

NEET 2017 (Regional Language Paper)

Test Instructions

1. Total duration of this test is **180** minutes.
2. This test has 4 subjects consisting of **180** questions in total.
3. There are **4** total sections in the test.
4. Sections Info :
 - Physics**
 - a. **Section A** has **45** questions, compulsory questions **45**. **4** marks will be given for correct attempt and incorrect attempt **-1** .
 - Chemistry**
 - a. **Section A** has **45** questions, compulsory questions **45**. **4** marks will be given for correct attempt and incorrect attempt **-1** .
 - Botany**
 - a. **Section A** has **47** questions, compulsory questions **47**. **4** marks will be given for correct attempt and incorrect attempt **-1** .
 - Zoology**
 - a. **Section A** has **43** questions, compulsory questions **43**. **4** marks will be given for correct attempt and incorrect attempt **-1** .
5. Total marks for this test is **720** marks.
6. No marks will be deducted for unattempted questions.
7. This test can be submitted only once.
8. Once the test has been submitted, you cannot edit the responses.
9. Results will be announced post test submission.
10. The test will be auto-submitted once the timer ends.

Physics

Section A

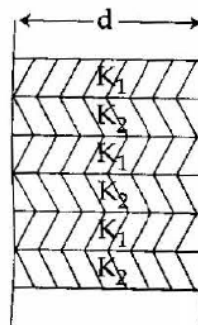
1. The angle between

$$\vec{A} - \vec{B} \text{ and } \vec{A} \times \vec{B} \text{ is } \left(\vec{A} \neq \vec{B} \right) :$$

1. 90°
 2. 120°
 3. 45°
 4. 60°
2. A body initially at rest, breaks up into two pieces of masses $2M$ and $3M$ respectively, together having a total kinetic energy E . The piece of mass $2M$, after breaking up, has a kinetic energy:
1. $\frac{E}{2}$
 2. $\frac{E}{5}$
 3. $\frac{3E}{5}$
 4. $\frac{2E}{5}$
3. A girl jumps down from a moving bus, along the direction of motion of the bus, tilting slightly forward. She falls on (a) a sheet of ice (b) a patch of glue.
1. In both cases (a) and (b) she falls forward.
 2. In both cases (a) and (b) she falls backward.
 3. In case (a) she falls forward and in case (b) she falls backward.

4. In case (a) she falls backward and in case (b) she falls forward.

4. A wall consists of alternating blocks of length 'd' and coefficient of thermal conductivity k_1 and k_2 respectively as shown in figure. The cross sectional area of the blocks are the same. The equivalent coefficient of thermal conductivity of the wall between left and right is :



1. $\frac{2K_1K_2}{K_1 + K_2}$
 2. $\frac{K_1 + K_2}{3}$
 3. $\frac{3k_1k_2}{k_1+k_2}$
 4. $\frac{k_1+k_2}{2}$
5. One mole of a gas obeying the equation of state $P(V - b) = RT$ is made to expand from a state with coordinates (P_1, V_1) to a state with (P_2, V_2) along a process that is depicted by a straight line on a $P - V$ diagram. Then, the work done is given by :
1. $\frac{1}{2}(P_1 + P_2)(V_2 - V_1)$
 2. $\frac{1}{2}(P_2 - P_1)(V_2 - V_1)$
 3. $\frac{1}{2}(P_1 - P_2)(V_2 + V_1 + 2b)$
 4. $\frac{1}{2}(P_2 - P_1)(V_2 + V_1 + 2b)$

6. The volume of 1 mole of an ideal gas with the adiabatic exponent γ is changed according to the relation $V = \frac{b}{T}$, where $b = \text{constant}$. The amount of heat absorbed by the gas in the process if the temperature is increased by ΔT will be :

1. $\frac{R}{\gamma-1} \Delta T$
2. $\left(\frac{2-\gamma}{\gamma-1}\right)R \Delta T$
3. $\frac{R\Delta T}{\gamma-1}$
4. $\left(\frac{1-\gamma}{\gamma+1}\right)R \Delta T$

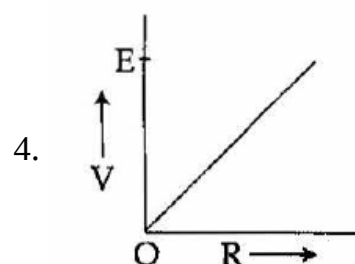
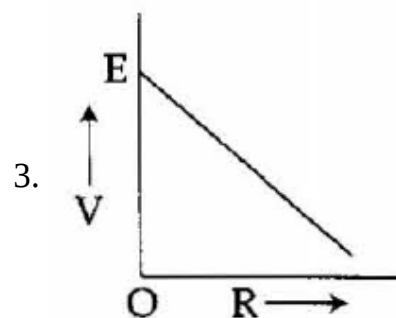
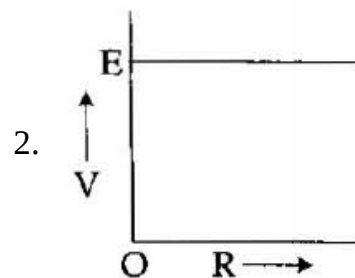
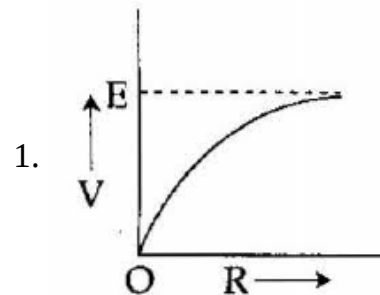
7. When the temperature of a gas is raised from 30°C to 90°C , the percentage increase in the r.m.s. velocity of the molecules will be :

1. 10 %
2. 15 %
3. 30 %
4. 60 %

8. A metal rod of 1 m length, is dropped exact vertically on to a hard metal floor. With an oscilloscope, it is determined that the impact produces a longitudinal wave of 1.2 kHz frequency. The speed of sound in the metal rod is :

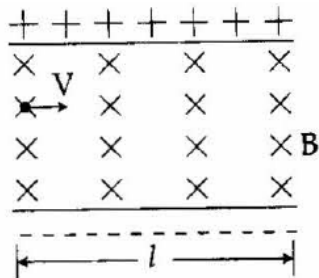
1. 2400 m/s
2. 1800 m/s
3. 1200 m/s
4. 600 m/s

9. A cell of emf E and internal resistance ' r ' is connected to a variable external resistor ' R '. The graph which gives the terminal voltage of cell ' V ' with respect to R is :



10. An electron moves straight inside a charged parallel plate capacitor of uniform charge density σ . The space between the plates is filled with

uniform magnetic field of intensity B , as shown in the figure. Neglecting effect of gravity, the time of straight line motion of the electron in the capacitor is :

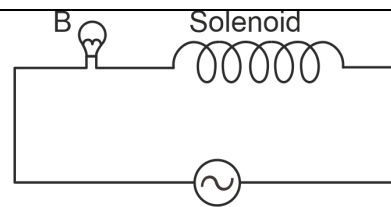


1. $\frac{\sigma}{\epsilon_0 l B}$
2. $\frac{\epsilon_0 B}{\sigma}$
3. $\frac{\sigma}{\epsilon_0 B}$
4. $\frac{\epsilon_0 l B}{\sigma}$

11. A circular coil of radius 10 cm, 500 turns and resistance 2Ω is placed with its plane, perpendicular to the horizontal component of the earth's magnetic field. It is rotated about its vertical diameter through 180° in 0.25 s. The induced e.m.f. in the coil is (Take $H_E = 3.0 \times 10^{-5} T$) :

1. $4 \times 10^{-2} v$
2. $2.6 \times 10^{-2} v$
3. $3.8 \times 10^{-3} v$
4. $6.6 \times 10^{-4} v$

12. A bulb connected in series with an air-cored solenoid is lit by an a.c. source. If a soft iron core is introduced in the solenoid, then



1. The bulb will glow brighter.
2. There is no change in glow of bulb.
3. The bulb will become dimmer.
4. The bulb stops glowing.

13. Inside a parallel plate capacitor the electric field E varies with time as t^2 . The variation of induced magnetic field with time is given by :

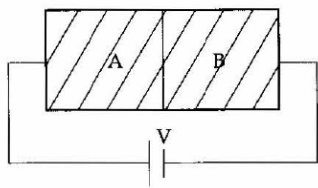
1. No variation
2. t^3
3. t
4. t^2

14. A parallel beam of light of wavelength λ is incident normally on a single slit of width d . Diffraction bands are obtained on a screen placed at a distance D from the slit. The second dark band from the central bright band will be at a distance given by :

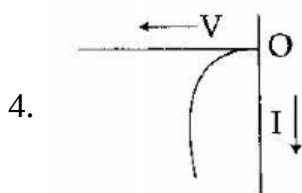
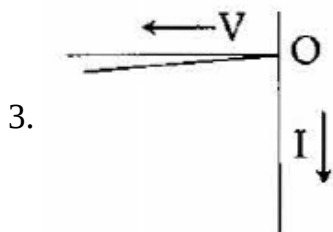
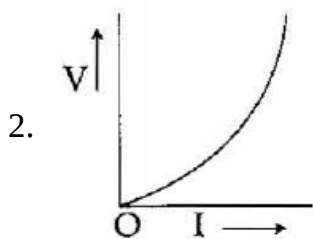
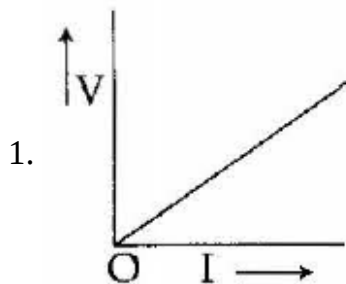
1. $\lambda d D$
2. $\frac{\lambda D}{2d}$
3. $\frac{2\lambda d}{D}$
4. $\frac{2\lambda D}{d}$

15. Two sides of a semiconductor Germanium crystal A and B are doped with Arsenic and Indium,

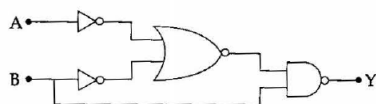
respectively. They are connected to a battery as shown in figure.



The correct graph between current and voltage for the arrangement is :



16. From the circuit of the following Logic gates, the basic logic gate obtained is :



1. AND gate
2. OR gate
3. NOT gate
4. NAND gate

17. A student performs an experiment of measuring the thickness of a slab with a vernier calliper whose 50 divisions of the vernier scale are equal to 49 divisions of the main scale. He noted that zero of the vernier scale is between 7.00 cm and 7.05 cm mark of the main scale and 23rd division of the vernier scale exactly coincides with the main scale. The measured value of the thickness of the given slab using the calliper will be :

1. 7.23 cm
2. 7.023 cm
3. 7.073 cm
4. 7.73 cm

18. A ball of mass 1 kg is thrown vertically upwards and returns to the ground after 3 seconds. Another ball, thrown at 60° with vertical also stays in air for the same time before it touches the ground. The ratio of the two heights are :

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

19. A cyclist on a level road takes a sharp circular turn of radius 3m ($g = 10ms^{-2}$). If the coefficient of static friction between the cycle tyres and the road is 0.2, at which of the following speeds will the cyclist not skid while taking the turn ?

1. $7.2 km h^{-1}$
2. $9 km h^{-1}$
3. $10.8 km h^{-1}$
4. $14.4 km h^{-1}$

20. The angular momentum of a rigid body of mass m about an axis is n times the linear momentum (P) of the body. Total kinetic energy of the rigid body is:

1. $\frac{P^2}{2} \left(\frac{n^2}{I} + \frac{1}{m} \right)$
2. $\frac{n^2 P^2}{2m}$
3. $n^2 P^2 \times 2m$
4. $\frac{n^2 P^2}{2}$

21. A thin uniform rod of mass 'M' and length 'L' rotating about a perpendicular axis passing through its center with a constant angular velocity ' ω '. Two objects each of mass $\frac{M}{3}$ are attached gently to the two ends of the rod. The rod will now rotate with an angular velocity of :

1. $\frac{1}{7}\omega$
2. $\frac{1}{6}\omega$
3. $\frac{1}{2}\omega$
4. $\frac{1}{3}\omega$

22. The rotational kinetic energy of a solid sphere of mass 3 kg and radius 0.2 m rolling down an inclined plane of height 7 m at the bottom is :

1. 60 J
2. 36 J
3. 70 J
4. 42 J

23. Imagine earth to be a solid sphere of mass M and radius R . If the value of acceleration due to gravity at a depth 'd' below earth's surface is same as its value at a height 'h' above its surface and equal to $\frac{g}{4}$ (where g is the value of acceleration due to gravity on the surface of earth), the ratio of $\frac{h}{d}$ will be:

1. $\frac{4}{3}$
2. $\frac{3}{2}$
3. $\frac{2}{3}$
4. 1

24. A satellite of mass m is in circular orbit of radius $3 R_E$ about earth (mass of earth M_E , radius of earth R_E). How much additional energy is required to transfer the satellite to an orbit of radius $9 R_E$?

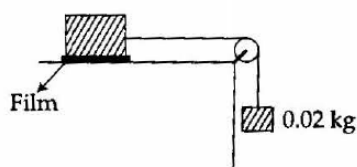
1. $\frac{GM_E m}{18 R_E}$
2. $\frac{3GM_E m}{2 R_E}$
3. $\frac{GM_E m}{9 R_E}$

4. $\frac{GM_E m}{3 R_E}$

25. The density of a metal at normal pressure is ρ . Its density when it is subjected to an excess pressure P is ρ' . If B is Bulk modulus of the metal, the ratio of $\frac{\rho'}{\rho}$ is:

1. $\frac{1}{1-\frac{P}{B}}$
2. $1 + \frac{P}{B}$
3. $\frac{1}{1+\frac{P}{B}}$
4. $1 + \frac{B}{P}$

26. A metal block of base area 0.2 m^2 is connected to a 0.02 kg mass via a string that passes over an ideal pulley as shown in figure. A liquid film of thickness 0.6 mm is placed between the block and the table. When released the block moves to the right with a constant speed of 0.17 m/s . The co-efficient of viscosity of the liquid is :



1. $3.45 \times 10^{-2} \text{ Pa} \cdot \text{s}$
2. $3.45 \times 10^{-3} \text{ Pa} \cdot \text{s}$
3. $3.45 \times 10^2 \text{ Pa} \cdot \text{s}$
4. $3.45 \times 10^3 \text{ Pa} \cdot \text{s}$

27. In a certain planetary system, it is observed that one of the celestial bodies having a surface temperature of 200 K , emits radiation of maximum intensity near the

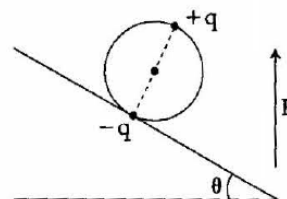
wavelength $12 \mu\text{m}$. The surface temperature of a nearby star which emits light of maximum intensity at a wavelength $\lambda = 4800 \text{ \AA}$, is :

1. 5000 K
2. 2500 K
3. 10000 K
4. 7500 K

28. Two open organ pipes of fundamental frequencies n_1 and n_2 are joined in series. The fundamental frequency of the new pipe so obtained will be :

1. $\frac{n_1+n_2}{2}$
2. $\sqrt{n_1^2 + n_2^2}$
3. $\frac{n_1 n_2}{n_1+n_2}$
4. $(n_1 + n_2)$

29.



A wheel having mass m has charges $+q$ and $-q$ on diametrically opposite points. It remains in equilibrium on a rough inclined plane in the presence of a vertical electric field E . Then value of E is:

1. $\frac{mg}{q}$
2. $\frac{mg}{2q}$
3. $\frac{mg \tan \theta}{2q}$
4. $\frac{mg \tan \theta}{q}$

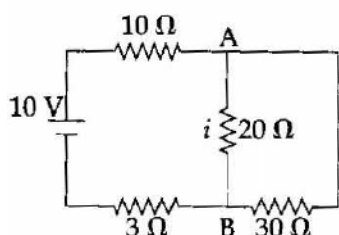
30. A molecule of a substance has permanent dipole moment p . A mole of this substance is polarised by applying a strong electrostatic field E . The direction of the field is suddenly changed by an angle of 60° . If N is the Avagadro's number, the amount of work done by the field is :

1. $\frac{1}{2} N p E$
2. $N p E$
3. $\frac{3}{2} N p E$
4. $2 N p E$

31. A parallel-plate capacitor is to be designed, using a dielectric of dielectric constant 5, so as to have a dielectric strength of 10^9 Vm^{-1} . If the voltage rating of the capacitor is 12 kV, the minimum area of each plate required to have a capacitance of 80 pF is :

1. $21.7 \times 10^{-6} \text{ m}^2$
2. $25.0 \times 10^{-5} \text{ m}^2$
3. $12.5 \times 10^{-5} \text{ m}^2$
4. $10.5 \times 10^{-6} \text{ m}^2$

32. In the electrical circuit shown in the figure, the current i through the side AB is :



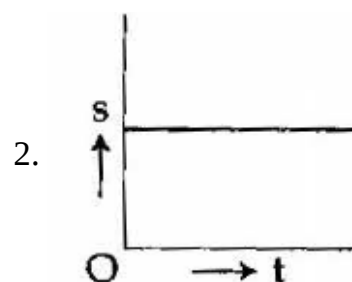
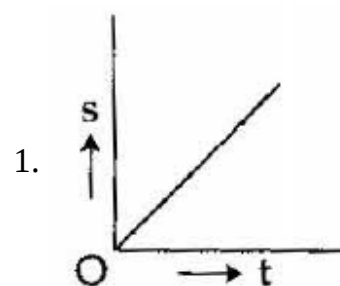
1. $\frac{10}{33} A$

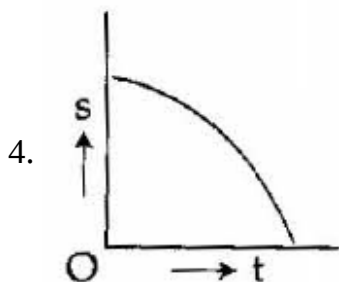
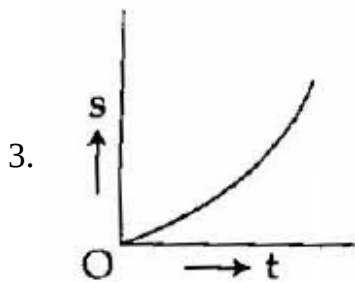
2. $\frac{1}{5} A$
3. $\frac{10}{63} A$
4. $\frac{6}{25} A$

33. Two reasons for using soft iron as the material for electromagnets.....

1. high permeability and low retentivity
2. low permeability and low retentivity
3. high permeability and high retentivity
4. low permeability and high retentivity

34. A body starts moving unidirectionally under the influence of a source of constant power. Which one of the graph correctly shows the variation of displacement (s) with time (t)?





35. A light beam is incident on a denser medium whose refractive index is 1.414 at an angle of incidence 45° . Find the ratio of width of refracted beam in a medium to the width of the incident beam in air.

1. 1:2
2. $1 : \sqrt{2}$
3. $\sqrt{3} : 2$
4. $\sqrt{3} : \sqrt{2}$

36. If the angle of a prism is 60° and angle of minimum deviation is 40° , then the angle of refraction will be:

1. 30°
2. 20°
3. 3°
4. 4°

37. A person has near point at 60 cm. The focal length of spectacle lenses to

read at 22 cm having glasses separated 2 cm from the eyes, is :

1. 10 cm
2. 20 cm
3. 30 cm
4. 40 cm

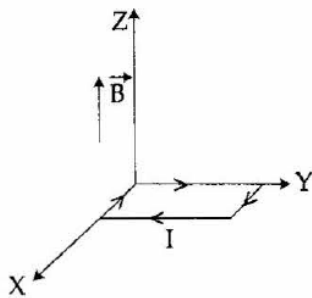
38. Due to Doppler effect, the shift in wavelength observed is 0.1 \AA , for a star producing a wavelength 6000 \AA . The velocity of recession of the star will be :

1. 2.5 km s^{-1}
2. 10 km s^{-1}
3. 5 km s^{-1}
4. 20 km s^{-1}

39. Two coherent sources of intensity ratio α interfere. The value of $\frac{I_{max} - I_{min}}{I_{max} + I_{min}}$ is :

1. $\frac{2\sqrt{\alpha}}{1+\alpha}$
2. $\frac{1+\alpha}{2\sqrt{\alpha}}$
3. $\frac{1-\alpha}{1+\alpha}$
4. $2\sqrt{\frac{\alpha}{1+\alpha}}$

40. A uniform magnetic field of 0.3 T is established along the positive Z-direction. A rectangular loop in XY plane of sides 10 cm and 5 cm carries a current of $I = 12 \text{ A}$ as shown. The torque on the loop is :



1. $-1.8 \times 10^{-2} \hat{j} Nm$
2. Zero
3. $-1.8 \times 10^{-2} \hat{i} Nm$
4. $+1.8 \times 10^{-2} \hat{i} Nm$

41. In an experiment of photoelectric effect the stopping potential was measured to be V_1 and V_2 with incident light of wavelength λ and $\lambda/2$, respectively. The relation between V_1 and V_2 is :

1. $V_2 < V_1$
2. $V_1 < V_2 < 2V_1$
3. $V_2 = 2V_1$
4. $V_2 > 2V_1$

42. If the mass of neutron is $1.7 \times 10^{-27} \text{ kg}$, then the de-Broglie wavelength of neutron of energy 3 eV is: ($h = 6.6 \times 10^{-34} \text{ Js}$)

1. $1.6 \times 10^{-10} \text{ m}$
2. $1.65 \times 10^{-11} \text{ m}$
3. $1.4 \times 10^{-10} \text{ m}$
4. $1.4 \times 10^{-11} \text{ m}$

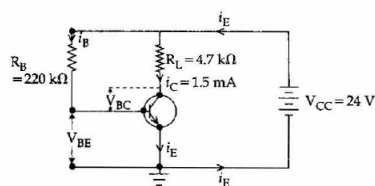
43. If the longest wavelength in the ultraviolet region of hydrogen spectrum is λ_0 then the shortest wavelength in its infrared region is :

1. $\frac{20}{3} \lambda_0$
2. $\frac{36}{5} \lambda_0$
3. $\frac{27}{4} \lambda_0$
4. $\frac{46}{7} \lambda_0$

44. The energy liberated per nuclear fission is 200 MeV. If 10^{20} fissions occur per second the amount of power produced will be :

1. $32 \times 10^8 \text{ W}$
2. $16 \times 10^8 \text{ W}$
3. $5 \times 10^{11} \text{ W}$
4. $2 \times 10^{22} \text{ W}$

45. A common emitter amplifier circuit is shown in the figure below. For the transistor used in the circuit the current amplification factor, $\beta_{dc} = 100$. Other parameters are mentioned in the figure.



We find that :

1. $V_{BE} = + 18.5 \text{ V}, V_{BC} = + 2.85 \text{ V}$ and amplifier is not working.
2. $V_{BE} = + 20.7 \text{ V}, V_{BC} = + 3.75 \text{ V}$ and amplifier is not working.
3. $V_{BE} = + 21.5 \text{ V}, V_{BC} = - 2.75 \text{ V}$ and amplifier is working.
4. $V_{BE} = + 18.2 \text{ V}, V_{BC} = - 3.45 \text{ V}$ and amplifier is working.

Chemistry

Section A

46. A hydrocarbon contains 85.7% C. If 42 mg of the compound contains 3.01×10^{20} molecules, the molecular formula of the compound will be:

1. C_3H_6
2. C_6H_{12}
3. $C_{12}H_{24}$
4. C_2H_4

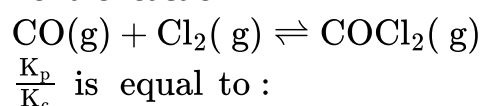
47. Which of the following statements is incorrect ?

1. The bond angle follows the order $CH_4 > NH_3 > H_2O > H_2S$
2. The bond order follows the order $O_2^+ > O_2 > O_2^- > O_2^{2-}$
3. Strength of 'H' bond follows the order $HF > H_2O > NH_3 > HCl$
Of $O^- - C \equiv O^+$, $O = C = O$, the structures, $^+O \equiv C - O^-$ is most stable
4. structure

48. Of the following, the largest value of entropy at 25°C and 1 atm is that of:

1. H_2
2. C_2H_6
3. C_2H_2
4. CH_4

49. For the reaction



1. $\frac{1}{RT}$
2. RT
3. \sqrt{RT}
4. $(RT)^2$

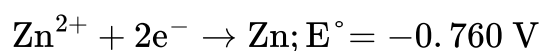
50. The standard equilibrium constant, K_p at 298 K for the reaction, $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ is 5.8×10^5 . The value of standard equilibrium constant, if the concentration of gases is expressed in terms of mol/L, will be: [Given: $R = 0.08314 \text{ L bar K}^{-1} \text{ mol}^{-1}$]

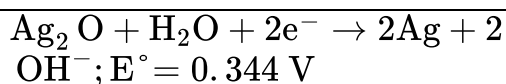
1. 3.51×10^6
2. 3.84×10^7
3. 3.56×10^8
4. 3.99×10^9

51. A compound formed by Mg, Al and O, is found to have cubic close array of oxide ions, in which Mg^{2+} occupying $\frac{1}{8}$ th of tetrahedral voids and Al^{3+} ions occupying $\frac{1}{2}$ the octahedral voids. The formula for the compound is :

1. $MgAl_4O_2$
2. $Mg_2Al_3O_2$
3. $MgAl_2O_4$
4. $MgAlO$

52. The zinc/silver oxide cell is used in electric watches. The reaction is as following,





If F is $96,500 \text{ C mol}^{-1}$, ΔG° of the cell will be

1. $-113.072 \text{ kJ mol}^{-1}$
2. $-213.072 \text{ kJ mol}^{-1}$
3. $-313.082 \text{ kJ mol}^{-1}$
4. $-413.021 \text{ kJ mol}^{-1}$

53. For the reaction, $\text{XA} + \text{YB} \rightarrow \text{ZC}$,
if $\frac{-d[\text{A}]}{dt} = \frac{-d[\text{B}]}{dt} = \frac{1.5d[\text{C}]}{dt}$, then the correct statement among the following is :

1. The value of $\text{X}=\text{Y}=\text{Z}=3$
2. The value of $\text{X} = \text{Y} = 3$
3. The value of $\text{X} = 2$
4. The value of $\text{Y} = 2$

54. Which of the following statement is incorrect ?

1. In coagulation of a negative sol, flocculating power is in the order of $\text{Al}^{3+} > \text{Ba}^{2+} > \text{Na}^+$
2. In the flocculation of a positive sol, flocculating power is in the order,
 $\text{Cl}^- > \text{SO}_4^{2-} > \text{PO}_4^{3-} > [\text{Fe}(\text{CN})_6]^{-4}$
3. Lyophilic colloids have greater affinity for solvents
4. Lyophilic sols are more stable than lyophobic sols

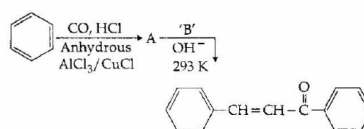
55. Which of the following complex ions is not diamagnetic ?

1. $[\text{Ti}(\text{en})_2(\text{NH}_3)_2]^{4+}$
2. $[\text{Cr}(\text{NH}_3)_6]^{3+}$
3. $[\text{Zn}(\text{NH}_3)_6]^{2+}$
4. $[\text{Sc}(\text{H}_2\text{O})_3(\text{NH}_3)_3]^{3+}$

56. The electron distribution in d^n coordination complexes depends on magnitude of crystal field splitting, (Δ_o) and pairing energy (P). The condition which favours formation of high spin complexes is :

1. $\Delta_o > P$
2. $\Delta_o < P$
3. $\Delta_o = P$
4. $t_{2g}^4 e_g^0$

57. Consider the following sequence of reactions :



The substance 'B' is:

1. Benzene
2. Acetophenone
3. Benzaldehyde
4. Acetone

58. The letter 'D' in D - glucose signifies :

1. configuration at all Chiral Carbons
2. dextrorotatory
3. that it is a monosaccharide

4. configuration at the penultimate chiral Carbon

59. Which of the following absorbs carbon dioxide and releases oxygen?

1. CaO
2. KO_2
3. KOH
4. K_2O

60. Which one of the following ions is not tetrahedral in shape?

1. NH_4^+
2. BF_4^-
3. $[Cu(NH_3)_4]^{2+}$
4. $[NiCl_4]^{2-}$

61. The total number of orbitals present for principal quantum number, $n = 4$ is

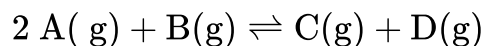
1. 12
2. 15
3. 16
4. 30

62. Under isothermal and reversible conditions, the term " free energy" in thermodynamics signifies :

1. non-expansion work done by the system
2. expansion work done by the system
3. non-expansion work done on the system

4. expansion work done on the system

63. Consider the following reaction for which the change in enthalpy is positive.



Which of the following will not affect the equilibrium?

1. Change in concentration of reactants
2. Change in pressure
3. Change in temperature
4. Presence of catalyst

64. Which of the following hydrides has the largest bond angle?

1. H_2S
2. H_2Te
3. H_2O
4. H_2Se

65. The correct statement regarding ethane conformation is :

1. Rotation around carbon-carbon bond in ethane molecule is not possible, because ethane molecule contains a pi (π) bond between the carbon and carbon and ethane has very low melting point.
2. Rotation around carbon-carbon bond in ethane molecule is not possible, because ethane molecule contains both sigma (σ) bond and

pi (π) bond between the carbon and carbon.

3. Rotation around carbon-carbon bond in ethane molecule is possible because of cylindrical symmetry of sigma (σ) bond between carbon-carbon atoms.
4. Rotation around carbon-carbon bond in ethane molecule is not possible, because ethane molecule contains both sigma (σ) bond and pi (π) bond between the carbon and carbon and ethane has very high boiling point.

66. Amongst the following compounds the one which is most easily sulphonated is :

1. Benzene
2. Nitro benzene
3. Toluene
4. Chlorobenzene

67. For dry cleaning of clothes instead of tetrachloroethene, which is carcinogenic in nature, which of the following solvents can be used ?

1. Liquid CO_2
2. H_2O_2
3. Liquid O_3
4. Petrol

68. Given that $\Lambda_m^\infty = 133.4$ (AgNO_3)
 $\Lambda_m^\infty = 149.9$ (KCl); $\Lambda_m^\infty = 144.9$
 $\text{Scm}^2 \text{mol}^{-1}$ (KNO_3)

the molar conductivity at infinite dilution for AgCl is:

1. $140 \text{ Scm}^2 \text{mol}^{-1}$
2. $138 \text{ Scm}^2 \text{mol}^{-1}$
3. $134 \text{ Scm}^2 \text{mol}^{-1}$
4. $132 \text{ Scm}^2 \text{mol}^{-1}$

69. Consider the reaction between chlorine and nitric oxide
 $\text{Cl}_2(\text{g}) + 2\text{NO}(\text{g}) \rightarrow 2\text{NOCl}(\text{g})$
 On doubling the concentration of both reactants, the rate of the reaction increases by a factor of 8 however, if only the concentration of Cl_2 is doubled, the rate increases by a factor of 2. The order of this reaction with respect to NO is :

1. 0
2. 1
3. 2
4. 3

70. Depressant used in the concentration of an ore containing ZnS and PbS is :

1. Na_2CO_3
2. NaCl
3. NaCN
4. Na_2SO_4

71. Which of the following lanthanoids shows + 4 oxidation state to acquire noble gas configuration?
 (At. nos. : La= 57, Ce= 58, Eu= 63 and Yb= 70)

1. Ce

2. Yb

3. La

4. Eu

72. Which of the following will react faster through S_N1 mechanism?

1. $H_2C = CH - CH_2 Cl$ 2. $C_6H_5 Cl$ 3. $CH_2 = CHCl$ 4. $CH_3 CH_2 Cl$

73. Of the following alcohols, the one that would react fastest with conc. HCl and anhydrous $ZnCl_2$ is :

1. Butan-1-ol

2. Butan-2-ol

3. 2-methylpropan-2-ol

4. 2-methylpropanol

74. The oxidation of phenol with chromic acid gives.

1. a simple diketone

2. a conjugated diketone

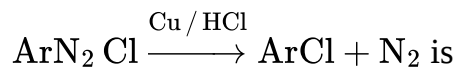
3. ortho benzoquinone

4. an aldehyde

75. Among the following acids, the strongest acid is :

1. $NCCH_2 COOH$ 2. $O_2NCH_2 COOH$ 3. $F_3 CCOOH$ 4. $Cl_3 CCOOH$

76. The reaction:



known as :

1. Sandmeyer's reaction

2. Finkelstein reaction

3. Gattermann reaction

4. Balz Schiemann reaction

77. Which of these artificial sweetener is unstable at cooking temperature?

1. Aspartame

2. Alitame

3. Sucralose

4. Saccharin

78. Match the polymer in Column-I to the monomer from Column-II and assign the correct code :

Column-I**Column-II****(Polymer)****(Monomer)**

(a) Nylon-6
ethylene glycol, (i)

terephthalic acid
(b) Dacron (ii)

urea, formaldehyde
(c) Glyptal (iii)

ethylene glycol,

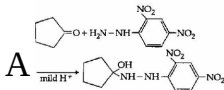
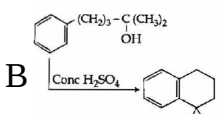
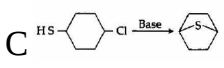
phthalic acid

(d) Novolac (iv)
phenol, formaldehyde

(v) caprolactum

- (a)-v; (b)-i; (c)-iii; (d)-iv
- (a)-iii; (b)-i; (c)-iv; (d)-ii
- (a)-ii; (b)-v; (c)-iii; (d)-iv
- (a)-v; (b)-iii; (c)-i; (d)-ii

79. Match Column-I with Column-II

Column I	Column II
<p>A </p>	P Electrophilic Substitution
<p>B </p>	Q Nucleophilic Substitution
<p>C </p>	R Nucleophilic addition

- A-P; B-Q; C-R
- A-Q; B-R; C-P
- A-R ; B-P; C-Q
- A-R ; B-Q; C-P

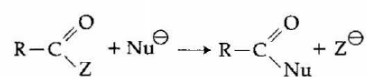
80. Toluene in the vapour phase is in equilibrium with a solution of benzene and toluene having mole fraction of toluene 0.50. If vapour pressure of pure benzene is 119 torr and that of toluene is 37.0 torr at the same temperature, mole fraction of toluene in vapour phase will be :

- 0.462
- 0.237

3. 0.506

4. 0.325

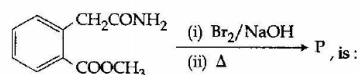
81. The rate of the reaction :

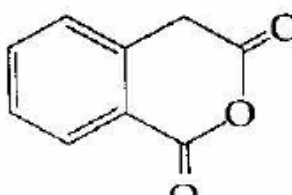
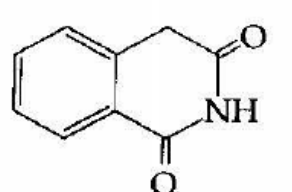
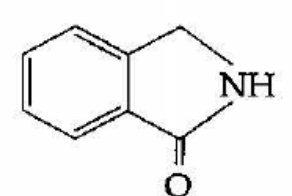


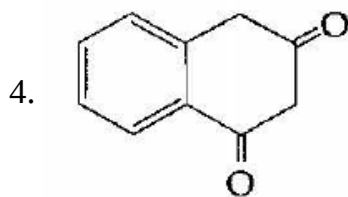
is fastest, when Z is :

- Cl
- NH₂
- OC₂H₅
- OCOCH₃

82. The product (P) of the following reaction



- 
- 
- 



83. Which of the following pair of species is not iso-structural?

1. ICl_4^- , XeF_4
2. ClO_3^- , CO_3^{2-}
3. IBr_2^- , XeF_2
4. BrO_3^- , XeO_3

84. The tendency to form monovalent compounds among the Group 13 elements is correctly exhibited in :

1. $\text{B} < \text{Al} < \text{Ga} < \text{In} < \text{Tl}$
2. $\text{Tl} < \text{In} < \text{Ga} < \text{Al} < \text{B}$
3. $\text{Tl} \approx \text{In} < \text{Ga} < \text{Al} < \text{B}$
4. $\text{B} \approx \text{Al} \approx \text{Ga} \approx \text{In} \approx \text{Tl}$

85. Strong reducing behaviour of H_3PO_2 is due to:

1. low oxidation state of P
2. presence of one - OH group and two P-H bonds
3. presence of two - OH groups and one P-H bonds
4. low coordination number of P

86. Which of the following pairs shows highest bond dissociation enthalpy among halogens and lowest bond dissociation enthalpy among hydrogen halides?

1. F_2 , HF
2. Cl_2 , HCl
3. Br_2 , HBr
4. I_2 , HI

87. Among halogens, the one which can oxidise water to oxygen most readily is :

1. chlorine
2. bromine
3. fluorine
4. iodine

88. The $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ ion has three unpaired electrons. The hybridization of Co in $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ is:

1. sp^3
2. dsp^2
3. $\text{sp}^3 \text{d}^2$
4. $\text{d}^2 \text{sp}^3$

89. For the tetrahedral complex $[\text{MnBr}_4]^{2-}$, the spin only magnetic moment value is: [At. no. of Mn = 25]

1. 1.7
2. 5.9
3. 4.8
4. 2.4

90. Which of the following amino acid is not optically active?

1. Proline

- 2. Serine
- 3. Leucine
- 4. Glycine

Botany

Section A

91. Which of the following is **not** true of organisms in the kingdom Monera?

- 1. They originated at least 3.5 billion years ago.
- 2. They have prokaryotic cellular organization.
- 3. They may be autotrophic or heterotrophic in nature.
- 4. They reproduce by mitosis.

92. Match the column - I with column-II and select the correct option using the codes given below.

Column-I	Column-II
(a) Cytokinin	i Stimulates closure of stomata
(b) Ethylene	ii Increases stem length
(c) Gibberellin	iii Promotes lateral shoot growth
(d) Abscisic acid	iv Found in large amount in tissues undergoing senescence

a b c d

1	iii	ii	iv	i
2	iv	i	iii	ii
3	ii	iv	i	iii
4	iii	iv	ii	i

1. 1

2. 2

3. 3

4. 4

93. If the ratio of (T + C)/(A+ G) in one strand of DNA is 1.43, same ratio in the complementary strand is :

1. 0.35

2. 0.70

3. 1.43

4. 2.10

94. Which of the following is a proteinaceous and water soluble photosynthetic pigment?

1. Xanthophyll

2. Phycocyanin

3. Anthocyanin

4. Chlorophyll

95. Which of the following statements is true for phloem in plants ?

- 1. Sieve tube elements are multicellular with wide lumen and rich cytoplasm.

2. Companion cells help in maintaining the pressure gradient in sieve tubes.

3. Phloem parenchyma is abundantly present in monocots.

4. Phloem fibres are made up of collenchymatous cells.

96. A genetically engineered bacterium first used for cleaning the oil spills, was a species of:

1. *Escherichia*

2. *Pseudomonas*

3. *Bacillus*

4. *Rhizobium*

97. Opposite type of phyllotaxy is not present in

1. guava

2. *Calotropis*

3. mint

4. mango

98. The correct sequence of involvement of cell organelles in secretion of proteins from the cell is :

1. Nucleus → Ribosomes → Endoplasmic reticulum → Golgi apparatus → Secretory vesicles → Plasma membrane

2. Nucleus → Ribosomes → Endoplasmic reticulum → Lysosomes → Plasma membrane

3. Nucleus → Endoplasmic reticulum → Ribosomes → Golgi apparatus → Lysosomes → Plasma membrane

4. Nucleus → Endoplasmic reticulum → Ribosomes → Golgi apparatus → Secretory vesicles → Plasma membrane

99. Which of the following pathways is involved in packaging of secretory proteins?

1. Trans face of Golgi body → Cis face of Golgi body → RER → SER → Secretory vesicles

2. RER → Cis face of Golgi body → Trans face of Golgi body → Secretory vesicles

3. Cis face of Golgi body → Trans face of Golgi body → RER → Secretory vesicles

4. RER → Trans face of Golgi body → Cis face of Golgi body → Secretory vesicles

100. Which of the following statements regarding enzyme inhibition is correct ?

1. Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibition protein.

2. Competitive inhibition is seen when the substrate and the inhibitor compete.

3. Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate.

4. Non competitive inhibitors often bind to the enzyme irreversibly

101. Select the wrong statement.

1. Law of dominance and law of independent assortment were proposed by Mendel.
2. Linkage and recombination were discovered by Sutton.
3. Three scientists independently rediscovered the Mendel's laws in 1900.
4. Chromosomal theory of inheritance was proposed by Sutton.

102. Which statement is **wrong** about photorespiration?

1. Photorespiration occurs in C_3 plants and not in C_4 plants
2. There is no synthesis of ATP or NADPH
3. RuBisCO has higher affinity for CO_2 than O_2
4. RuBP binds with O_2 to form two molecules of phosphoglycolate

103. An inflorescence with younger flowers at the base and the older ones at its apex is known as

1. head

2. racemose

3. cymose

4. hypanthodium

104. Tetradynamous stamens are characteristic of

1. Solanaceae
2. Fabaceae
3. Liliaceae
4. Brassicaceae

105. A fat molecule is formed from

1. one glycerol molecule and one fatty acid molecule.
2. three glycerol molecules and three fatty acid molecules.
3. one glycerol molecule and three fatty acid molecules.
4. three glycerol molecules and one fatty acid molecule.

106. In roots, absorption of water and minerals mostly occurs in the

1. region of elongation
2. region of maturation
3. meristematic region
4. root cap

107. Which of the following statements is correct with respect to cell cycle?

1. A cell in G_1 phase has double the amount of DNA than a cell

in G_2 phase.

2. Each chromosome has two chromatids in G_1 phase.
3. Nerve cells in adult human are in G_0 state.
4. DNA content of cell remains constant during entire cell cycle.

108. Which one of the following is **not** true for the experiments of Mendel on pea?

1. He chose characters of two contrasting states
2. He used true-breeding lines
3. His observations were based on natural, open pollination
4. His experiments had large sampling size

109. Restriction endonucleases are

1. used for in vitro DNA synthesis
2. synthesized by bacteria as part of their defense mechanism
3. present in mammalian cell for degradation of DNA when the cell dies
4. used in genetic engineering for ligating two DNA molecules

110. The sequential events from initial stage till climax stage in a succession are called

1. ecesis

2. sere

3. nudation

4. migration

111. A complex of ribosomes attached to a single strand of mRNA is known as

1. polymer
2. polyribosome
3. polypeptide
4. okazaki fragment

112. Name the element which is the main constituent of the ring structure of chlorophyll and involved in DNA and RNA synthesis.

1. Calcium
2. Magnesium
3. Nitrogen
4. Phosphorus

113. Select the wrong statement.

1. There is now enough evidence that essential processes like metabolism, translation and splicing evolved around RNA
2. DNA may act as a catalyst
3. RNA can splice itself and is also able to act as a catalyst
4. DNA stores genetic information

114. What is the meaning of Bt in Bt cotton ?

1. Baculovirus treated cotton seeds against pink boll-worm.
2. Bigger thread of disease resistant cotton with better tensile strength.
3. Cotton produced by Biotechnology using restriction enzyme and ligases to resist microbial infection.
4. Cotton seeds carrying an endotoxin gene from *Bacillus thuringiensis* is against pink boll-worm

115. Growth hormone auxin was isolated by F.W. Went from tips of seedling coleoptile of

1. maize
2. wheat
3. oat
4. rice

116. Which of the following pairs is **not** correctly matched ?

	Vegetative Propagules	Example
1.	Offset	Water hyacinth
2.	Eyes	Potato
3.	Rhizome	Ginger
4.	Stolons	Agave

1. 1
2. 2
3. 3
4. 4

117. Continued self-pollination results in

1. heterosis
2. inbreeding depression
3. polyembryony
4. genetic drift

118. Pollen grains can be stored for years in liquid nitrogen, maintained at temperature

1. -20°C
2. -70°C
3. -196°C
4. -120°C

119. What is **not** true for an angiospermic embryo sac ?

1. It is present within an ovule.
2. It represents female gametophyte.
3. Its formation is preceded by meiosis.
4. One male gamete is discharged into it during fertilization.

120. The hollow foliar structure in a wheat embryo that encloses the shoot apex and a few leaf primordia is called

1. coleorhiza
2. epicotyl
3. hypocotyl
4. coleoptile

121. Choose the correct sequence representing the ploidy of nucellus; megaspore mother cell; megaspore; egg cell; zygote; a polar nucleus of embryo sac; secondary nucleus and primary endosperm nucleus.

1. $2n$; $2n$; n ; $2n$; n ; $2n$; $3n$; and $2n$
2. $2n$; $2n$; n ; n ; $2n$; n ; $2n$; and $3n$
3. $2n$; n ; n ; $2n$; $3n$; $2n$; n ; and $3n$
4. n ; $2n$; $2n$; n ; $2n$; n ; $2n$; and $2n$

122. An example of flagellate protozoan is

1. *Paramoecium*
2. *Trypanosoma*
3. *Entamoeba*
4. *Plasmodium*

123. Consider the following statements and choose the correct option.

- (a) Six codons do not code for any amino-acid.
- (b) Codon is read in m-RNA in a contiguous fashion.
- (c) Three codons function as stop codons.
- (d) The initiator codon AUG codes for methionine.

1. (a), (b) and (d) are wrong
2. (a), (b) and (c) are wrong
3. (b), (c) and (d) are wrong
4. (a) is wrong

124. Special feature about *Strobilanthus kunthiana* (neelakuranji) is its flowering once in :

1. 12 years
2. 50 - 100 years
3. 6 years
4. 25 years

125. Given below are various taxonomic aids used in taxonomy which facilitate identification and classification of organisms. Which one of the following is wrong ?

1. Herbarium is created to house live specimens of plant material
2. Museums are established to keep preserved specimens of animals and plants.
3. Botanical gardens and zoological parks are established to conserve and preserve live plants and animals respectively.
4. Key, flora, manual, monograph and catalogue are useful aids for identification of plants and animals.

126. Select the sac fungus

1. *Agaricus*
2. *Neurospora*
3. *Mucor*
4. *Albugo*

127. Which of the following is **not** true for callus culture?

1. Somaclonal variation is generated
2. Parenchyma tissue increases by continuous mitotic divisions
3. Meiotic divisions are frequent
4. It can be used for micropropagation

128. The type of ribosomes is same in

1. cytoplasm of eukaryotic cells, mitochondria and chloroplasts
2. cytoplasm of eukaryotic cells, chloroplasts and microbodies.
3. prokaryotes, mitochondria and chloroplasts.
4. eukaryotic cytoplasm, mitochondria and endoplasmic reticulum.

129. The protein coat around a virus is called

1. core
2. capsid
3. trichome
4. capsule

130. At what phase of meiosis homologous chromosomes are separated?

1. Prophase I
2. Prophase II

3. Anaphase I

4. Anaphase II

131. Which of the following plants has association with *Frankia*?

1. Alfalfa
2. *Alnus*
3. Sweet pea
4. Lentil

132. Which of the following values depict correct respiratory quotient when tripalmitin (a fatty acid) is used as a respiratory substrate?

1. 1
2. 0.7
3. 0.9
4. 1.1

133. Which of the following ecologists has tried to put price-tags on nature's life support services?

1. David Tilman
2. Robert Constanza
3. Paul Ehrlich
4. Robert May

134. The chief function of vessels in the plant body is to

1. transport food materials manufactured in the leaves to other parts of the plant.

2. store food material in the form of starch or fat.
3. conduct water and mineral salts.
4. eliminate excess of water.

135. Reserved material in prokaryotic cells is stored as

1. inclusion bodies
2. mesosome
3. polysome
4. basal body

136. Identify and select the wrong statement out of the following.

1. Roots of pines enter into a symbiotic relationship with higher fungi.
2. The coralloid roots in *Cycas* have nitrogen fixing cyanobacteria.
3. The giant redwood tree *Sequoia*, one of the tallest trees is an angiosperm.
4. In conifers the needle like leaves are well adapted to extremes of temperature, moisture conservation and onslaught of wind.

137. Which of the following enzymes is **not** protein?

1. Polymerase
2. Ligase
3. Lysozyme

4. Ribozyme

Zoology

Section A

138. Trace the correct path of sperm from seminiferous tubules :

1. Rete testis → epididymis → vasa efferentia → vas deferens
2. Vasa efferentia → rete testis → vas deferens → epididymis
3. Epididymis → vasa efferentia → rete testis → vas deferens
4. Rete testis → vasa efferentia → epididymis → vas deferens

139. Thymosin is responsible for

1. inhibiting the production of antibodies
2. decreasing the blood calcium level in old individuals
3. increased production of T-lymphocytes
4. decreased production of T-lymphocytes

140. In the heart, as the action potential reaches the AV node from the SA node, there is a delay of the action potential. This delay is important because

1. It allows atria to rest
2. It allows a stronger right atrial contraction

3. It allows ventricles to receive all the blood from the atria
4. It allows right atria to receive the blood from vena cava

141. Which of the following structures does **not** open into the genital chamber of female cockroaches?

1. A single median oviduct
2. Spermatheca
3. A pair of anal cerci
4. A pair of collateral glands

142. Select the **incorrect** option with respect to features present in three animals.

Character	Cockroach	Earthworm	Frog
1 Blood vascular system	Open	Closed	Closed
2 Body surface	Dry	Moist	Moist
3 Eyes	Compound	Absent	Simple
4 Development	Direct	Indirect	Indirect

1. 1
2. 2
3. 3
4. 4

143. Which of the following type of muscle fibres will be the first one to undergo fatigue?

1. Slow oxidative fibres
2. Fast oxidative - glycolytic fibres
3. Fast glycolytic fibres

4. Aerobic fibres

144. A large amount of about 180 L of fluid is filtered by the human kidneys per day. Which one of the following renal corpuscle features does not justify this?

1. The glomerular capillaries have a large surface area.
2. The glomerular capillaries are fenestrated and hence leakier than other capillaries.
3. The glomerular capillaries have a higher blood pressure than the other capillaries of the body.
4. The efferent arteriole is wider than the afferent arteriole causing easier outflow of blood from the glomerulus.

145. Match Column - I with Column - II and select the correct option.

	Column I	Column II
A	<i>Plasmodium</i>	(i) Ringworm
B	<i>Wuchereria</i>	(ii) Amoebiasis
C	<i>Entamoeba</i>	(iii) Elephantiasis
D	<i>Microsporium</i>	(iv) Malaria

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

1. 1
2. 2
3. 3

<p>4. 4</p> <p>146. Which of the following cannot be measured by spirometry?</p> <ol style="list-style-type: none"> 1. Tidal volume 2. Inspiratory reserve volume 3. Residual volume 4. Vital capacity <p>147. Which of the following statements is not true?</p> <ol style="list-style-type: none"> 1. A single organism can feed at several trophic levels. 2. Detritivores feed at all trophic levels except the producer level. 3. Primary consumers are herbivores. 4. Energy pyramids of an ecosystem tend to diminish at higher trophic levels. <p>148. An athlete while running fell on the track. She used her hands to sustain minimal injury. In the process, her hands received the maximum blow on the joints. Which combination of joints would be badly affected in this accident?</p> <ol style="list-style-type: none"> 1. Fibrous and cartilaginous joints 2. Fibrous and synovial joints 3. Cartilaginous and synovial joints 4. Cartilaginous and synaptic joints <p>149.</p>	<p>The increase in concentration of the toxicant at successive trophic levels is referred to as :</p> <ol style="list-style-type: none"> 1. Eutrophication 2. Bioremediation 3. Biotransformation 4. Biomagnification <p>150. Which of the following ossicles is adhered to tympanic membrane of middle ear?</p> <ol style="list-style-type: none"> 1. Incus 2. Stapes 3. Utricle 4. Malleus <p>151. In a hypothetical population of 100 individual having 'r' = 0.5/ female/ year, what will be the population size in 6 years (with $e = 2.72$) showing exponential rate of growth?</p> <ol style="list-style-type: none"> 1. 1218 2. 739 3. 2012 4. 448 <p>152. All the components of the conducting system can generate an action potential for the contraction of heart muscle, but the sino-atrial node acts as the pacemaker because:</p> <ol style="list-style-type: none"> 1. All the other components in heart cannot conduct the action
--	---

potential

2. Only the sino-atrial node is auto-excitabile and auto-rhythmic
3. The sino-atrial node has a higher inherent rate of depolarisation
4. The sino-atrial node has a lower inherent rate of depolarisation

153. Which of the following statements is correct ?

1. Acquired immunity is pathogen specific.
2. The exaggerated response of the immune system to certain antigens present in the environment is called Auto-immunity.
3. Bone marrow acts as a filter of the blood by trapping blood borne micro-organisms.
4. AIDS is caused by a group of viruses called rhinovirus.

154. Tree planting helps reduce global warming as trees

1. give out O_2
2. create shade thereby cooling the ground
3. can sequester CO_2
4. can respire in light

155. Air pollution can result in Emphysema, which is

1. chronic damage to air sacs or alveoli leading to abnormal reduction in respiratory surface area
2. persistent inflammation and damage to the cells lining the bronchi and bronchioles
3. an allergic reaction causing muscle spasms in the bronchial walls
4. damage to any Lung tissue causing increase in elasticity of the air sacs

156. Continental drift led to disappearance of a number of South American mammals because :

1. there was an outbreak of a number of infectious diseases
2. sudden change in the climatic conditions
3. they were outcompeted by more highly evolved animals reaching here from North America
4. alteration of vegetation was not conducive to their survival

157. Select the correct option.

1. GIFT involves IVF to help women who cannot produce ovum to bear a child.
2. ZIFT involves IVF to help women who cannot produce ovum to bear a child.

3. ZIFT involves IVF to help women who have damaged Fallopian tubes to bear a child.

4. IUI can help a woman with premature menopause to bear a child

158. Signals for the onset of parturition originate from

1. foetus and placenta

2. mother's uterus

3. mother's pituitary

4. mother's hypothalamus

159. Van Mahotsava is a festival of

1. planting trees in open areas

2. taking oath to protect trees

3. worshipping trees

4. conservation of sacred groves

160. The difference between Marasmus and Kwashiorkor is that

1. Marasmus is caused by deficiency of Vitamin B while Kwashiorkor is caused by the deficiency of Vitamin D.

2. Marasmus is caused by a calorie deficiency while Kwashiorkor is caused by protein deficiency.

3. Marasmus is a simultaneous deficiency of proteins and calories while Kwashiorkor is due to just

protein deficiency unaccompanied by calorie deficiency.

4. Marasmus is a deficiency of just proteins while Kwashiorkor is due to a deficiency of both proteins and calories.

161. Which of the following is **not** a ciliary movement?

1. Removal of dust particles in trachea

2. Passage of ova through female reproductive tract

3. Movement of macrophages and leucocytes

4. Food gathering in *Paramecium*

162. To protect and improve the quality of environment, the Government of India passed the Environment (Protection) Act in the year

1. 1953

2. 1923

3. 1986

4. 1968

163. Which scientist proposed 'Rivet popper hypothesis' related to biodiversity and Ecosystems?

1. Alexander von Humboldt

2. Paul Ehrlich

3. David Tilman

4. Tansley

164. Which of the following statements is **not** true ?

1. Descending limb of loop of Henle is impermeable to solutes.
2. Distal convoluted tubule functions in K^+ , Na^+ homeostasis
3. Descending limb of loop of Henle is impermeable to water.
4. Loop of Henle is largely responsible for concentrated urine

165. Flippers of penguins and dolphins are the example of

1. homologous structures
2. analogous structures
3. divergent evolution
4. genetic drift

166. In lactational amenorrhoea, ovulation does not occur during the period of intense lactation because of

1. surge of estrogen
2. stimulation of GnRH
3. high level of prolactin
4. high level of FSH & LH

167. Which of the following represents correct match of feature with the given set of animals ?

1. Feature-Respiratory system;
Animals-Cockroach, Tapeworm, Starfish

2. Feature-Bilateral symmetry;
Animals-Hydra, Tapeworm, Sea Urchin

3. Feature-Jointed appendages;
Animals-Prawn, Centipede, Grasshopper

4. Feature-Metameric segmentation;
Animals-Earthworm, Leech, Liver fluke

168. Which one of the following is **not** an IUD?

1. Cu T
2. Multiload 375
3. Progestasert
4. Vaults

169. Which of the following symmetry is exhibited by Echinoderm larvae?

1. Radial
2. Asymmetrical
3. Biradial
4. Bilateral

170. Which technique helps to identify a bacterial or viral pathogen in a human body even when its concentration is very low and clinical symptoms are not yet visible ?

1. ELISA
2. Total leucocyte count
3. PCR

<p>4. Differential leucocyte count</p> <p>171. The recessive genes located on X-chromosome in humans are always</p> <ol style="list-style-type: none"> 1. expressed in females 2. expressed in males 3. lethal 4. sub-lethal <p>172. Choose the false statement regarding <i>Petromyzon</i>.</p> <ol style="list-style-type: none"> 1. The body is devoid of scales. 2. Mouth is circular and lacks jaws. 3. It migrates to the ocean for spawning. 4. The circulatory system is closed. <p>173. The Pacinian corpuscle responds to rapid changes in :</p> <ol style="list-style-type: none"> 1. gravity 2. pressure 3. temperature 4. light intensity <p>174. Cholecystokinin acts on</p> <ol style="list-style-type: none"> 1. gastric glands and liver 2. pancreas and duodenum 3. pancreas and intestine 4. pancreas and gall bladder <p>175. The technique of DNA fingerprinting is superior to conventional</p>	<p>fingerprinting because it can</p> <ol style="list-style-type: none"> 1. generate unique fingerprints for each finger 2. compare the whole DNA sequence of two individuals 3. differentiate between polymorphic DNA sequences among individuals 4. be generated more rapidly, and is inexpensive. <p>176. A couple claimed in court that a child belonged to them. Their claim can be true if the DNA fingerprint pattern of the child shows :</p> <ol style="list-style-type: none"> 1. 100% similarity to both the parents' DNA fingerprint as both contribute equally to zygote formation. 2. 100% similarity to mother's DNA print because of maternal inheritance. 3. 100% similarity to father's DNA print due to large number of mitochondria in sperm. 4. 50% bands similar to father and 50% similar to mother DNA fingerprint pattern. <p>177. 'MOET' technique is used for super-ovulation in</p> <ol style="list-style-type: none"> 1. fish 2. cattle 3. chicken
--	---

4. elephant

178. In gene therapy, a functional ADA cDNA is introduced into which of the following cells, to treat ADA deficiency?

1. Erythrocytes
2. Lymphocytes
3. Monocytes
4. Thrombocytes

179.

Substance	Glomerular filtrate	Reabsorbed	Urine
(i) Proteins	2 g	1.9 g	0.1 g
(ii) Glucose	162 g	162 g	0 g
(iii) Urea	54 g	24 g	30 g
(iv) Creatinine	1.6 g	0 g	1.7 g

- (a) Glucose is completely reabsorbed
- (b) Urea is partially reabsorbed
- (c) Proteins are secreted into urine
- (d) Creatinine is secreted into urine

Which of the following options, in view of above statements is correct ?

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

180. Select the correct option.

1. Phenylketonuria is X linked disease and results in accumulation of phenylpyruvic acid.
2. Down's syndrome is due to triploidy and results in mental retardation.
3. Turner's syndrome is due to trisomy and results in sterile female.
4. Klinefelter's syndrome is due to extra X chromosome and results in sterile male.