FYNESTUDY Delivering Beyond Academics	**NEET 2025**	**Revision Test 1/ MOCK TEST 21** **13/02/2024** **Laitumkhrah, 6909195529**

ONE YEAR INTENSIVE NEET COURSE

Your aim is to score around 600 in NEET (UG) 2025

Revision Test

Syllabus

Physics	Mechanical properties of Fluid, Thermodynamics, Vectors, Projectile motion, Electrostatics, PN Junction, Photoelectric Effect + **Current Week (Waves & Oscillation)**
Chemistry	Thermodynamics, Atomic Structure, Periodic , Chemical Bonding, **Current Week (Organic)**
Biology	Biological Classification, Plant Kingdom, Animal Kingdom, Morphology of flowering plants, Anatomy of Flowering plants. Chemical Coordination

Read the following instructions carefully.

The test is of **3 hours** duration and the Test Booklet contains **180** multiple-choice questions (four options with a single correct answer) from **Physics, Chemistry and Biology (Botany and Zoology) with 45** questions in each subject .
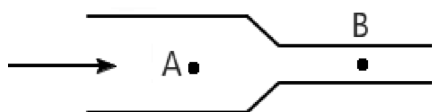
All Questions are compulsory.

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. **Maximum marks: 720**

Name of the Candidate_____

Physics:

1. A fluid is in streamline flow across of a horizontal pipe of the variable area of cross-section. For this which of the following statements is correct?
   1. the velocity is maximum at the narrowest part of the pipe and pressure is maximum at the widest part of the pipe.
   2. velocity and pressure both are maximum at the narrowest part of the pipe
   3. velocity and pressure both are maximum at the widest part of the pipe.
   4. the velocity is minimum at the narrowest part of the pipe and the pressure is minimum at the widest part of the pipe.

2. A horizontal pipe is shown in the figure. The velocity of water at point A and point B are 30cm/s and 20cm/s respectively. The pressure difference between point A and point B is: (density of water 1000kg/m3)

   1. 50 pa
   2. 40 pa
   3. 25 pa
   4. 0.5 pa

3. The radius of a soap bubble is R. The surface tension of the soap solution is T. If the radius of the soap bubble is increased to 3R then energy required is: (Consider no loss anywhere.)
   1. $64\pi R^2 T$
   2. $9\pi R^2 T$
   3. $32\pi R^2 T$

4. $72\pi R^2 T$

4. In a vertical capillary of height water rises upto height 3h. If the capillary is tilted at 30^0 with horizontal, then the height upto which water will rise becomes:
   1. 3h
   2. 2h
   3. h
   4. (3/2)h

5. Given below are two statements:
   Assertion (A): Water flows through a smooth horizontal tube with a narrowing crosssection and its pressure increases.
   Reason (R): Bernoulli's equation for fluids states that $P + (1/2) \rho v^2 + \rho gh$ =constant along a streamline.
   1. Both (A) and (R) are true and (R) is the correct explanation of (A).
   2. Both (A) and (R) are true but (R) is not the correct explanation of (A).
   3. (A) is true but (R) is false.
   4. (A) is false but (R) is true

6. Water is flowing through a tube of the non-uniform cross-section. The ratio of the radius at the entry and exit end of the pipe is 2:3. Then the ratio of velocities at entry and exit of liquid is:
   1. 4 : 9
   2. 9 : 4
   3. 8 : 27
   4. 1 : 1

7. A solid wooden cube has sides of length a. The density of the wood is ρ. The cube is completely immersed in a beaker of oil, which has a density of σ . The top surface of the cube is horizontal. The gravitational field strength is

What is the upward force (upthrust) on the cube due to the oil? (Assume that no oil is absorbed by the wood.)

1. $(\sigma - \rho)a^3 g$
2. $\rho a^3 g$
3. σa^3
4. $\sigma a^3 g$

8. A diatomic gas, having $C_P = (7/2) R$ and $C_V = (5/2) R$ is heated at constant pressure. The ratio of dU : dQ : dW is:
   1. 5 : 7 : 3
   2. 5 : 7 : 2
   3. 3 : 7 : 2
   4. 3 : 5 : 2

9. Two tuning forks of frequencies n_2 and n_1 produce n beats per second. If n and n_2 are known, n_1 may be given by:
   1. $(n_2 /n)+n_2$
   2. $n n_2$
   3. $n_2 \pm n$
   4. $(n_2 /n) - n_2$

10. Given below are two statements:
    Statement I: When amount μ of an ideal gas undergoes adiabatic change from state (P_1, V_1, T_1) to state (P_2, V_2, T_2) the work done is, $W = \mu R(T_2 - T_1)/(1 - \gamma)$, where $\gamma = C_P/C_V$ and R is universal gas constant,
    Statement II: In the above case, when work is done on the gas, the temperature of the gas would rise.
    1. Both Statement I and Statement II are correct.
    2. Both Statement I and Statement II are incorrect.
    3. Statement I is correct but statement II is incorrect.
    4. Statement I is incorrect but statement II is correct

11. A string of mass 2.5kg is under a tension of 200N The length of the stretched string is 20m. If the transverse jerk is struck at one end of the string, the disturbance will reach the other end in:
    1. 1 second
    2. 0.5 second
    3. 2 seconds
    4. The data given is insufficient

12. Which one of the following gases possesses the largest internal energy?
    1. 2 moles of helium occupying $1m^3$ at 300K
    2. 56kg of nitrogen at 10^5 N/m^2 and 300K
    3. 8 grams of oxygen at 8 atm and 300K
    4. 6×10^{26} molecules of argon occupying at $40m^3$ at 900K

13. A Carnot engine working between a source and a sink at 200K has an efficiency of 50%. Another Carnot engine working between the same source and another sink with an unknown temperature T has an efficiency of 75% . The value of T is equal to:
    1. 400 K
    2. 300 K
    3. 200 K
    4. 100 K

14. The motion of a particle varies with time according to the relation.
    $y = a \sin \omega t + a \cos \omega t$
    Then:
    1. 1. the motion is oscillatory but not SHM.
    2. 2. the motion is SHM with an amplitude $a\sqrt{2}$.
    3. 3. the motion is SHM with an amplitude $a/\sqrt{2}$.
    4. 4. the motion is SHM with an amplitude a.

15. The total energy of a particle, executing simple harmonic motion is:
   1. $\propto x$
   2. $\propto x^2$
   3. Independent of x
   4. $\propto x^{1/2}$

16. When a plane progressive wave superposes with another plane progressive wave reflected by a denser medium then the equation of resulting stationary wave will be -
   1. $y = 2a \sin Kx \cos \omega t$
   2. $y = 2a \cos Kx \cos \omega t$
   3. $y = 2a \sin Kx \sin \omega t$
   4. $y = 2a \cos Kx \sin \omega t$

17. In a Simple Harmonic Motion, one particle is at 0.7A from mean position and going to the Left and another particle is at 0.5 A from the mean position and going to the right. The phase difference between them is:
   1. 90^0
   2. 120^0
   3. 105^0
   4. 135^0

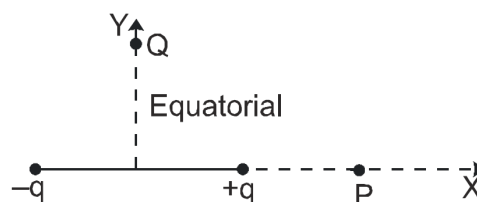18. A standing wave is produced on a string clamped at both ends. The length of the string -
   1. Must be an integral multiple of $\dfrac{\lambda}{4}$
   2. Must be an integral multiple of $\dfrac{\lambda}{2}$
   3. Must be an integral multiple of λ
   4. May be an even integral multiple of $\dfrac{\lambda}{4}$

19. In a stretched string under tension and fixed at one end, the fundamental frequency is n. The ratio of harmonic frequencies produced is -
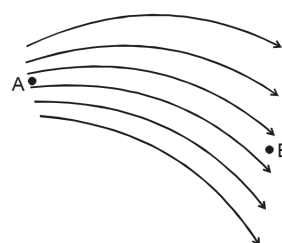   1. n : 2n : 3n
   2. n : 3n : 5n
   3. n : 2n : 5n
   4. 3n : 7n : 11n

20. Due to an electric dipole shown in fig., the electric field intensity is parallel to dipole axis :
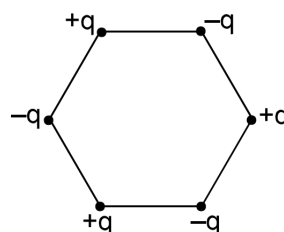

   1. at P only
   2. at Q only
   3. both at P and at Q
   4. neither at P nor at Q

21. The figure shows the electric lines of force emerging from a charged body. If the electric fields at A and B are E_A and E_B respectively and if the distance between A and B is r, then

   1. $E_A < E_B$
   2. $E_A > E_B$
   3. $E_A = E_B /r$
   4. $E_A = E_B /r^2$

22. Six charges of magnitude + q and –q are fixed at the corners of a regular hexagon of edge length a as shown in the figure. The electrostatic potential energy of the system of charged particles is :

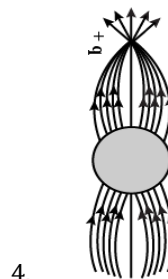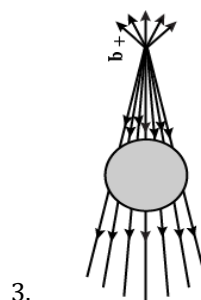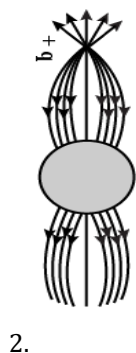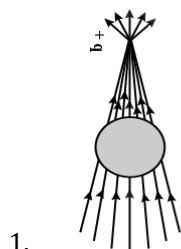(A) $\dfrac{q^2}{\pi \in_0 a} \left[\dfrac{\sqrt{3}}{8} - \dfrac{15}{4} \right]$

(B) $\dfrac{q^2}{\pi \in_0 a} \left[\dfrac{\sqrt{3}}{2} - \dfrac{9}{4} \right]$

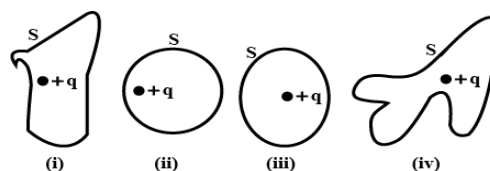(C) $\dfrac{q^2}{\pi \in_0 a} \left[\dfrac{\sqrt{3}}{4} - \dfrac{15}{2} \right]$

(D) $\dfrac{q^2}{\pi \in_0 a} \left[\dfrac{\sqrt{3}}{2} - \dfrac{15}{8} \right]$

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

23. A point positive charge is brought near an isolated conducting sphere (figure). The electric field is best given by

1.

2.

3.

4.

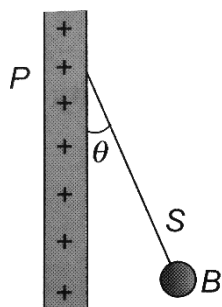24. The electric flux through the surface

1.   in Fig. (iv) is the largest
2.   in Fig. (iii) is the least
3.   in Fig. (ii) is same as Fig. (iii) but is smaller than Fig. (iv)
4.   is the same for all the figures

25. Two point charges **A** and **B**; having charges $+Q$ and $-Q$ respectively, are placed at certain distance apart and force acting between them is **F**. If **25**% charge of **A** is transferred to **B**, then force between the charges becomes:

1.   **F**
2. $\dfrac{9F}{16}$
3. $\dfrac{16F}{9}$
4. $\dfrac{4F}{3}$

26. A charged ball **B** hangs from a silk thread **S**, which makes an angle **θ** with a large charged

conducting sheet **P**, as shown in the figure. The surface charge density **σ** of the sheet is proportional to

1.   cot θ
2.   cos θ
3.   tan θ
4.   sin θ

27. Two particles **A** and **B** having equal charges are placed at a distance **d** apart. A third charged particle placed on the perpendicular bisection of **AB** at distance **x**. The third particle experiences maximum force when -

1. $x = \frac{d}{\sqrt{2}}$
2. $x = \frac{d}{2}$
3. $x = \frac{d}{2\sqrt{2}}$
4. $x = \frac{d}{3\sqrt{2}}$

28. **1C** charge is equivalent to charge on how much number of protons?

1. 6×10^{18}
2. 7×10^{19}
3. 8×10^{20}
4. 9×10^{21}

29. Sixty four conducting drops each of radius 0.02m and each carrying a charge of **5μC** are combined to form a bigger drop. Ratio of surface density of bigger drop to the smaller drop will be
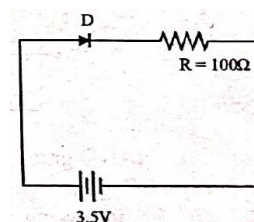
1.   1 : 4

2.   4 : 1
3.   1 : 8
4.   8 : 1

30. A pure semiconductor has equal electron and hole concentration of $10^{16} m^{-3}$. Doping by indium increases n_h to $5 \times 10^{22} m^{-3}$. Then, the value of n_e in the doped semiconductor is

1. $10^6 / m^3$
2. $2 \times 10^6 / m^3$
3. $10^{22} / m^3$
4. $2 \times \frac{10^9}{m^3}$

31. In the given figure, a diode D is connected to an external resistance R = 100Ω and an e.m.f. of 3.5V. If the barrier potential developed across the diode is 0.5V, the current in the circuit will be
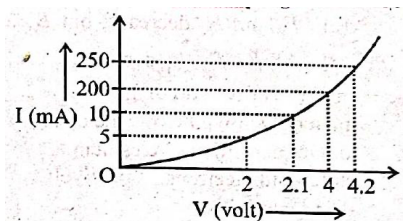

1.   40mA
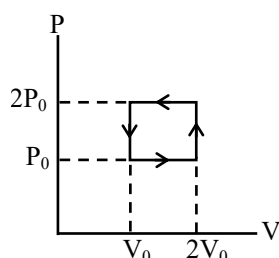2.   20mA
3.   35mA
4.   30mA

32. A sinusoidal voltage of amplitude 25 volt and frequency 50Hz is applied to a half wave rectifier using P-n junction diode. No filter is used and the load resistor is 1000Ω. The forward resistance R_f of ideal diode is 10Ω. The percentage rectifier efficiency is

1.   40%
2.   20%
3.   30%
4.   15%

33. The I-V characteristics of a p-n junction diode in forward bias is shown in the figure. The ratio of dynamic resistance, corresponding to forward bias voltages of **2V** and **4V** respectively, is :

1. $1:2$
2. $5:1$
3. $1:40$
4. $20:1$

34. In Figure, an ideal gas is carried around the cyclic process. How much work is done in one cycle if $P_0 = 8$ atm and $V_0 = 7.00$ liters.

1.   5656 J
2.   –5656 J
3.   10,600 J
4.   11,300 J

35. Two moles of monoatomic gas is mixed with one mole of diatomic gas at the same temperature. Molar heat capacity at constant volume for the mixture is -

1. $\dfrac{13R}{6}$
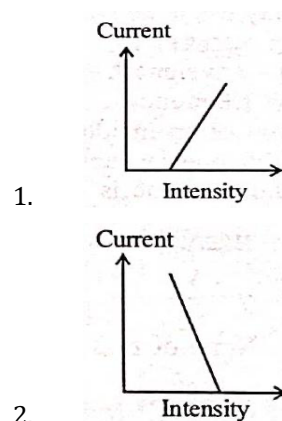2. $\dfrac{11R}{6}$
3. $\dfrac{5R}{3}$
4. $\dfrac{7R}{6}$

36. The photoelectric threshold wavelength of silver is 3250×10^{-10} m. The velocity of the electron ejected from a silver surface by ultraviolet light of wavelength 2536×10^{-10} m is (Given $h = 4.14 \times 10^{-15}$ eVs and $c = 3 \times 10^8$ ms^{-1})

1. $\approx 0.6 \times 10^6$ ms^{-1}
2. $\approx 61 \times 10^3$ ms^{-1}
3. $\approx 0.3 \times 10^6$ ms^{-1}
4. $\approx 6 \times 10^5$ ms^{-1}

37. When a metallic surface is illuminated with radiation of wavelength **λ**, the stopping potential is **V**. If the same surface is illuminated with radiation of wavelength **2λ**, the stopping potential is $\dfrac{V}{4}$. The threshold wavelength for the metallic surface is :

1. 4λ
2. 5λ
3. $\dfrac{5}{2}\lambda$
4. 3λ

38. For a given photosensitive material and frequency (> threshold frequency) of incident radiation, the photoelectric current varies with the intensity of incident light as

1.

2.

3.

4.   none of the above

39. The drift current in a p-n junction is from the

   1.   n-side to the p-side

   2.   p-side to the n-side

   3.   n-side to the p-side if the junction is forward-biased and in the opposite direction if it is reverse biased

   4.   p-side to the n-side if the junction is forward-biased and in the opposite direction if it is reverse-biased

40. A projectile is thrown at an angle 40^0 with the horizontal and its range is R_1. Another projectile is thrown at an angle 40^0 with the vertical and its range is R_2. Then

   1. $R_1=(3/2) R_2$

   2. $R_2=(3/2) R_1$

   3. $R_1 = R_2$

   4. $R_1 = 2 R_2$

41. A body is projected with kinetic energy E to achieve the greatest horizontal range possible. At its highest point, its potential energy is

   1.   E

   2.   E/2

   3.   2E

   4. $\sqrt{2}E$

42. A particle A is dropped from a height and a particle B is thrown at a speed of 5m/sec in a horizontal direction from the same height.

   1.   Particle B will arrive at the ground first

   2.   Both particles will arrive at the ground with the same speed.

   3.   Particle A will arrive at the ground first

   4.   Both particles will arrive at the ground at the same time.

43. What happens if a vector A is multiplied by a number '–3'?

   1.   The magnitude of the vector remains the same, but its direction is reversed.

   2.   The magnitude of the vector is one-third and its direction is reversed.

   3.   The magnitude of the vector is tripled and its direction is reversed.

   4.   The magnitude of the vector is tripled but its direction remains the same.

44. The vector projection of a

   vector $3\hat{i} + 4\hat{k}$ on y-axis is

   1.   2

   2.   3

   3.   4

   4.   0

45. Six charges q, q, q, – q, –q and –q are to be arranged on the vertices of a regular hexagon PQRSTU such that the electric field at centre is double the field produced when only charge 'q' is placed at vertex R. The sequence of the charges from P to U is :

   1.   q, –q, q, q, –q, –q

   2.   q, q, q, –q, –q, –q

   3.   –q, q, q, –q, –q, q

   4.   –q, q, q, q, –q, –q

Chemistry

46. Which is true for the entropy of a spontaneous reaction?

1. $\Delta S_{(system)} - \Delta S_{(surroundings)} > 0$
2. $\Delta S_{(system)} + \Delta S_{(surroundings)} > 0$
3. $\Delta S_{(surroundings)} > 0$ only
4. $\Delta S_{(system)} > 0$ only

47. An ideal gas is expanded isothermally at 300 K from 1 litre to 10 litres. Find the ΔE for this process ($R = 2$ cal mol^{-1} K^{-1})
    1. 9 L atm
    2. 1381.1 cal
    3. zero
    4. 163.7 cal

48. ΔH for the reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3$
    1. $\Delta E - 2RT$
    2. $\Delta E + 2RT$
    3. $\Delta E - RT$
    4. $\Delta H = RT$

49. What will be the work done by 3 moles of an ideal gas when it expands spontaneously in a vacuum?
    1. zero
    2. infinite
    3. 3 joules
    4. 9 joules

50. 3 moles of helium gas at 1 bar is compressed reversibly and isothermally at 400 K to 10 bar pressure. The work done (in J) on the system is: (Given: $R = 8.314$ JK^{-1} mol^{-1})
    1. 2.29×10^4
    2. 2.29×10^{-4}
    3. -2.29×10^4
    4. -2.29×10^{-4}

51. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R):

Assertion(A): Variables like P, V, T are called state functions.
Reason (R): Their values depend only on the state of the system and not on how its is reached.
In the light of the above statements choose the correct answer from the options given below:
1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is not the correct explanation of (A).
3. (A) is true but (R) is false.
4. Both (A) and (R) are false.

52. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R):
Assertion (A): Pressure is an intensive property.
Reason (R): Volume is an extensive property.
In the light of the above statements choose the correct answer from the options given below:

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is not the correct explanation of (A).
3. (A) is true but (R) is false.
4. Both (A) and (R) are false.

53. 5 moles of an ideal gas at 100 K are allowed to undergo reversible compression till its temperature becomes 200 K. If $C_v = 28$ J K^{-1} mol^{-1} , the value of ΔU is-
    1. $\Delta U = 8$kJ
    2. $\Delta U = 14$kJ
    3. $\Delta U = 10$kJ
    4. $\Delta U = 2.8$ kJ

5.

54. In Carius method of estimation of halogen, 0.15 g of an organic compound gave 0.12 g of AgBr. What is the percentage of bromine in the compound?

1.   68.08%

2.   34.04%

3.   42.1%

4.   50%

55. 2.18 g of an organic compound containing sulphur produces 1.02 g of $BaSO_4$. The percentage of sulphur in the compound is

1.   7.26%

2.   8.98%

3.   10%

4.   6.42%

56. 1.6 g of an organic compound gave 2.6 g of magnesium pyrophosphate. The percentage of phosphorus in the compound is

1.   45.38%

2.   54.38%

3.   37.76%

4.   19.02%

57. Few mixtures and their methods of separation are given in the columns I and II respectively. Match the columns and mark the appropriate choice.

Column I	Column- II
(A) Ether + Toluene	(i) Steam distillation
(B) o-Nitrophenol + p-Nitrophenol	(ii) Distillation
(C) Benzoic acid + Benzaldehyde	(iii) Fractional distillation
(D) Fractions of crude oil	(iv) Sublimation

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

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

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

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

58. Match the column I with column II in which formula for estimation of an element is given and mark the appropriate choice.

Column I	Column- II
(A) Estimation of carbon	(i) $(80/188) \times (w_1/W) \times 100$
(B) Estimation of nitrogen	(ii) $(62/222) \times (w_1/W) \times 100$
(C) Estimation of bromine	(iii) $(32/233) \times (w_1/W) \times 100$
(D) Estimation of sulphur	(iv) $(28/22400) \times (w_1/W) \times 100$
(E) Estimation of phosphorus	(v) $(12/44) \times (w_1/W) \times 100$

1.   (A) → (v), (B) → (ii),   (C) → (iv), (D) → (i), (E) → (iii)

2. (A) → (v), (B) → (iv),   (C) → (i), (D) → (iii), (E) → (ii)

3. (A) → (v), (B) → (iv),   (C) → (ii), (D) → (i), (E) → (iii)
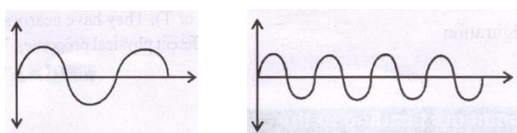
4. (A) → (iv), (B) → (iii),   (C) → (i), (D) → (ii), (E) → (v)

59. What will be the difference between electromagnetic radiation shown in A and B respectively?

(A)   (B)

(i) Velocity   (ii) Wavelength

(iii) Frequency   (iv) Energy

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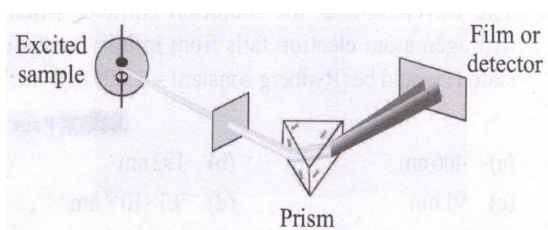3. (ii), (iii) and (iv)
4. (iv) only

60. The minimum energy that must be possessed by photons in order to produce the photoelectric effect with platinum metal is:

[Given: The threshold frequency of platinum is 1.3×10^{15} s^{-1} and $h = 6.6 \times 10^{-34}$ J s.]

1. 3.21×10^{-14} J
2. 6.24×10^{-16} J
3. 8.58×10^{-19} J
4. 9.76×10^{-20} J

61. Which of the following types of spectrum is best depicted by the given figure?

1. Atomic absorption spectra
2. Atomic emission spectra
3. Continuous spectra
4. None of these

62. According to Bohr's theory, the angular momentum of an electron in 5th orbit is

1. 10 h/π
2. 2.5 h/π
3. 25 h/π
4. 1.0 h/π

63. Arrange the following elements in the order of ease of detection of wave properties, in the de Broglie experiment.

1. H < Be, B < Li < K.
2. H > Li > K > Be > B
3. H > Li > Be > B > K
4. H < Li < Be < B < K

64. The position of both, an electron and a helium atom is known within 1.0 nm. Further the momentum of the electron is known within 5.0×10^{-26} kg ms^{-1}. The minimum uncertainty in the measurement of the momentum of the helium atom is
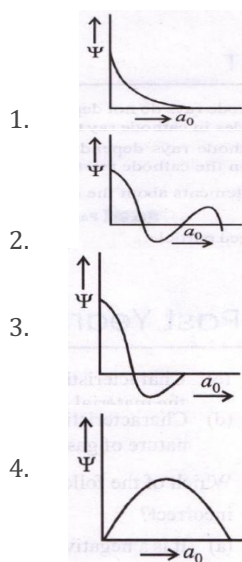
1. 50 kg ms^{-1}
2. 80 kg ms^{-1}
3. 8.0×10^{-26} kg ms^{-1}
4. 5.0×10^{-26} kg ms^{-1}

65. For which one of the following sets of four quantum numbers, an electron will have the highest energy?

	n	l	m	s
1.	3	2	0	+1/2

2.	2	2	1	+1/2
3.	1	0	0	−1/2
4.	3	2	-2	+1/2

66. Which of the following graph correspond to one node

1.
2.
3.
4.

67. The orientation of an atomic orbital is governed by
    1. Spin quantum number
    2. Magnetic quantum number
    3. Principal quantum number
    4. Azimuthal quantum number

68. Which one of the following arrangements 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

69. The ions O^{2-}, F^-, Na^+, Mg^{2+}, and Al^{3+} are isoelectronic. Their ionic radii show :
    1. A significant increase from O^{2-} to Al^{3+}.
    2. A significant decrease from O^{2-} to Al^{3+}.
    3. An increase from O^{2-} to F^- and then a decrease from Na^+ to Al^{3+}.
    4. A decrease from O^{2-} to F^- and then an increase from Na^+ to Al^{3+}.

70. In which following options of arrangement does not agree with the variation of the property indicated against it
    (A)$Al^{3+}<Mg^{2+}<Na^+<F^-$ (Increasing ionic size)
    (B)B<C<N (Increasing atomic size)
    (C)I<Br<Cl (Increasing atomic size)
    (D)Li<Na<K (Metallic character)

    Choose the correct option

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

71. For the second period elements the correct increasing order of first ionisation enthalpy is:
    1. Li<Be<B<C<O<N<F<Ne
    2. Li<Be<B<C<N<O<F<Ne
    3. Li<B<Be<C<O<N<F<Ne
    4. Li<B<Be<C<N<O<F<Ne

72. If IUPAC name of an element is "unununium" then correct statement regarding element is:
    1. It is a inner transition element
    2. It belongs to 8th period in periodic table
    3. It is transition element
    4. It is a non-transition element

73. Assertion (A): The shielding effect increase as we go down the group.

Reason (R): More is the number of electrons in the penultimate shell, and more is shielding.

1.   Both (A) and (R) are true and (R) is the correct explanation of (A).
2.   Both (A) and (R) are true but (R) is not the correct explanation of (A).
3.   (A) is true but (R) is false.
4.   Both (A) and (R) are false.

74. Among the following, the correct representation of first ionization enthalpy for Ca, Ba, S, Se and Ar in increasing order, is -

1.   Ba < Ca < Se < S < Ar
2.   Ca < Ba < S < Se < Ar
3.   Ca < S < Ba < Se < Ar
4.   S < Se < Ca < Ba < Ar

75. Assertion (A): The physical and chemical properties of the elements are periodic functions of their atomic numbers.
Reason (R): Periodicity based on the atomic number was illustrated by Mendeleev's   periodic law.

1.   Both (A) and (R) are true and (R) is the correct explanation of (A).
2.   Both (A) and (R) are true but (R) is not the correct explanation of (A).
3.   (A) is true but (R) is false.
4.   Both (A) and (R) are false.

76. Which of the following triads do not follow Dobereiner's law of triads?

1.   Li, Na, K
2.   Ca, Sr, Ba
3.   Be, Mg, Ca
4.   Cu, Ag, Au

77. Among P_2O_5, As_2O_3, Sb_2O_3, and Bi_2O_3. the most acidic oxide is:

1. P_2O_5
2. As_2O_3
3. Sb_2O_3
4. Bi_2O_3

78. Which of the following molecules are polar ?

1. ClO_2
2. SO_2
3. NO_2
4.   All of the given

79. The pair of species with similar shape is

1. PCl_3, NH_3
2. CF_4, SF_4
3. $PbCl_2$, CO_2
4. PF_5, IF_5

80. Out of following which one has least value of melting point

1. $LiCl$
2. $BeCl_2$
3. $MgCl_2$
4. $CaCl_2$

81. Out of following which one has maximum ionic character –

1. $NaCl$
2. KCl
3. $CaCl_2$
4. $MgCl_2$

82. Which of the following has highest melting point –

1. $NaCl$
2. NaI
3. $NaBr$
4. NaF

83. The dipole moments of the given molecules are such that –
    1. $BF_3 > NF_3 > NH_3$
    2. $NF_3 > BF_3 > NH_3$
    3. $NH_3 > NF_3 > BF_3$
    4. $NH_3 > BF_3 > NF_3$

84. What is not true for SiH_4 molecule –
    1. Tetrahedral hybridisation
    2. 109° angle
    3. 4σ bond
    4. 4-lone pair of electrons

85. Assertion (A): Sigma bond (σ) is strong, while pi bond (π) is weak.
    Reason (R): Atoms rotate freely about pi (π) bond.
    1. Both (A) and (R) are true and (R) is the correct explanation of (A).
    2. Both (A) and (R) are true but (R) is not the correct explanation of (A).
    3. (A) is true but (R) is false.
    4. Both (A) and (R) are false.

86. Match the example in Column I with the name of the reaction in Column II.

Column I	Column II
(i) BF_3	(a) T-shape
(ii) SF_4	(b) Square planar
(iii) XeF_4	(c) See-saw
(iv) ClF_3	(d) Trigonal planar

   I II III IV

    1. d c b a
    2. a b c d
    3. d a c d
    4. b c d a

87. Among the following atomic orbital overlaps, the non-bonding overlap is:

1.

2.

3.

4.

88. What is the formal charge on the central nitrogen in the Lewis structure of N_2O?
    1. 1. 0
    2. +1
    3. −1
    4. 0 in some resonance structures, −1 in other resonance structures

89. But-1-en-3-yne contains:
    1. 6σ and 3π bonds
    2. 7σ and 2π bonds
    3. 7σ and 3π bonds
    4. 5σ and 3π bonds

90. Element X, Y and Z have atomic numbers 19, 37 and 55 respectively. Which of the following statements is true -
    1. Their ionisation potential would increase with the increasing atomic number
    2. 'Y' would have an ionisation potential in between those of 'X' and 'Z'
    3. 'Z' would have the highest ionisation potential
    4. 'Y' would have the highest ionisation potential

Biology 1

91. Consider the two given statements:
    Assertion (A): The spread of living pteridophytes is limited and restricted to narrow geographical regions.
    Reason (R): Pteridophytes are terrestrial plants that possess vascular tissues – xylem and phloem.
    1. Both (A) and (R) are True and the (R) correctly explains (A)
    2. (A) is True but (R) is False
    3. (A) is False but (R) is True
    4. Both (A) and (R) are True but (R) does not correctly explain (A)

92. What is the correct description of a prothallus
    1. A structure in gymnosperms formed just after fertilisation
    2. A sporophytic free living structure formed in pteridophytes
    3. A gametophytic free living structure formed in pteridophytes
    4. Sex organs bearing stage in Bryophytes

93. Consider the two statements:
    Statement I: Antheridium in bryophytes produces biflagellate antherozoids.
    Statement II: Archegonium in bryophytes produces a single egg.

1. Statement I is correct; Statement II is incorrect
2. Statement I is correct; Statement II is correct
3. Statement II is correct; Statement I is incorrect
4. Statement I is incorrect; Statement II is incorrect

94. Which of the following algae produce Carrageen?
    1. Red algae
    2. Blue-green algae
    3. Green algae
    4. Brown algae

95. Match each item in Column I with one in Column II and choose the correct option from the codes given below:

Column I	Column II
A. Psilopsida	P. Selanginella
B. Lycopsida	Q. Adiantum
C. Sphenopsida	R. Equisetum
D. Pteropsida	S. Psilotum

    A B C D
1. R Q S P
2. S P R Q
3. P S Q R
4. Q R P S

96. Consider the two statements:
    Statement I: Bryophytes usually occur in damp, humid and shaded localities and are not truly 'successful' on land.
    Statement II: They are dependent on water for sexual reproduction.
1. Statement I is correct and Statement II is incorrect
2. Both Statement I and Statement II are correct and Statement II explains Statement I

3. Statement I is incorrect and Statement II is correct

4. Both Statement I and Statement II are correct but Statement II does not explain Statement I

97. In pteridophytes:

I. the main plant body is a gametophyte

II. body is differentiated into true root, stem and leaves

III. organs possess well-differentiated vascular tissues

1. Only I and II are correct
2. Only I and III are correct
3. Only II and III are correct
4. I, II and III are correct

98. Which one of the following shows isogamy with non-flagellated gametes?

1. Sargassum
2. Ectocarpus
3. Ulothrix
4. Spirogyra

99. In oogamy, fertilization involves:

1. A large non-motile female gamete and a small motile male gamete
2. A large non-motile female gamete and a small nonmotile male gamete
3. A large motile female gamete and a small non-motile male gamete
4. A small non-motile female gamete and a large motile male gamete

100. Match the column-I with column-II and select the correct answer using the codes given below.

	Column-I (Group of Plant Kindgdom)		Column-II (Examples)
A.	Algae	I.	Solanum tuberosum
B.	Fungi	II.	Equisetum
C.	Angiosperm	III.	Cycas
D.	Pteridophyte	IV.	Chlamydomonas
		V.	Rhizopus

1. A − V; B − IV; C − I; D − II
2. A − IV; B − V; C − I; D − II
3. A − IV; B − I; C − V; D − II
4. A-IV; B-I; C-V; D - III

101. Match Column-I with Column-II and select the correct option from the codes given below.

	Column-I		Column-II
A.	Conical	(i)	Brassica rapa
B.	Fusiform	(ii)	Daucus carota
C.	Napiform	(iii)	Raphanus sativus
D.	Tuberous	(iv)	Mirabilis jalapa

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

102. Given are some differences between an underground stem and a root. Select the option that identifies the incorrect pair of difference.

	Underground stem	Root

(i)	It is differentiated into nodes and internodes.	It is not differentiated into nodes and internodes.
(ii)	Scale leaves are present at the nodes.	Scale leaves are absent in roots.
(iii)	Axillary buds are present in the axil of scale leaves.	Axillary buds are present at root tips.
(iv)	Branches arise exogenously.	Branches arise endogenously.
(v)	Root hair and root caps are absent.	Root hair and root caps are present.
(vi)	Flowers and fruits are usually present.	Flowers and fruits are absent.
(vii)	These usually perform the function of food storage.	These always perform the function of food storage.
(iv)	True leaves are commonly caduceus.	True leaves are either reduced to scales or modified to spines.
(v)	Examples:Ruscusaculeatus,Asparagus, etc.	Examples: Opuntia,Euphorbia royleana, etc.

1. (vi) and (vii)
2. (ii), (iii) and (vii)
3. (iii), (vi)and(vii)
4. (ii),(iii),(vi)and(vii)

103. Match Column-I with Column-II and select the correct option from the codes given below.

Column-I		Column-II	
A.	Thorns	(i)	Vegetative propagation
B.	Phylloclades	(ii)	Defensive mechanism
C.	Runners	(iii)	Mechanical support
D.	Stiltroots	(iv)	Absorption of nutrition
E.	Haustoria	(v)	Photosynthesis

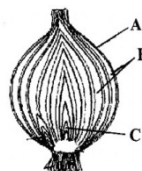1. A-(v),B-(iv),C-(iii),D-(ii),E-(i)
2. A-(ii),B-(v),C-(iii),D-(i),E-(iv)
3. A-(ii),B-(v),C-(i),D-(iii),E-(iv)
4. A-(iii),B-(v),C-(iv),D-(i),E-(ii)

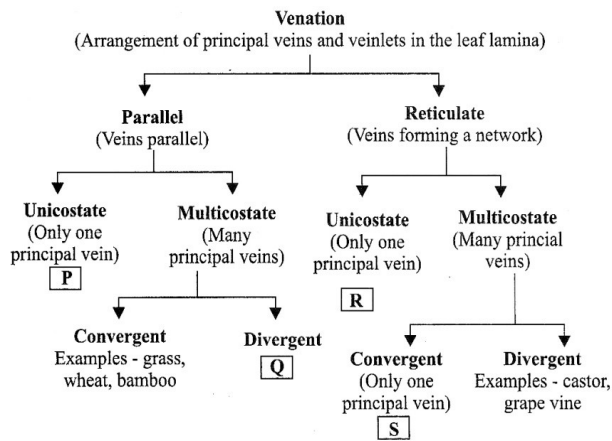104. Read the given statements and select the correct ones.
   i. Root caps are present in prop roots.
   ii. Pneumatophores help to get oxygen for respiration.
   iii. Edible part of ginger is underground stem.
   iv. Hydrophytes usually possess a well developed root system.

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

105. The given figure represents the V.S. of bulb of Alliumcep. Identify the different parts and select the correct option.

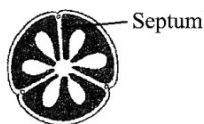|	A	B	C
1.	Fleshy scales	Tunic	Terminal bud
2.	Tunic	Terminal bud	Fleshy scales
3.	Tunic	Fleshy scales	Terminal bud
4.	Terminal bud	Fleshy scales	Tunic

106. Study the following flow chart and select the correct option for P, Q, R and S.
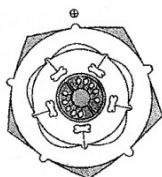
Venation
(Arrangement of principal veins and veinlets in the leaf lamina)

Parallel
(Veins parallel)

Reticulate
(Veins forming a network)

Unicostate
(Only one principal vein)
P

Multicostate
(Many principal veins)

Unicostate
(Only one principal vein)
R

Multicostate
(Many princial veins)

Convergent
Examples - grass, wheat, bamboo

Divergent
Q

Convergent
(Only one principal vein)
S

Divergent
Examples - castor, grape vine

	P	Q	R	S
1.	Banana, Canna	Fanpalm	Mango, Peepal	Smilax, Zizyphus
2.	Banana, Canna	Smilax, Zizyphus	Mango, Peepal	Fanpalm
3.	Mango, Peepal	Banana, Canna	Fanpalm	Smilax, Zizyphus
4.	Mango, Peepal	Fanpalm	Smilax, Zizphus	Banana, Canna

107.   Which kind of placentation is represented by the given figure?

Septum

1. Marginal
2. Axile
3. Parietal
4. Basal

108.   Study carefully the given floral diagram and select the option which correctly represents the related floral formula (F.F.).

1. $\% \; \varphi \; K_{(5)} C_{1+2+(2)} A_5 \overline{G}_{(2)}$

2. $\oplus \; \varphi \; K_{(5)} \overset{\frown}{C_5} \; A_5 \; \underline{G}_{(2)}$

3. $\oplus \; \varphi \; P_{5+5} A_{(5)} \underline{G}_{(2)}$

4. $\oplus \; \varphi \; \overset{\frown}{K}_{(5)} \overset{\frown}{C}_{(5)} \; A_5 \; \underline{G}_{(2)}$

109.   Select the mismatched pair out of the following.

1. Syconus–Ficus carica
2. Sorosis–Ananas camosus
3. Pome–Mangiferaindica
4. Cremocarp–Coriandrumsativum

110.   Which of the following is not the characteristic features of fabaceae?

5. Tap root system, compound leaves and raceme inflorescence.
6. Flowers actinomorphic, twisted aestivation and gamopetalous.
7. Stamens 10, introrse, basifixed, dithecous.
8. Monocarpellary, ovary superior and bent stigma.

111.   Which of the following is correct with reference to floral character of the family solanaceae?

1. Racemose, zygomorphic, unisexual, floral characters
2. Racemose, zygomorphic, bisexual, polypetalous
3. Axillary, bisexual, actinomorphic, epipetalous
4. Axillary, actinomorphic, bisexual, epipetalous

112.   Which of the following statement(s) is/are correct?
(i) Many plants belonging to the family fabaceae are good ornamentals (tulip, Gloriosa), source of medicine (Aloe) and vegetables (Asparagus).

(ii) The plumule and radicle are enclosed in sheaths which are called coleorhiza and coleoptile respectively.

(iii) A flower having either stamens or carpels is unisexual.

(iv) Basal, alternate, linear, exstipulate with parallel venation types of leaves is found in the family liliaceae.

(v) Liliaceae is commonly called as potato family.

1. Only (v)
2. Both (i) and (ii)
3. Both (iii) and (iv)
4. All of these

113.   Meristematic tissue responsible for increase in girth of tree trunk is

5. Apical meristem
6. Intercalary meristem
7. Lateral meristem
8. Phellogen

114.   Xylem functions as a conducting tissue for water and minerals from ___to the ____ and ___

1. roots, stems, leaves
2. stems, roots, leaves
3. leaves, stems, root
4. leaves, stems, leaves

115.   A student was given a tissue to observe under the microscope. He observes the tissue and concludes that the tissue is a type of simple plant tissue and provides mechanical support to young stem and petiole of leaf. Identify the tissue.

1. Parenchyma
2. Collenchyma
3. Sclerenchyma

4. Xylem parenchyma

116.   Which of the following types of cells is/are present in Gymnosperms?
I. Sieve cells
II. Companion cells
III. Albuminous cells IV. Sieve tubes
Select the correct answer from the codes given below:

1. I and III only
2. I, II and III only
3. II and IV only
4. All of the above

117.   Assertion: Vessels are more efficient for water conduction as compared to tracheids.
Reason: Vessels are dead lignified.

1. Both (A) and (R) are correct but (R) is not the correct explanation of (A)
2. (A) is correct but (R) is not correct
3. (A) is not correct but (R) is correct
4. Both (A) and (R) are correct and (R) is the correct explanation of (A)

118.   Which of the following statements are correct about phloem?

(i) Phloem transports food materials, usually from leaves to the other parts of the plant.

(ii) It is composed of sieve tube elements, companion cells, phloem parenchyma and phloem fibres.

(iii) The companion cells are specialised parenchymatous cells which are closely associated with phloem parenchyma.

(iv) The first formed primary phloem consists of narrow. sieve tubes and referred to as protophloem and the later formed phloem has

bigger sieve tubes and referred to as metaphloem.

(v) Angiosperms have albuminoùs cells.

1. (i), (ii) and (iv)
2. Both (ii) and (v)
3. Both (ii) and (iv)
4. All of these

119. Match the following and choose the correct option from below.

A. Cuticle (i) guard cells

B. Bulliform cells (ii) single layer

C. Stomata (iii) waxy layer

D. Epidermis (iv) empty colourless cell

Options:

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

120. A transverse section of stem is stained first with safranin and then with fast green following the usual schedule of double staining for the preparation of a permanent slide. What would be the colour of the stained xylem and phloem?

1. Red and green
2. Green and red
3. Orange and yellow
4. Purple and orange

121. Regeneration of damaged growing grass following grazing is largely due to:

5. Secondary meristem
6. Lateral meristem
7. Apical meristem
8. Intercalary meristem

122. Slime molds:

1. form plasmodium that differentiates and forms fruiting bodies bearing spores at their tips during unfavourable conditions.
2. form plasmodium that differentiates and forms fruiting bodies bearing spores at their tips during favourable conditions.
3. form plasmodium under favourable conditions and the plasmodium differentiates and forms fruiting bodies bearing spores at their tips during unfavourable conditions.
4. form plasmodium under unfavourable conditions and the plasmodium differentiates and forms fruiting bodies bearing spores at their tips during favourable conditions

123. Read the following statements with respect to
Basidiomycetes:
I: Sex organs are commonly present
II: Plasmogamy is brought about by the fusion of two vegetative or somatic cells of different strains or genotypes
III: The dikaryotic structure may give rise to the
basidium
IV: Karyogamy and Meiosis take place in the basidium producing four ascospores
V: The basidiospores are exogenously produced on the
basidium
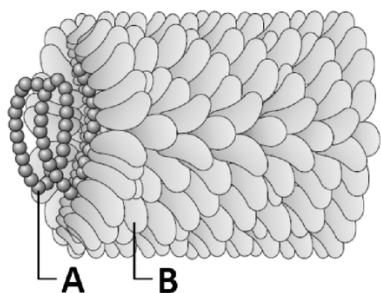How many of the above statements are correct?

1. Three
2. Four
3. Two
4. Five

124.   Match the organisms in Column I with habitats in Column II.

Column I	Column II
(a) Halophiles	(i) Hot springs
(b) Thermoacidophiles	(ii) Aquatic environment
(c) Methanogens	(iii) Guts of ruminants
(d) Cyanobacteria	(iv) Salty areas

Select the correct answer from the options given below:

(a) (b) (c) (d)

1.   (iv) (i) (iii) (ii)
2.   (i) (ii) (iii) (iv)
3.   (iii) (iv) (i) (ii)
4.   (ii) (iv) (iii) (i)

125.   Identify the virus and name the structure A and B :

1.   TMV, A = ssRNA , B = Capsid
2.   TMV, A = dsRNA, B = Capsid
3.   TMV, A = Capsid= B = ssRNA
4.   TMV, A = Capsid, B = dsRNA

126.   Which of the following is incorrect with respect to Dinoflagellates?

1.   They appear yellow, green, brown, blue, or red depending on the main pigments present in their cells
2.   The cell wall has stiff cellulosic plates on the outer surface
3.   Most of them have single flagellum
4.   These also secrete a type of toxin

127.   Read the following statements with respect to fungi:

I: Their body consists of long, slender thread-like structures called hyphae

II: The network of hyphae is called mycelium

III: Hyphae may be continuous tubes filled with multinucleated cytoplasm, these hyphae are coenocytic

IV: In many cases hyphae have septate or cross walls

V: The cell wall of fungi are composed by chitin and polysaccharides

How many of the above statements are correct?

1.   One
2.   Three
3.   Four
4.   Five

128.   Bacteria are found to be primitive organisms because they

1.   are small, microscopic which are not seen with naked eye.
2.   cause serious diseases to human being, domestic animals and crop plants.
3.   produce endospores which are very resistant to adverse conditions.
4.   possess incipient nucleus and show amitotic division

129.   Which of the following statements regarding Kingdom Plantae is correct?

1.   It includes all eukaryotic chlorophyll containing organism
2.   Few of its members are partially heterotrophic.
3.   The cell wall is made up of cellulose.
4.   All of these

130.   Match the column I and II.

	Column-I		Column-II
A.	Edible delicacies	I.	Pencillium, Streptomyces
B.	Experimental Genitics	II.	Neurospora crassa
C.	Source of Antibiotics	III.	Puccinia, Ustilago
D.	Rust & Smut Disease	IV.	Morels and truffles

1. A − IV; B − II; C − III; D − I
2. A − III; B − I; C − II; D − IV
3. A − IV; B − II; C − I; D − II
4. A − IV; B − III; C − II; D − I

131.   Difference between virus and viroid is

1. absence of protein coat in viroid, but present in virus.
2. presence of low molecular weight RNA in virus, but absent in viroid
3. Both (a) and (b)
4. None of the above

132.   Which of the following statement(s) is/are correct about class basidiomycetes?

i.   They are commonly known as imperfect fungi because only the asexual or vegetative phases of these fungi are known.
ii. They grow in soil, on logs and tree stumps and in living plant bodies as parasites, e.g., rusts and smuts.
iii. The mycelium is branched and septate.
iv. Some common members are Agaricus, Ustilago and Puccinia. The asexual spores are generally not found.

1. Only (i)
2. Both (ii) and (iii)
3. (ii), (iii) and (iv)
4. All of these

133.   Choose the correct statements (i − iv) regarding mycoplasma:
(i) Mycoplasma has no cell wall.
(ii) Mycoplasma is the smallest living organism known.
(iii) Mycoplasma cannot survive without O_2.
(iv) Many Mycoplasma are pathogenic in animals and plants.

1. Only (iii)
2. (i) and (iii)
3. (i), (ii) and (iv)
4. All of the above

134.   Which of the following are most suitable indicators of SO_2 pollution in the environment?
1. Conifers
2. Algae
3. Fungi
4. Lichens

135.   Study the Assertion statement followed by the Reason statement given below
Assertion(A):Mosses reduce the impact of falling rain and prevent soil erosion.
Reason (R): Mosses form dense mats on the soil.

1. (A) is True and (R) is False.

2. Both (A) and (R) are True and (R) is the correct explanation of (A).

3. Both (A) and (R) are True but (R) is not the correct explanation of (A).

4. is False and (R) is True

Biology 2

136.   Identify the incorrectly matched pair: Animals Feature- present in both
   1. Open circulatory system -Balanoglossus and Pinctada
   2. Persistent notochord -Branchiostoma and Ascidia
   3. True coelom -Aplysia and Pheretima
   4. Cnidoblasts -Gorgonia and Pennatula

137.   Which one of the following statements about all the four of Spongilla, leech, dolphin and penguin is correct?
   1. Penguin is homeothermic while the remaining three are poikilothermic
   2. leech is a fresh water form while all others are marine
   3. Spongilla has special collared cells calledchoanocytes, not found in the remaining three
   4. All are bilaterally symmetrical

138.   In which of the following animals, the body is cylindrical and is composed of an anterior proboscis, a collar, and a long trunk?
   1. Hemichordates
   2. Urochordates
   3. Cephalochordates
   4. Vertebrate chordates

139.   Which one of the following is a matching set of a phylum and its three examples?
   1. Cnidaria – Bonellia, Physalia, Aurelia
   2. Platyhelminthes – Planaria, Schistosoma, Enterobius
   3. Mollusca – Loligo, Teredo, Octopus
   4. Porifera – Spongilla, Euplectella, pennatula

140.   In which of the following sets of organisms, does the external fertilization occur?
   1. Echinodermata and mosses
   2. Hemichordata and ferns
   3. Amphibians and algae
   4. Reptiles and gymnosperms

141.   Choose the incorrect statement:
   1. Sponges are mostly asymmetrical
   2. Bilateral symmetry is shown both by crabs and spiders
   3. When any plane passing through the central axis of the body divides the organisms into two identical halves, it is called radial symmetry
   4. Bilateral symmetry is present universally in all vertebrates and invertebrates

142.   Choose the correct statements.
   1. All mammals are viviparous
   2. All cyclostomes do not possess jaws and paired fins
   3. All reptiles have a three-chambered heart
   4. All Pisces have gills covered by an operculum

143.   Choose the correct option to complete the analogy.
   Echinus: Calcareous ossicles : : Trygon : ____
   1. Calcareous bones
   2. Chitinous endoskeleton
   3. Cartilaginous endoskeleton
   4. Calcareous shell

144. Read the following statements for the first triploblastic animals (w.r.t. evolution)

i. Possess coelom

ii. Are acoelomate

iii Are pseudocoelomate

iv. Possess protonephridia

v. Cephalisation begins

vi. Is exemplified by Planaria

Which of the following statements corresponds to these animals?

1. i, ii, iii
2. i, ii, iii, iv, v, vi
3. ii, iv, v, vi
4. i and iii

145. In Amphibia:

I. Skin is moist without scales

II. A tympanum represents the ear

III. Fertilization is external

1. Only I and II are correct.
2. Only I and III are correct.
3. Only II and III are correct.
4. I, II, and III are correct.

146. Assertion (A): Annelids have segments or metameres which are distinctly marked out.

Reason(R): The word Annelida is derived from the Latin word annulus which means little rings.

1. Both (A) and (R) are True and (R) is the correct explanation of (A).
2. Both (A) and (R) are True but (R) is not the correct explanation of (A).
3. (A) is True but (R) is False.
4. (A) is False but (R) is True.

147. Assertion(A): Choanocytes or collar cells line the spongocoel and the canals in poriferans.

Reason (R): Poriferans possess spicules and sponging fibres.

1. Both (A) and (R) are True and (R) is the correct explanation of (A).
2. Both (A) and (R) are True but (R) is not the correct explanation of (A).
3. (A) is True but (R) is False.
4. Both (A) and (R) are False.

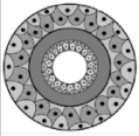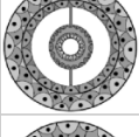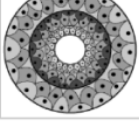148. Assertion (A): Claspers are present in males of the class Chondrichthyes.

Reason (R): Claspers assist copulation.

1. Both (A) and (R) are True and (R) is the correct explanation of (A).
2. Both (A) and (R) are True but (R) is not the correct explanation of (A).
3. (A) is True but (R) is False.
4. Both (A) and (R) are False.

149. Which of the following is a common feature present in both chordates and non-chordates?

1. Presence of notochord
2. Absence of a post-anal tail
3. Presence of central nervous system
4. Pharynx perforated by gill slits

150. Bilaterally symmetrical animals can be acoelomate,pseudocoelomate, or coelomate. Study the diagrammatic representation of body cavity and the animal illustrated in diagrams A to D.

How many of the above illustrations are correct?

1. Four
2. Three
3. Two
4. One

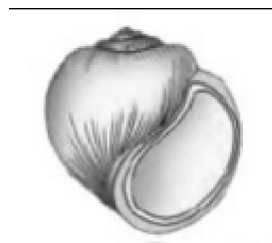151.   Match the following:

List I	List II
(a) Hydra	(i) Cuttlefish
(b) Sepia	(ii) Gregarious pest
(c) Wuchereria	(iii) Freshwater polyp
(d) Locusta	(iv) Filarial worm

Choose the correct answer from the options given below:

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

152.   All are correct with respect to respiratory organ of animal shown below, except

All are correct with respect to respiratory organ of animal shown below, except

1. Feather like gills
2. Present in visceral hump
3. Help in respiration and excretion
4. Present in the members of second largest phylum

153.   Which one of the following statements about all the four of Spongilla, Leech, Dolphin and Penguin is correct?

1. Penguin is homeothermic while the remaining three are poikilothermic
2. Leech is a fresh water form while all others are marine
3. Spongilla has special collared cells called choanocytes, not found in the remaining three
4. All are bilaterally symmetrical

154.   Which one of the following groups of animals is correctly matched with its characteristic feature without even a single exception ?

1. Reptilia : possess 3 - chambered heart with one incompletely divided ventricle.
2. Chordata : Possess a mouth provided with an upper and lower jaw.
3. Chondrichthyes: Possess cartilaginous endoskeleton.
4. Mammalia : Give birth to young one.

155. Which one of the following sets of animals share a four chambered heart?
   1. Amphibian, Reptiles, Birds
   2. Crocodiles, Birds, Mammals
   3. Crocodiles, Lizards, Turtles
   4. Lizards, Mammals, Birds

156. An important characteristic that Hemichordates share with Chordates is:
   1. Ventral tubular nerve cord
   2. Pharynx with gill slits
   3. Pharynx without gill slits
   4. Absence of notochord

157. Which of the following statements is correct in relation to the endocrine system?
   1. Organs in the body like gastrointestinal tract, heart, kidney and liver do not produce any hormones.
   2. Non-nutrient chemicals produced by the body in trace amount that act as intercellular messenger are known as hormones.
   3. Releasing and inhibitory hormones are produced by the pituitary gland .
   4. Adenohypophysis is under direct neural regulation of the hypothalamus

158. Which of the following statements does not hold true for the hormones?

1. They act on target organs away from the source glands
2. They are secreted directly into the blood
3. They are used again and again like catalysts
4. They are produced in very minute quantities and are biologically very active

159. Anterior lobe of pituitary secretes
   1. ACTH, TSH and oxytocin
   2. STH, GH and ADH
   3. TSH, ADH and prolactin
   4. FSH, GH and LH

160. Gigantism and dwarfism are the disease related to
   1. prolactin hormone of mammary gland
   2. growth hormone of adenohypophysis.
   3. luteinising hormone of pituitary gland.
   4. thyroid stimulating hormone of thyroid

161. Which of the following hormones are identical?
   1. ACTH and adrenaline
   2. hCG and progesterone
   3. Calcitonin and Oxytocin
   4. Vasopressin and ADH

162. Choose the correct statement about 'neurohypophysis' ?
   1. It stores and release hormones secreted by hypothalamus.
   2. It secretes its own hormones.
   3. It is poorly developed and functionless in humans.
   4. It stores the hormones produced by adenohypophysis.

163. The hormones that initiate ejection of milk, stimulates milk production and growth

of ovarian follicles, are respectively known as

1. PRL, OT and LH
2. OT, PRL and FSH
3. LH, PRL and FSH
4. PRH, OT and LH

164. Thymus in mammals is mainly concerned with
1. regulation of body growth.
2. secretion of thyrotropin.
3. regulation of body temperature.
4. immunological functions

165. A pregnant female deliver a baby who suffers from stunted growth, mental retardation/low intelligence quotient and abnormal skin. This is the result
1. low secretion of growth hormone
2. cancer of the thyroid gland
3. over secretion of pars distalis
4. deficiency of iodine in diet

166. A woman may develop beard and moustaches due
1. hypersecretion of adrenal cortex.
2. hypersecretion of thyroxine.
3. hyposecretion of adrenaline
4. hyposecretion of thyroxine

167. Injection of glucagon will
1. cause goitre
2. cause galactosemia
3. cause hypoglycemia
4. increase blood sugar level

168. Which of the following statement is correct with respect to hormone and its correct source and function?
1. Oxytocin-posterior pituitary, growth and maintenance of mammary glands.
2. Melatonin-pineal gland, regulates the normal rhythm of sleepwake cycle.
3. Thymosins - corpus-luteum, stimulation of growth and activities of female secondary sex organs.
4. Atrial natriuretic factor - ventricular wall increases the blood pressure

169. Parathormone deficiency produces muscle cramps or tetany as a result of
1. lowered blood Ca^{2+}
2. enhanced blood Na^{+}
3. enhanced blood glucose
4. enhanced blood Ca^{2+}

170. Pancreatic duct of a man is blocked. Which of the following function of pancreas will not be affected?
1. Maintenance of normal blood sugar level.
2. Carbohydrate digestion
3. Protein digestion.
4. Neutralization of chyme

171. Which of the following statement about the hormone action in humans is correct?
1. Binding of a hormone to its receptor leads to the formation of a hormone-receptor complex.
2. FSH stimulates the secretion of estrogen and progesterone
3. Glucagon is secreted by β-cells of Islets of langerhans and stimulates glycogenolysis.\
4. Secretion of thymosin is stimulated with ageing

172. Hormones are called chemical signal that stimulate specific target tissues. Which is correct location of these receptors in protein hormones?

1. Extra cellular matrix
2. Blood
3. Plasma membrane
4. Nucleus

173. Match the following hormones with the respective disease:

(A) Insulin   (i) Addison's disease
(B) Thyroxine   (ii) Diabetes insipidus
(C) Corticoids   (iii) Acromegaly
(D) Growth hormone (iv) Goitre
                    (v) Diabetes mellitus

Select the correct option:

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

174. Which of the following are NOT under the control of thyroid hormone?

(i) Maintenance of water and electrolyte
(ii) Regulation of basal metabolic rate
(iii) Normal rhythm of sleep-wake cycle
(iv) Development of immune system
(v) Support the process of RBCs formation

Choose the correct answer from the options given below:

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

175. Norepinephrine

(i) is released by adrenal medulla.
(ii) is released by parasympathetic fibres.
(iii) increases the heart rate.
(iv) decreases blood pressure.

Which of the above said statements are correct?

1. (i) and (ii)
2. (i) and (iii)

3. (ii) and (iii)
4. (ii) and (iv)

176. Which of the following statement is correct with respect to hormone and its correct source and function

(i) Oxytocin - posterior pituitary, growth and maintenance of mammary glands.
(ii) Melatonin - pineal gland, regulates the normal rhythm of sleepwake cycle.
(iii) Progesterone - corpus-luteum, stimulation of growth and activities of female secondary sex organs.
(iv) Atrial natriuretic factor - ventricular wall increases the blood pressure.

1. Only (i) and (ii)
2. Only (ii) and (iii)
3. Only (iii)
4. Only (i) and (iv)

177. Assertion :Diabetes insipidus is marked by excessive urination and too much thirst of water.
Reason: Vasopressin (ADH) is released by the posterior lobe of pituitary gland.

1. Both (A) and (R) are correct but (R) is not the correct explanation of (A)
2. (A) is correct but (R) is not correct
3. (A) is not correct but (R) is correct
4. Both (A) and (R) are correct and (R) is the correct explanation of (A)

178. Assertion: Prolactin is also called the 'milk ejection hormone'.
Reason: Oxytocin stimulates the smooth muscle contractions of the mammary glands.

1. Both (A) and (R) are correct but (R) is not the correct explanation of (A)
2. (A) is correct but (R) is not correct
3. (A) is not correct but (R) is correct

4. Both (A) and (R) are correct and (R) is the correct explanation of (A)

179.   Assertion: Insulin stimulates glycogenolysis and gluconeogenesis resulting in hyperglycemia.

Reason: Prolonged hyperglycemia leads to complex disorder called diabetes mellitus.

1. Both (A) and (R) are correct but (R) is not the correct explanation of (A)
2. (A) is correct but (R) is not correct
3. (A) is not correct but (R) is correct
4. Both (A) and (R) are correct and (R) is the correct explanation of (A)

180.   How many of the characters given below are true for echinoderms?

I. An endoskeleton of calcareous ossicles

II. The adult echinoderms are radially symmetrical but larvae are bilaterally symmetrical.

III. They are triploblastic and coelomate animals.

IV. Digestive system is complete.

V. Water vascular system

VI. Sexual reproduction, internal fertilization, and direct development.

1. 3
2. 4
3. 5
4. 6