions could not be derived from Rutherford's α -particle scattering experiement?
(a) Most of the space in the atom is empty.
(b) The radius of the atom is about 10^{-10} m while that of nucleus is 10^{-15} m.
(c) Electrons move in a circular path of fixed energy called orbits.
(d) Electrons and the nucleus are held together by electrostatic forces of attraction

26. Which of the following statement is not correct about the characteristics of cathode rays?
(a) They start from the cathode and move towards the anode.
(b) They travel in straight line in the absence of an external electrical or magnetic field.
(c) Characteristics of cathode rays do not depend upon the material of electrodes in cathode ray tube.
(d) Characteristics of cathode rays depend upon the nature of gas present in the cathode ray tube.

27. Which of the following statements about the electron is incorrect?
(i) It is a negatively charged particle.
(ii) The mass of electron is equal to the mass of neutron.
(iii) It is a basic constituent of all atoms.
(iv) It is a constituent of cathode rays

28. Two atoms are said to be isobars if.
(a) they have same atomic number but different mass number.
(b) they have same number of electrons but different number of neutrons.
(c) they have same number of neutrons but different number of electrons.
(d) sum of the number of protons and neutrons is same but the number of protons is different.

29. The number of radial nodes for 3p orbital is _____.
(a) 3 (b) 4
(c) 2 (d) 1

30. Number of angular nodes for 4d orbital is _____.
(a) 4 (b) 3
(c) 2 (d) 1

31. Which of the following is responsible to rule out the existence of definite paths or trajectories of electrons?
(i) Pauli's exclusion principle.
(ii) Heisenberg's uncertainty principle.
(iii) Hund's rule of maximum multiplicity.
(iv) Aufbau principle

32. Orbital angular momentum depends on _____.
(a) l (b) n and l
(c) n and m (d) m and s

33. Chlorine exists in two isotopic forms, Cl-37 and Cl-35 but its atomic mass is 35.5. This indicates the ratio of Cl-37 and Cl-35 is approximately
(a) 1:2 (b) 1:1
(c) 1:3 (d) 3:1

34. The pair of ions having same electronic configuration is _____.
(a) Cr^{3+}, Fe^{3+} (b) Fe^{3+}, Mn^{2+}
(c) Fe^{3+}, Co^{3+} (d) Sc^{3+}, Cr^{3+}

35. If travelling at same speeds, which of the following matter waves have the shortest wavelength?
(a) Electron (b) Alpha particle (He2+
) (c) Neutron (d) Proton

Section B

In the following questions two or more options may be correct

36. Match block and general electronic configuration.

List I (Block)		List I (Electronic configuration)	
(a)	*s*-block	(i)	ns^2np^{1-6}
(b)	*p*-block	(ii)	$(n-1)d^{1-10}ns^2$
(c)	*d*-block	(iii)	$(n-2)f^{1-14}(n-1)d^{0-1}ns^2$
(d)	f-block	iv)	ns^{1-2}

(1) a → i; b → ii; c → iii; d → iv
(2) a → iv; b → ii; c → iiii; d → i
(3) a → iv; b → i; c → ii; d → iii
(4) a → iv; b → iii; c → ii; d → i

37. Match list 1 with list II and choose the correct answer from the code given below:

List I		List II	
(a)	Strongest reductant	(i)	Gold
(b)	Half-filled *d*-orbital	(ii)	Cerium
(c)	Coinage metal	(iii)	Chromium
(d)	Lanthanide	(iv)	Iodide ion

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

38. Match list 1 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 → ii, b → i; c → iii; d → iv
(2) a → iii; b → iv; c → i; d → ii
(3) a → iii; b → iv; c → ii; d → i
(4) a → i; b → ii; c → iv; d → iii

39. Match the following

Column I Name		Column II IUPAC official name	
a.	Unnilunium	p.	Nihonium
b.	Unnilpentium	q.	Tennessine
c.	Ununtrium	r.	Mendelivium
d.	Ununseptium	s.	Dubnium

(1) a→ r ,B→ s , $C \rightarrow p$, $D \rightarrow q$
(2) a→q ,B→ p , $C \rightarrow s$, $D \rightarrow r$
(3) a→ r ,B→ p , $C \rightarrow s$, $D \rightarrow q$
(4) a→ s,B→ q , $C \rightarrow r$, D →p

40. Which one of the following sets of ions represents a collection of isoelectronic species?
(a) Li^+ Na^+ Mg^{2+} Ca^{2+}
(b) K^+ Cl^-, Ca^{2+} Sc^{3+}
(c) Ba^2, $S\ r^{2+}$ K^+, Ca^{2+}
(d) N^{3-} O^{2-} F^-. S^{2-}

41. One mole of oxygen gas at STP is equal to _____.
(a) 6.022×10^{23} molecules of oxygen
(b) 6.022×10^{23} atoms of oxygen
(c) 16 g of oxygen
(d) 32 g of oxygen

42. Which of the following pairs have the same number of atoms?
(a) 16 g of O_2(g) and 4 g of H_2 (g)
(b) 16 g of O_2 and 44 g of CO_2
(c) 28 g of N_2 and 32 g of O_2
(d) 12 g of C(s) and 23 g of Na(s)

43. 16 g of oxygen has same number of molecules as in
(a) 16 g of CO
(b) 28 g of N_2
(c) 14 g of N_2
(d) 1.0 g of H_2

44. One of the statements of Dalton's atomic theory is given below: "Compounds are formed when atoms of different elements combine in a fixed ratio" Which of the following laws is not related to this statement?
(a) Law of conservation of mass
(b) Law of definite proportions
(c) Law of multiple proportions

(d) Avogadro law

45. Which of the following terms are unitless?
(a) Molality
(b) Molarity
(c) Mole fraction
(d) Mass percent

46. Out of the following pairs of electrons, identify the pairs of electrons present in degenerate orbitals :
(a) (a) n = 3, l = 2, m_l = –2, m_s = − 1/ 2
(b) n = 3, l = 2, m_l = –1, m_s = − 1/2
(b) (a) n = 3, l = 1, m_l = 1, m_s = + 1/ 2
(b) n = 3, l = 2, m_l = 1, m_s = + 1 /2
(c) (a) n = 4, l = 1, m_l = 1, m_s = + 1/ 2
(b) n = 3, l = 2, m_l = 1, m_s = + 1 /2
(d) (a) n = 3, l = 2, m_l = +2, m_s = − 1/ 2
(b) n = 3, l = 2, m_l = +2, m_s = + 1 /2

47. Which of the following sets of quantum numbers are correct?

	n	l	m_l
(a)	1	1	+2
(b)	2	1	+1
(c)	3	2	–2
(d)	3	4	–2

48. In which of the following pairs, the ions are iso-electronic?
(a) Na^+, Mg^{2+}
(b) Al^{3+} , O^-
(c) Na^+, O^{2-}
(d) N^{3-}, Cl^-

49. Which of the following statements concerning the quantum numbers are correct?
(a) Angular quantum number determines the three dimensional shape of the orbital.
(b) The principal quantum number determines the orientation and energy of the orbital.
(c) Magnetic quantum number determines the size of the orbital.
(d) Spin quantum number of an electron determines the orientation of the spin of electron relative to the chosen axis.

50. Identify the pairs which are not of isotopes?
(i) ${}^{12}_{6}X$, ${}^{13}_{6}Y$
(ii) ${}^{35}_{17}X$, ${}^{37}_{17}Y$
(iii) ${}^{14}_{6}X$, ${}^{14}_{7}Y$
(iv) ${}^{8}_{4}X$, ${}^{8}_{5}Y$

Section-A(Botany)

1. Funaria plant body is attached to the substratum by
(a) Rhizoids (b) Striope
(c) Holdfast (d) Root

2. Bryophytes include
(1) Mosses (2) Horsetail
(3) Liverworts (4) Ferns
(a) 1,2 (b) 1,3
(c) 1,4 (d) 2,4

3. Match the following

a. Lycopsida	1) Dryopteris
b. Pteropsida	ii) Selaginella
c. Sphenopsida	iii) Psilotum
d. Psilopsida	iv) Equisetum

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

4. In Gymnosperms leaves are
(a) Simple
(b) Compound
(c) Needle like
(d) All of these

5. Diplontic life cycle is present in
(1) Cycas
(2) Eucalyptus
(3) Funaria
(4) Dictyota
(5) Adiantum
(a) 2,3,4
(b) 3,4
(c) 3,5
(d) 1,2

6. The tallest tree species of the gymnosperms is
(a) Eucalyptus
(b) Pinus
(c) Cedrus
(d) Sequoia

7. Which of the following is considered an important step in evolution as it is a precursor to the seed habit:
(a) Haplontic life cycle
(b) Free-living gametophyte
(c) Dependent sporophyte
(d) Development of embryo inside the female gametophyte

8. Given are a few statements
(a) Important soil binders
(b) They are the first terrestrial land plant with vascular tissues
(c) Cones are present
Choose the option for which all three statements hold true
(a) Ulothrix
(b) Pinus
(c) Cycas
(d) Equisetum

9. Characteristic of angiosperms which distinguish them from gymnosperms
(a) Seeds covered by ovary
(b) Zygote and triploid endosperm formed after double fertilization
(c) The pollen grains and ovules are developed in specialised structures called flower

(d) All of the above

10. Given below are two statements:
Statement 1:
Fusion between one large, non motile, static female gamete and a smaller motile male gamete is called oogamous
Statement II:
Atleast half of total carbondioxide fixation on Earth is carried out by algae through photosynthesis.
Choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is correct
(d) Both, Statement I and Statement II are correct
11. Agar a type of chemical are obtained from which algae and their uses respectively
(a) Gelidium, For grow microbes
(b) Gracilaria, Preparation of Ice-cream
(c) Gelidium, preparation of jellies
(d) All of these
12. Read the following statement and choose correct option
(i) Evolutionary pteridophyte are the first terrestrial plants to posses vascular tissue.
(ii) The main plant body of pteridophytes is gametophytic
(iii) in gymnosperms the male and female gametophyte have an independent free living existance
(iv) In coniferes niddle like leaves reduce the surface area.
(a) i, ii correct and iii, iv incorrect
(b) ii, iii correct and i, iv incorrect
(c) i, iv correct and ii, iii incorrect
(d) i, iii, iv correct and ii incorrect
13. Read the following statement and choose correct option
(i) Gymnosperms are heterosporous
(ii) Prothallus is a gametophyte,
free living photosynthetic structure form in pteridophyte
(iii) Mosses posses vascular tissue xylem and phloem
(iv) Mosses are of great ecological importance.
(a) i, ii correct and iii, iv incorrect
(b) i, ii, iv correct and iii incorrect
(c) i, ii, iii correct and iv incorrect
(d) i, ii, iii, iv correct
14. Given below are two statements:
Statement I:
In Rhodophyceae food is stored as complex carbohydrate in the form of manitol.
Statement II:
Manitol starch is very similar to amylopectin and glycogen in structure.
Choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is correct
(d) Both, Statement I and Statement II are correct
15. Given below are two statements:
Statement I:
Isogamous type reproduction with motile gamete is present in spirogyra
Statement II:
Genera fern are known as homosporous.
In the light of the above statements, choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is correct
(d) Both Statement I and Statement II are correct.
16. Hydrocolloids are obtained by
(a) Brown and green algae
(b) Green and red algae
(c) Brown and red algae
(d) Diatoms and desmid
17. Chlorella is a
(a) Multicellular algae.
(b) Unicellular algae
(c) Protein rich algae
(d) Used as food supplement
(a) Only a and d
(b) Only a and c
(c) Only b and a
(d) Only b, c and d
18. In class rhodophyceae sexual reproduction is of which type
(a) Isogamous
(b) Anisogamous
(c) Oogamous
(d) All of these

19. In brown algae how many flagella are present in gamete:
    (a) Only 1
    (b) 2. Unequal
    (c) 2-8, Unequal
    (d) 2-8, Equal
20. Which of the following is incorrect:
    (a) In Pinus male and female cone/strobili borne on same tree
    (b) In Cycas male cone and megasporophyll born on different tree
    (c) Cycas plants are monoecious
    (d) Both 1 and 2
21. Given below are two statements:
    Statement I:
    Fusion between one large, non motile, static female gamete and a smaller motile male gamete is called oogamous.
    Statement II:
    Floridean starch is very similar to amylopectin and glycogen in structure.
    In the light of the above statements, choose the correct answer from the options given below
    (a) Both Statement I and Statement II are incorrect
    (b) Statement I is correct but Statement II is incorrect
    (c) Statement I is incorrect but Statement II is correct
    (d) Both Statement I and Statement II are correct
22. Given below are two statements:
    Statement I:
    Isogamous type reproduction present in Eudorina
    Statement II:
    In Bryophyte antheridium produce multiflagellated antherozoids.
    In the light of the above statements, choose the correct answer from the options given below
    (a) Both Statement I and Statement II are incorrect
    (b) Statement I is correct but Statement II is incorrect
    (c) Statement I is incorrect but Statement II is correct
    (d) Both Statement I and Statement II are correct.
23. Filamentous form of algae is
    (a) Spirogyra
    (b) Volvox
    (c) Chlamydomonas
    (d) Spirulina
24. Zygotic and sporic meosis takes place in
    (a) Spirogyra and moss respectively
    (b) Bryophytes and Dryopteris respectively
    (c) Cycas and Pinus respectively
    (d) Chlamydomonas and spirogyra respectively
25. Which of the following is/are correct:
    A. Bacteria are most abundant microorganism
    B. Bacteria are individualy show most extensive metabolic diversity
    C. Bacteria are very simple in behaviour but complex in structure
    D. Bacteria may be photosynthetic autotrophic or chemosynthetic autotrophic
    (a) A.B only
    (b) B.C only
    (c) A.D only
    (d) A,B,C and D
26. Archaebacteria differ from other bacteria in having:
    (a) Composition of cell wall
    (b) Composition of genetic matarial
    (c) True nucleus
    (d) All of these
27. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason
    (R)
    Assertion: Deuteromycetes commonly known as
    Imperfect fungi.
    Reason: In deuteromycetes only the Asexual or vegetative phase are known.
    In the light of the above statements, choose the correct answer from the options given below:
    (a) Both (A) and (R) are true but (R) is not the correct explanation of (A)
    (b) (A) is true but (R) is false
    (c) (A) is false but (R) is true
    (d) Both (A) and (R) are true and (R) is the correct explanation of (A)
28. The main criteria for five Kingdom of classification Includes:
    (a) Mode of nutrition, reproduction
    (b) Cell structure and body organisation
    (c) Phylogenetic relationship
    (d) All of these
29. Bacteria which play a great role in recycling 8. nutrient like nitrogen, phosphorous, iron and sulphur are:
    (a) Anoxygenic photosyntheter
    (b) Blue green algae
    (c) Chemosynthetic autotrophic
    (d) Photosynthetic autotrophic
30. Which of the following is incorrect about chrysophytes:

(a) Chrysophytes includes diatoms and and golden. Algae
(b) Chrysophytes are found in freshwater as well as in marine water
(c) They are microscopic and float actively against water current
(d) None of these

31. Euglenoids have protein rich layer instead of cell wall this layer is called:
(a) Pellicle
(b) Chitin
(c) Cellulose
(d) Pectin

32. Which of the following is correct about slime moulds:
(1) During unfavourable condition slimemoulds form aggregation called plasmodium
(2) During favourable condition the differentiate and form fruiting bodies at their tip
(3) Spores sare dispersed by air currer
(4) All of these

33. Dikaryon formation is characteristic of:
(a) Phycomycetes and Basidiomycetes
(b) Ascomycetes and basidiomycetes
(c) Ascomycetes and phycomycetes
(d) Phycomycetes and deuteromycetes

34. Asexual spore are produced exogenously in A and endogenously in B.....
(a) A-Ascomycetes, B-Phycomycetes
(b) A-Basidiomycetes, B-Ascomycetes
(c) A-Ascomycetes, B-Basidiomycetes
(d) A-Basidiomycetes, B-Phycomycetes

SECTION-B

35. Plant families like convolvulaceae, solanaceae are included in which order:
(1) Poales
(2) Poaceae
(3) Polymoniales
(4) Sapindales

36. As we go from kingdom to species in a taxonomic hierarchy, the number of common characteristics:
(a) Will decrease
(b) Will increase
(c) Remain same
(d) May increase or decrease

37. Which of the following is correctly matched:

Common name	Class
(a) Housefly	Musca
(b) Mango	Monocotyledonae
(c) Gonilla	Mammalia
(d) Tiger	Chordata

38. Select the correct statement:
(a) Alsatians belong to family canidae
(b) Cats belong to family Felidae
(c) Lion belong to genus Panthera
(d) All of these

39. Assertion: Category is a part of overall taxonomic arrangment called taxonomic category. Reason: All categories together constitute the taxonomic hierarchy.
(a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(c) If Assertion is true but Reason is false.
(d) If both Assertion and Reason are false.

40. In six kingdom classifications which kingdom is divided into two domains:
(a) Protista
(b) Monera
(c) Fungi
(d) Plantae

41. Earlier classification systems included bacteria, blue green algae, fungi, mosses, ferns gymnosperm and the angiosperms under plants. Which character are taken for this classification:
(a) Cell membrane
(b) Cell wall
(c) Mode of nutrition
(d) Type of reproduction

42. In five kingdom classification system which kingdom are unicellular eukaryotes:
(a) Protista
(b) Fungi
(c) Protozoa
(d) Monera

43. How many matching are correct:

a. Spherical	Coccus
b. Rod shaped	Bacillus
c. Comma shaped	Vibrium
d. Spiral	Vibrio

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

44. In which kingdom autotrophic mode of nutrition
are never occur:
(a) Monera
(b) Protista
(c) Fungi
(d) Plantae

45. In referring to an organism in writing such as in a newspaper, textbook or lab report which of these rules should be following

1. Underline or italicize genus
2.Underline or italicize species
3. First letter of species should be uppercase
4. First letter of genus should be uppercase

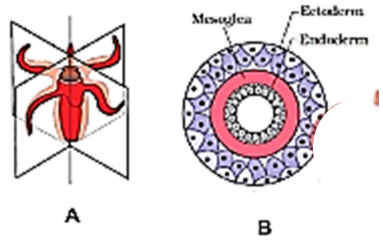
(a) 1,2,4 (b) 1,2,3
(c) 2,3,4, (d) 1,3,4

46. The birds taxonomically represent
(a) Family (b) Order
(c) Class (d) Phylum
47. Exclusive character of human being which separate human from other organism is-
(a) Consciousness
(b) Self regulation
© Self consciousness
(d) Both(b) and (c)
48. Which is highest in the hierarchy of taxonomic category?
(a) Genus (b) Family
© Order (d) Class
49. Which of thew following is correctly matched with its particular taxonomic category?
(a) Triticum aestivum – species
(b) Fishes-Pisces- phylum
© Man-primate – family
(d) Mango –sapindales – class
50. An organisum is in the same class but not in the same family .It may belong to same
(a) Genus (b) Species
(c) Veriety (d) Order

Zoology

SECTION-A

51. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R)
Assertion: Hemichordates have a rudimentary structure in collar region called stomochord structure similar to notochord.
Reason: Hemichordata was earlier considered as a subphyum under phyllum chodata.
In the light of the above statements, choose the correct answer from the options given below:
(a) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(b) (A) is true but (R) is false
(c) (A) is false but (R) is true
(d) Both (A) and (R) are true and (R) is the correct explanation of (A)
52. For given diagrames which of the following option correct:



(a) A-Radial- Hydra, B-Triploblastic-Hydra
(b) A-Radial-Hydra, B-Diploblastic-Meandrina
(c) A-Bilateral-Adamsia, B-Triploblastic-Planaria
(d) A-Radial Hydra, B-Diploblastic – Sycon
53. Given below are two statements:
Statement 1:
In Echinodermata water vascular system present which help in locomotion, capture and transport
of food and respiration.
Statement II:
In Scoliodon notochord is persistent through out life.
Choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is correct
(d) Both, Statement I and Statement II are correct
54. How many statements is/are incorrect about sponges:
A. Sponges are hermaphrodite
B. Fertilization is external and development is indirect
C. Larval stage is morphologically distinct from the adult
D. Spongocoel and canal are lined by collar cell
(1) Two
(2) One
(3) Four
(4) Three
55. The space between hump and mantle is called mantle cavity in which …...A…... are present:
(a) A-foot
(b) A-feather like gills
(c) A-Radula
(d) A-Eyes
56. Given below are two statements:
Statement 1:
Sponges have a water vascular in transport of food and respiration
Statement II:

In sponges fertilisation is internal and development is indirect.
Choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is correct
(d) Both, Statement I and Statement II are correct

57. Which of the following is less general in characters as compared to genus-
(a) Species (b) Family
(c) Class (d) Division

58. Read the following statement and choose correct option:
(i) Cyclostomes are marine but migrate for spawning to fresh water.
(ii) Cyclostomes have 6-15 pairs of gill slits for respiration.
(iii) In aves oil gland present at the base of tail
(iv) In aves hind limbs are modified into wings.
(a) Only (i), (ii) are correct
(b) Only (ii), (iii), (iv) are correct
(c) Only (i), (ii), (iii) are correct
(d) (i), (ii), (), (iv) are correct

59. Which one of the following matching are correct:
(a) Polyp Jelly fish
(b) Gorgonia Sea pen
(c) Pennatula Sea fan
(d) Meandrina Brain coral

60. In coelenterata cnidoblasts are used for:
(a) Anchorage
(b) Defense
(c) Capture of prey
(d) All of the above

61. Match the following columns:

Column-1	Column-II
a. Ascaris	1. King crab
b. Gorgonia	ii. Sea lily
c. Limulus	iii. Round worm
d. Antedon	iv. Sea fan

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

62. 12. Worm like, proboscis, collar and trunk with complete digestive system is:
(a) Saccoglossus
(b) Hemichordata
(c) Balanoglossus
(d) All of the above

63. Which of the following animal is without operculum and bladder but with placoid scale, is/ are:
(a) Dog fish
(b) Torpedo
(c) Trygon
(d) All of the above

64. Match the following columns:

Column-l	Column-II
a. Pristis	1. Electric organ
b. Trygon	ii. Flying fish
c. Carcharodon	iii. Saw fish
d. Torpedo	iv. Great white shark
e. Exocoetus	v. sting ray

(a) a-iii, b-v, c-iv, d-il, e-i
(b) a-iii, b-v, c-iv, d-i, e-li
(c) a-iv, b-iši, c-i, d-v, e-ii
(d) a-iii, b-i, c-il, d-iv, e-v

65. Which one of the following worm is known worm:
(a) Ascaris
(b) Wuchereria
(c) Ancylostoma
(d) Hirudinaria

66. Which is a correct matching set:

Column I	Column II
a. Metamerism	1. Canal system constituent
b. Spongocoel	ii. Leech
c. Acoelomate	iii. Apis
d. Honey bee	iv. Platyhelminthes

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

67. Read the following statement and choose correct option:
(i) Body of Pleurobranchia bears eight external row of ciliated comb plates
(ii) Bioluminescence is well marked in ctenophores
(iii) Neries posses leteral appendages parapodia which help in swimming.
(iv) Feather like gills are present in sponges which help in respiration and excreation.
(a) Only (i), (ii) are correct
(b) Only (i), (ii), (iii) are correct
(c) Only (ii), (iii), (iv) are correct
(d) (i), (ii), (iii), (iv) are correct

68. Which is the correct matching set:

Column-1	Column-II
(a) Compound eye	(i) Arthropoda
(b) Stomochord	(ii) Mollusca

(c) Gills (iii) Saccoglossus
(d) Mantle cavity (iv) Pisces
(a) a-ii, b-iii, c-iv, d-i
(b) a-i, b-iii, c-iv, d-il
(c) a-i, b-ii, c-iv, d-iii
(d) a-i, b-iv, c-iii, d-ii

69. 19. How many animals among following have jointed appendages:
Bombyx, Apis, Limulus, Sepia, Octopus, Earthworm
(a) 3 (b) 4
(c) 5 (d) 6
70. Presence of cycloid and ctenoid scales is a characteristic of:
(a) Chondrichthyes
(b) Osteichthyes
(c) Amphibia
(d) All
71. In which class of vertebrata heart is usually three 21 chambered, but in some animals it is four chambered:
(a) Aves
(b) Mammalia
(c) Amphibia
(d) Reptilia
72. Single opening for mouth and anus is found in:
(a) Porifera
(b) Platyhelminthes
(c) Annelida
(d) Aschelminthes
73. The circulatory system in which the cells and tissues are directly bathed with blood is:
(a) Closed type
(b) Open type
(c) Complete type
(d) Both 1 and 3
74. Given below are two statements:
Statement :I
Platyhelminthes are hermaphrodite and fertilisation is internal occur.
Statement II:
Sponges are exclusively marine and mostly are asymetrical.
Choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is
(d) Both, Statement i and Statement
75. Alimentry canal is complete with well develop muscular pharynx in:
(a) Round worm
(b) Liver Fluke
(c) Tapeworm
(d) 2 and 3
76. Notochord is derived from:
(a) Ectoderm
(b) Mesoderm
(c) Endoderm
(d) Both 1 and 3
77. Choanocytes or collar cells are the characteristic feature of:
(a) Porifera
(b) Coelenterata
(c) Platyhelminthes
(d) Aschelminthes
78. Given below are two statements:
Statement I:
In chondrichthyes Notochord persistant throught life.
Statement II:
In Aves respiration occur by lungs and airsacs connected to lungs suppliment respiration.
Choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is correct
(d) Both, Statement I and Statement II are correct
79. Which of the following vertebrate lack the capacity to regulate their body temperature:
(a) Ascidia and Pterophyllum
(b) Scoliodon and Exocoetus
(c) Exocoetus and Aptenodytes
(d) Calotes and Ornithorhynchus
80. Read the following statement and choose correct option:
(i) Alternation of generation exhibit in Obella
(ii) In Obelia polyps produce medusa asexualy.
(iii) Only polyp form exhibit in Hydra
(iv) Only medusa form exhibit in Aurelia
(a) (i), (ii) are correct and (iii), (iv) are incorrect
(b) (1),(i) are correct and (ii), (iv) are incorrect
(c) (iii), (iv) are correct and (i), (ii) are incorrect
(d) (1),(i), (i), (iv) are correct
81. Match the column I with column II and choose correct option:

Column I	Column II
A. Viviparous Vertebrate	(i) Scoliodon
B. Oviparous Vertibrate	(ii) Labeo
C. Flying vertebrate	(iii) Pteropus

(iv) Macropus

(v) Neophron

(a) A-i,ii, B-ii,v, C-iii,v
(b) A-,i,iii,iv B-ii,v, C-iii,v
(c) A-iii, iv, B-i,ii,v, C-iv
(d) A-iii, iv B-v. C-iii,iv,v

82. Assertion (A) and the other is labelled as Reason (R)
Assertion (A):
Flat worm mostly ectoparasite found in animal Including human.
Reason (R):
Hooks and Suckers are present in parasitic form of platyhelmenthes.
In the light of the above statements, choose the correct answer from the options given below:
(a) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
(b) (A) is correct but (R) is not correct
(c) (A) is not correct but (R) is correct
(d) Both (A) and (R) are correct and (R) is the correct explanation of (A)
83. How many of the following organism is not hermaphrodite sponge, cockroach, leech, earthworm, tape worm
(a) One
(b) Two
(c) Three
(d) All of these
84. Given below are two statements:
Statement I:
In Cephalochordates notochord is present only in larval tail.
Statement II:
In urochordates notochord extends from head to tail and persist throughout life. Choose the correct answer from the options given below
(a) Both Statement I and Statement II are incorrect
(b) Statement I is correct but Statement II is incorrect
(c) Statement I is incorrect but Statement II is correct
(d) Both, Statement I and Statement II are correct

SECTION-B

85. The phylum 'Arthropoda' is characterised by:
(a) Chitinous exoskeleton
(b) Jointed appendages
(c) Malpighian tubules
(d) All of these
86. Mammary glands are found in:
(a) Pteropus
(b) Balaenoptera
(c) Ornithorhynchus
(d) All the above
87. Pneumatic bone is present:
(a) Naja
(b) Pteropus
(c) Psittacula
(d) Salamander
88. Match the following column:

Column-1	Column-ll
A. Bufo	1. Frog
B. Hyla	ii. Tree frog
C. Ichthyophis	iii. Toad
D. Rana	iv. Limbless amphibia.

(1) A-, B-ii, C-iii, D-iv
(2) A-ili, B-i, C-ii, D-iv
(3) A-iii, B-ii, Civ, D-
(4) A-iv, B-iii, C-il, D-i
89. Jawless vertebrate are
(a) Petromyzon
(b) Lamprey
(c) Myxine
(d) All of these
90. Choose the correct statement about the phylum chordata:
(a) The presence of notochord a ventral hallow nerve cord & paired pharyngeal gill slits
(b) All vertebrates are chordates but all chordates are not vertebrates
(c) All member of subphylum vertebrata possess notochord during the adult period
(d) The notochord is replaced by a cartilaginous or bony vertebral column in the embronic period
91. Which of the following is correctly matched:
(a) Bilateral symmetry-Coelenterates
(b) Coelomates-Mollusca
(c) Metamerism-Aschelminthes
(d) Triploblastic-Sponges
92. Which one of the following is not a characteristics of phylum annelida:
(a) Ventral nerve cord
(3) Pseudocoelomate
(c) Closed circulatory system
(d) Segmentation
93. Which one of the following kinds of animals are triploblastic:
(1) Ascaris
(2) Ctenophores
(3) Pennatula
(4) Sponges
94. How many animal show the homoiothermous Canis, Felis, Alligator, Chelone, corvus, Rana,

Salamandar, Panthera leo, macropus calotes, crocodile etc..

95. (a) 3 (b) 5
(c) 11 (d) 4
96. Which one of the following organism is known as sea cucumber
(a) Echinus
(b) Cucumaria
(c) Antedon
(d) Ophiura
97. Select the correct statements for amphibia:
(a) They have eyelids
(b) Tympanum represent the ear
(c) They are viviparous
(d) 1 and 2 both
98. Choose the economically important insects:
(a) Honey bee
(b) Silkworm
(c) Lac insect
(d) All of these
99. Malpighian tubules are:
(a) Excretory organ of arthropoda
(b) Excretory organ of annelids
(c) Respiratory organ of insects
(d) Respiratory organ of annelids
100. The phylum which exhibit organ-system level of body organisation and bilateral symmetry, triploblastic, metamerically segmented and coelomate animals:
(a) Aschelminthes
(b) Annelida
(c) Coelenterata
(d) Mollusca