06/03/2025

CODE-B

Aakash
Medical | IIT-JEE | Foundations

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MOCK TEST for NEET-2025

MM : 720 **Test - 6** **Time : 3 Hrs.**

Complete Syllabus of class XI & XII

Instructions :

(i) Duration of Test is **3** hrs.

(ii) The Test consists of **180** questions. The maximum marks are **720**.

(iii) There are four parts in the question paper consisting of Physics, Chemistry, Botany and Zoology having **45** questions in each part of equal weightage.

(iv) Each question carries **+4 marks**. For every wrong response, **–1 mark** shall be deducted from the total score. Unanswered/unattempted questions will be given no marks.

(v) Use blue/black ballpoint pen only to darken the appropriate circle. Mark should be dark and completely fill the circle. Dark only one circle for each entry. Dark the circle in the space provided only.

(vi) Dark the circle in the space provided only.

(vii) Rough work must not be done on the Answer sheet and do not use white-fluid or any other rubbing material on the Answer sheet.

PHYSICS

1. A particle of mass 1 kg is executing SHM according to the equation $y = 4\sin(4t + \pi/3)$, having time period T. If y is measured in cm, then kinetic energy of the particle at $t = T/4$, will be

   (1) 9.6 mJ

   (2) 0.48 mJ

   (3) 1.92 mJ

   (4) 0.96 mJ

2. An organ pipe 'X' open at one end vibrating in its fundamental mode, is in resonance with another organ pipe 'Y' open at both ends also vibrating in its fundamental mode. These pipes have lengths l_1 and l_2 respectively, then $\frac{l_1}{l_2}$ will be

   (1) $\frac{1}{4}$ (2) $\frac{3}{8}$

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

3. Three waves of equal frequency having amplitudes 12, 4 and 8 unit, meet at a point with successive phase difference of $\frac{\pi}{2}$. Amplitude of resulting wave will be

   (1) 24 unit (2) $12\sqrt{2}$ unit

   (3) $4\sqrt{2}$ unit (4) 20 unit

4. A block of mass 'm' is projected horizontally on a rough horizontal surface having coefficient of kinetic friction as 'μ'. If it stops after moving through a distance d then its initial linear momentum was

   (1) $m\mu gd$ (2) $m\sqrt{\mu gd}$

   (3) $2m\mu gd$ (4) $m\sqrt{2\mu gd}$

5. For measuring current across a circuit having a cell of emf 10 V and internal resistance 2 Ω connected in series with a resistance 8 Ω, an ammeter of resistance 10 Ω is used. The reading of ammeter is

   (1) 1 A (2) 0.5 A

   (3) 2 A (4) 2.5 A

6. Consider the displacement equation of a travelling wave $y = A\sin(\omega t - kx)$ where y, A and x are in 'm' and t is in 's'. The unit of $\frac{Ak}{\omega}$ is

(1) (second)$^{-1}$
(2) Metre per second
(3) Metre squared per second
(4) Second

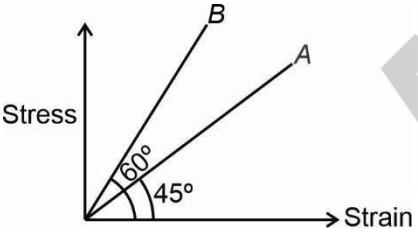
7. A rail-road cart is moving at speed 10 m/s along horizontal. A ball is projected at speed 20 m/s making an angle 37° with horizontal. Horizontal distance travelled by ball after attaining the same horizontal level is

(1) 62.4 m (2) 24 m
(3) 48.4 m (4) 5.2 m

8. According to Newton's third law of motion, the action and reaction forces

(1) Must act on the same body
(2) Must act on the different bodies
(3) Must be unequal in magnitude
(4) Must be equal in magnitude and act in the same direction

9. The stress versus strain graph for wires of two materials A and B are shown in figure. The ratio of their young's modulus $\frac{Y_A}{Y_B}$ is



(1) 3 : 1 (2) $1:\sqrt{3}$
(3) 1 : 3 (4) $\sqrt{3}:1$

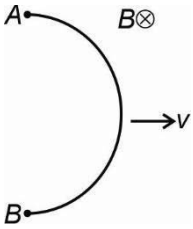
10. A container contains 100 g ice at –10°C kept in a laboratory having ambient temperature of 40°C. After some time half of the ice is found to melt, the temperature of water so formed is

(1) Less than 0°C (2) 0ºC
(3) More than 0ºC (4) 40ºC

11. A convex mirror forms an image of the sun at a distance of 10 cm from it, then

(1) The radius of curvature of the mirror is 20 cm
(2) The radius of curvature of the mirror is 10 cm
(3) The radius of curvature of the mirror is 5 cm
(4) The radius of curvature of the mirror is 40 cm

12. A thin wire AB of length l is bent into a semicircle. It is then moved with speed v as shown in a uniform transverse magnetic field. The potential difference across its two ends is



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

13. An ideal transformer has a 300 turns in primary coil while it has 60 turns in secondary coil. If output power is 300 kW and input voltage is 10^4 V then output current is

(1) 30 A (2) 300 A
(3) 1500 A (4) 150 A

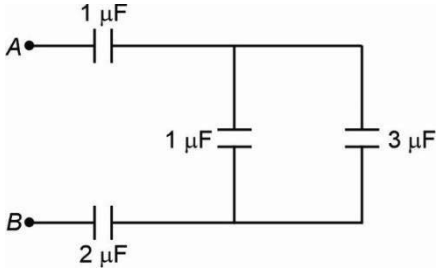
14. Two point charges +3 C and +6 C repel each other with a force of 18 N. If –4 C is given to both the charges separately, the new force will be

(1) 2 N, repulsive (2) 2 N, attractive
(3) 6 N, repulsive (4) 6 N, attractive

15. A uniform electric field $\vec{E} = \left(2\hat{i} + 3\hat{j} - 4\hat{k}\right)$ N/C exists in a region. The magnitude of electric flux (in SI units) passing through a square of side 2 cm lying in $x - y$ plane is

(1) 4×10^{-4} (2) 32×10^{-4}
(3) 16×10^{-4} (4) Zero

16. The effective capacitance of the network between points A and B is



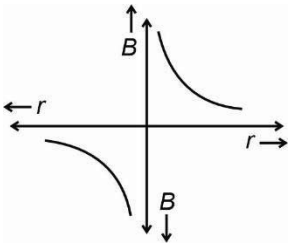
(1) $\frac{7}{4}$ μF (2) 7 μF
(3) $\frac{4}{7}$ μF (4) $\frac{4}{9}$ μF

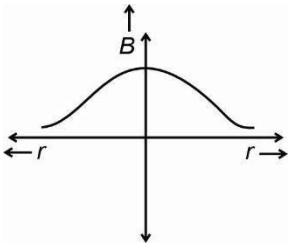
17. Light of wavelength 3100 Å is incident on a photosensitive metal surface having work function 6 eV. The maximum kinetic energy of ejected photoelectrons will be

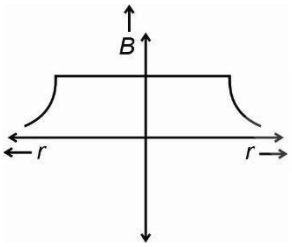
(1) 2 eV (2) 4 eV

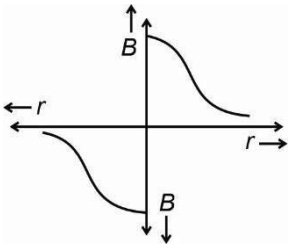
(3) 6 eV (4) Zero

18. Variation of magnetic field (B) with distance from the centre of ring (r) along its axis is best represented by

(1) 

(2) 

(3) 

(4) 

19. On the basis of Bohr's atomic model the speed of electron in 3rd orbit of hydrogen atom is

(1) Three times of speed in first orbit

(2) Nine times of speed in first orbit

(3) One third of speed in first orbit

(4) Equal to the speed in first orbit

20. **Assertion (A):** In YDSE, if wavelength of light used is increased then angular width of fringes remains unchanged while linear width of fringes increases.

Reason (R): Linear fringe width is proportional to wavelength and while angular fringe width is independent of wavelength.

(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

21. Which of the following is/are true for electromagnetic waves?

(I) They transport energy.

(II) They are longitudinal in nature.

(III) They have momentum.

(1) I and III (2) III only

(3) I only (4) I, II and III

22. All components of the electromagnetic spectrum in vacuum have the same

(1) Energy

(2) Speed

(3) Wavelength

(4) Frequency

23. A disc of radius R and mass m rotates about a fixed axis passing through its centre and perpendicular to its plane with angular velocity ω. Its kinetic energy is

(1) $\frac{mR\omega^2}{2}$ (2) $\frac{mR^2\omega}{2}$

(3) $\frac{mR\omega^2}{4}$ (4) $\frac{mR^2\omega^2}{4}$

24. The centre of mass of a system of two particles divides the straight line joining between them

(1) In inverse ratio of square of masses of particles

(2) In direct ratio of square of masses of particles

(3) In inverse ratio of masses of particles

(4) In direct ratio of masses of particles

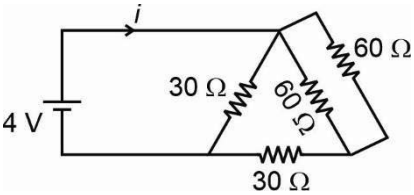
25. A body moves a distance of 5 m along a straight line under the action of a force of 10 N. If the work done is $25\sqrt{3}$ J, then the angle which the force makes with the direction of motion of the body is

(1) 37° (2) 30°

(3) 53° (4) 60°

26. The energy band gap is maximum in
(1) Metals
(2) Alloys
(3) Insulators
(4) Semiconductors

27. The current i in the circuit shown below is

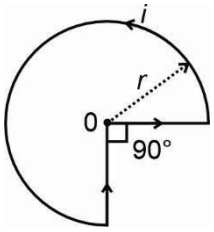


(1) 0.6 A (2) 0.5 A
(3) 0.4 A (4) 0.2 A

28. The specific heat at constant volume of a gas is $\frac{5R}{2}$, then the value of γ will be
(1) $\frac{5}{3}$ (2) $\frac{3}{2}$
(3) $\frac{7}{5}$ (4) $\frac{5}{2}$

29. Volume of 1 mole of an ideal gas at 27°C is doubled at constant pressure. The work done in this process is [Given R = 2 cal mol^{-1}°c^{-1}]
(1) 1200 cal (2) 300 cal
(3) 1900 cal (4) 600 cal

30. For the arrangement as shown in the figure, the magnetic induction at the centre (0) is



(1) $\frac{3}{4}\frac{\mu_0 i}{r}$ (2) $\frac{3}{8}\frac{\mu_0 i}{r}$
(3) $\frac{\mu_0 i}{8r}$ (4) $\frac{\mu_0 i}{8}(3+\pi)$

31. Relative permeability of iron is 5460, then its magnetic susceptibility will be
(1) 5460 × 4π × 10^{-7}
(2) 5460 × 10^{-7}
(3) 5459
(4) 5461

32. The angular momentum of electron in 4th Bohr's orbit is given by
(1) $\frac{h}{2\pi}$ (2) $\frac{2h}{\pi}$
(3) $\frac{4h}{\pi}$ (4) $\frac{h}{\pi}$

33. Consider the following two statements A and B, identify the correct answer.
A: Nuclear density is nearly same for all nuclei
B: Radius of nucleus R and its mass number A are related as $R^2 \propto A^{1/6}$
(1) Both A and B are true
(2) Both A and B are false
(3) A is true but B is false
(4) A is false but B is true

34. In a vernier calliper, one main scale division is 1 mm and 20 division of the vernier scale coincide with 18 division of the main scale. The least count of the calliper is
(1) 0.1 mm
(2) 1 mm
(3) 0.01 mm
(4) 0.2 mm

35. The capacitance of an isolated conducting sphere of radius R is proportional to
(1) R^{-1} (2) R
(3) R^{-2} (4) R^2

36. The angular velocity of a rotating body is $\vec{\omega}$, velocity $(\vec{v})$ of a point on the body having position vector $\vec{r}$ is given by
(1) $\vec{v} = \vec{\omega} \times \vec{r}$ (2) $\vec{v} = \vec{r} \times \vec{\omega}$
(3) $\vec{v} = \frac{\vec{r}}{\vec{\omega}}$ (4) $\vec{v} = \frac{\vec{\omega}}{\vec{r}}$

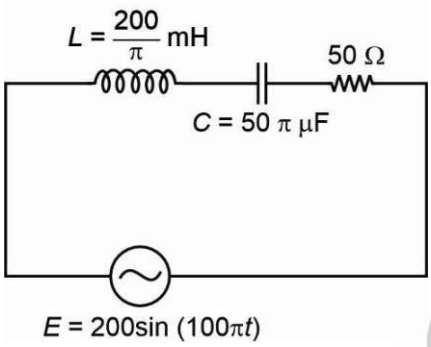
37. A 4 μF capacitor is charged by a 60 V battery. After disconnecting the battery it is connected to another 4 μF capacitor having charge 240 μC. The energy lost in the process of charge sharing if similar polarity plates are connected with each other will be
(1) 3.6 mJ
(2) 7.2 mJ
(3) 1.8 mJ
(4) Zero

38. The escape velocity from a planet is v_e. A tunnel is dug along the diameter of the planet. If a small body of mass m is dropped into this tunnel then the kinetic energy of the body when it passes through the centre of the planet is

(1) $\frac{1}{2}mv_e^2$ (2) $\frac{1}{4}mv_e^2$

(3) mv_e^2 (4) Zero

39. Column I contains quantities and column II contains the values of these quantities corresponding to a series LCR circuit connected to an AC source given below.



Match the entries in column I & column II and tick the correct option.

	Column I		**Column II**
(A)	Capacitive reactance (in ohm)	(P)	One
(B)	Impedance (in ohm)	(Q)	Fifty
(C)	Peak value of current (in A)	(R)	Twenty
(D)	Power factor (unitless)	(S)	Four

(1) A → R; B → S; C → Q; D → P

(2) A → R; B → Q; C → S; D → P

(3) A → S; B → Q; C → R; D → P

(4) A → S; B → R; C → Q; D → P

40. In YDSE using a monochromatic light of wavelength λ, the path difference corresponding to any point having half of the maximum intensity (n is any integer)

(1) $(2n+1)\frac{\lambda}{2}$ (2) $(2n+1)\frac{\lambda}{4}$

(3) $(2n+1)\frac{\lambda}{8}$ (4) $(2n+1)\frac{\lambda}{16}$

41. Two wires are made up of same material and have same lengths. The first wire has circular cross-section of radius a and the other wire has square cross-section of side length $\frac{a}{2}$. The ratio of resistivity of first wire to the second wire is

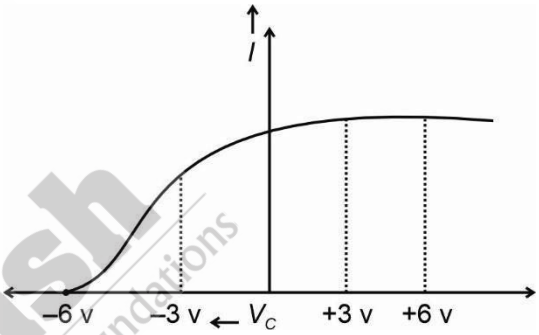
(1) $2\pi : 1$

(2) $1 : 1$

(3) $1 : \pi$

(4) $1 : 2$

42. Photoelectric emission from a metal surface is analysed experimentally. A variation of photocurrent with collector potential is plotted as shown below. If incident light of wavelength 1550 Å is used then work function of the metal is



(1) 6 eV (2) 2 eV

(3) 4 eV (4) Zero

43. A microscope is focused on an ink mark on the top of a table. If we place a glass slab (μ = 1.5) of 6 cm thick on it, how should the microscope be moved to focus the ink spot again?

(1) 2 cm upward

(2) 1 cm upward

(3) 2 cm downward

(4) 1 cm downward

44. If an object is placed 30 cm infront of a concave mirror of focal length 20 cm, the image will be

(1) Diminished, upright, virtual

(2) Enlarged, inverted and virtual

(3) Diminished, inverted, real

(4) Enlarged, inverted and real

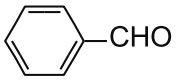
45. The potential energy of system of two equal positive point charges of 1 μC each held 1 m apart in air is

(1) 9×10^{-2} J (2) 9×10^{-3} J

(3) 9×10^{-4} J (4) 9×10^{3} J

CHEMISTRY

46. Positive Fehling's test is given by

(1) 

(2) $CH_3 - CHO$

(3) 

(4) Ph – COOH

47. The most basic compound in aqueous solution is

(1) CH_3NH_2

(2) $(CH_3)_2NH$

(3) NH_3

(4) $(CH_3)_3N$

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

Assertion (A): In the titration of HCl and NaOH, phenolphthalein is used as a suitable indicator.

Reason (R): Phenolphthalein is pink coloured in acidic medium.

In the light of above statements, choose the correct answer.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) (A) is false but (R) is true

(3) (A) is true but (R) is false

(4) Both (A) and (R) are true but (R) is not the correct explanation of (A)

49. The number of angular nodes and radial nodes in 3*p* orbital are respectively

(1) 0 and 1

(2) 1 and 0

(3) 1 and 1

(4) 3 and 1

50. Identify the option with correct number and types of bonds in orthophosphorous acid

(a) One P–O–P bond (b) Two P – OH bonds

(c) One P – H bond (d) One P=O bond

Choose the correct answer.

(1) (a) and (c) only

(2) (b), (c) and (d) only

(3) (a), (b) and (d) only

(4) (a) and (d) only

51. The reduction potential of hydrogen electrode at pH = 5 will be [consider $P_{H_2} = 1$ bar , T = 298 K]

(1) 0.3 V

(2) –0.3 V

(3) +0.414 V

(4) 0.06 V

52. The sodium fusion extract of an organic compound on acidification with acetic acid and addition of lead acetate solution gives a black precipitate. The organic compound contains

(1) Nitrogen

(2) Halogen

(3) Sulphur

(4) Phosphorous

53. Which of the following is expected to be coloured in aqueous solutions?

(1) Sc^{3+} (2) Ti^{4+}

(3) Cr^{3+} (4) Cu^{+}

54. In hydrogen atom, the de Broglie wavelength of an electron in the fourth Bohr orbit is

(1) 423.2 pm

(2) 211.6 pm

(3) 211.6 π pm

(4) 423.2 π pm

55. Pick out the correct statement with respect to $[Co(CN)_6]^{3-}$.

(1) It is sp^3d^2 hybridised and octahedral

(2) It is sp^3 hybridised and tetrahedral

(3) It is d^2sp^3 hybridised and octahedral

(4) It is dsp^2 hybridised and square planar

56. Consider the following statements

Statement I: Phenol is converted to benzene on heating with zinc dust.

Statement II: Phenol is oxidized to benzoquinone on reaction with chromic acid.

In the light of above statements, choose the correct answer from the options given below.

(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

57. Match List-I with List-II.

	List-I (Vitamin)		List-II (Deficiency disease)
(a)	Vitamin A	(i)	Convulsions
(b)	Vitamin B_6	(ii)	Pernicious anaemia
(c)	Vitamin B_{12}	(iii)	Xerophthalmia
(d)	Vitamin E	(iv)	Increased fragility of RBC's

Choose the correct answer from the options given below.

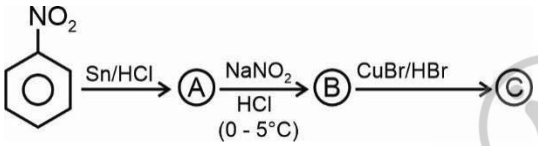
(1) (a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)

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

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

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

58. Consider the following reaction



Select the correct option for the above reaction sequence.

(1) Compound A is $PhCH_2NH_2$

(2) Compound B is Ph $\overset{+}{N_2}\overset{-}{Cl}$

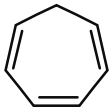
(3) Compound C is meta-directing for electrophilic substitution reaction.

(4) Compound 'C' is 

59. Which of the following will react with NaOH most readily?

(1) 

(2) 

(3) 

(4) 

60. Which of the following compounds does not give iodoform test?

(1) C_2H_5OH

(2) CH_3CHO

(3) CH_3COCH_3

(4) CH_3OH

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

Assertion (A): The solubility of salts of weak acids like acetate increases at lower pH.

Reason (R): At lower pH the concentration of the anion decreases due to its protonation.

In the light of above statements, choose the correct answer.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) (A) is false but (R) is true

(3) (A) is true but (R) is false

(4) Both (A) and (R) are true but (R) is not the correct explanation of (A)

62. Which one of the following pairs of species has the same bond order?

(1) O_2, N_2 (2) O_2, O_2^{2-}

(3) NO^+, CO (4) N_2, O_2^-

63. Select correct statement about Boric acid (H_3BO_3).

(1) It is insoluble in hot water

(2) It is a Lewis acid

(3) It is an Arrhenius acid

(4) It is a tribasic acid

64. Compound that does not liberate nitrogen gas on heating is

(1) $Ba(N_3)_2$

(2) $(NH_4)_2Cr_2O_7$

(3) $(NH_4)_2SO_4$

(4) NH_4NO_2

65. Two liquids A and B are mixed in a molar ratio of 1 : 3. If $P_A^o = 100$ mmHg and $P_B^o = 400$ mmHg, then the mole fraction of A in vapour phase is

(1) $\frac{1}{13}$ (2) $\frac{3}{13}$

(3) $\frac{4}{13}$ (4) $\frac{10}{13}$

66. Sucrose on hydrolysis gives

(1) D-(+)-Glucose and D-(+)-Glucose

(2) D-(+)-Glucose and D-(–)-Fructose

(3) D-(–)-Fructose and D-(–)-Fructose

(4) D-(–)-Glucose and D-(+)-Fructose

67. Consider the following reaction sequence

$$\text{Butan-2-ol} \xrightarrow[\text{(iii) } CO_2, H_3O^+]{\text{(i) } SOCl_2 \text{ (ii) Mg, dry ether}} \underset{\text{(Product)}}{B}$$

The product 'B' will be

(1) Butanoic acid

(2) 2-Methylbutanoic acid

(3) Pentanoic acid

(4) 3-Methylpentanoic acid

68. In two molal solution that contains 0.8 mole of a solute there is

(1) 800 mL of solvent

(2) 100 g of solvent

(3) 400 g of solvent

(4) 400 mL of solvent

69. Number of oxygen atom(s) shared by one SiO_4^{4-} unit in a Pyrosilicate is

(1) 1 (2) 2

(3) 3 (4) 4

70. Identify disproportionation reaction among the following.

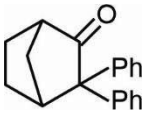
(1) $CH_4 + 4Cl_2 \rightarrow CCl_4 + 4HCl$

(2) $2F_2 + 2OH^- \rightarrow 2F^- + OF_2 + H_2O$

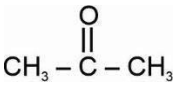
(3) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

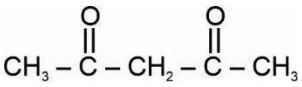
(4) $2NO_2 + 2OH^- \rightarrow NO_2^- + NO_3^- + H_2O$

71. Which of the following compounds show tautomerism?

(a) 

(b) 

(c) 

(d) 

Choose the correct option.

(1) (c) and (d) only (2) (a) and (b) only

(3) (a), (b) and (c) only (4) (a), (b) and (d) only

72. For a reversible reaction $A(s) \rightleftharpoons 2B(g) + C(g)$, if at T(K) equilibrium pressure is P then K_p will be

(1) P^3 (2) $\frac{4}{27}P^3$

(3) $\frac{P^3}{27}$ (4) $\frac{P^3}{9}$

73. In Carius tube for sulphur estimation, if 0.482 g of an organic compound gave 0.960 g of Barium sulphate then the percentage of sulphur in the compound is approximately (Molar mass of $BaSO_4$ = 233 g mol^{-1})

(1) 42% (2) 27%

(3) 19% (4) 38%

74. In which of the following reactions, K_C and K_P are equal?

(1) $3H_2(g) + N_2(g) \rightleftharpoons 2NH_3(g)$

(2) $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

(3) $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$

(4) $2C(s) + O_2(g) \rightleftharpoons 2CO(g)$

75. Equivalent weight of H_2SO_4 in the reaction $H_2SO_4 + NaOH \rightarrow NaHSO_4 + H_2O$ will be (if molecular mass of H_2SO_4 is M)

(1) M (2) $\frac{M}{2}$

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

76. Ozonolysis products of a reactant 'X' are acetone and butan-2-one, then 'X' will be

(1) 3-Ethyl-2-methylbut-2-ene

(2) 3-Methyl-2-propylprop-2-ene

(3) 2,3-Dimethylpent-2-ene

(4) 3,4-Diethylbut-1-ene

77. Given below are two statements.

Statement I: For an ideal solution, Δ_{mix} H = 0 and Δ_{mix} V = 0.

Statement II: Mixture of n-hexane and n-heptane is a non-ideal solution.

In the light of above statements choose the most appropriate answer from the options given below.

(1) Both the statement I and statement II are correct

(2) Both the 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

78. Given below are two statements.

Statement I: The acidic strength of monosubstituted nitrophenol is lower than phenol.

Statement II: o-nitrophenol is more acidic than m-nitrophenol.

In the light of above statements choose the correct option.

(1) Statement I is correct but statement II is incorrect

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

(3) Both statement I and statement II are correct

(4) Both statement I and statement II are incorrect

79. Match List-I with List-II.

	List-I (Species)		**List-II (Shape)**
(a)	SF_4	(i)	See-Saw
(b)	SO_2	(ii)	Linear
(c)	I_3^-	(iii)	Bent
(d)	ClF_3	(iv)	T-shape

Choose the correct answer from the options given below.

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

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

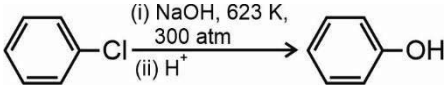
(3) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

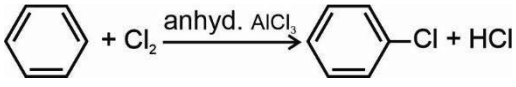
(4) (a)-(i), (b)-(iii), (c)-(iv), (d)-(ii)

80. Among the following reactions, the reaction that proceeds through an electrophilic substitution, is

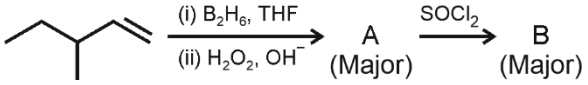
(1) $CH_2 = CH_2 + Br_2 \xrightarrow{CCl_4} CH_2(Br) - CH_2(Br)$

(2) $CH_3CH_2CH_2CH_3 \xrightarrow[\text{Or heat}]{Cl_2/UV\ light} CH_3CH_2CHClCH_3$

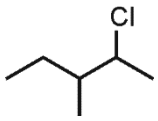
(3) 

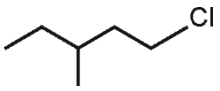
(4) 

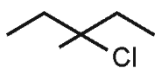
81. Consider the following reaction sequence,

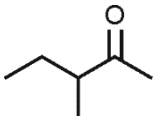


Major product B is

(1) 

(2) 

(3) 

(4) 

82. The equilibrium constant of the reaction, $Cu(s) + 2Ag^+(aq) \rightarrow Cu^{2+}(aq) + 2Ag(s)$ $E^o = 0.46$ V at 298 K approximately is

(1) 3.92×10^{15} (2) 4.92×10^{16}

(3) 2.08×10^{14} (4) 1.92×10^{17}

83. Maximum number of atoms are present in

(1) 0.1 mol $C_6H_{12}O_6$

(2) 0.2 mol $C_{12}H_{22}O_{11}$

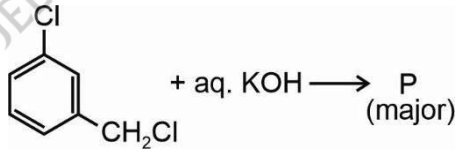
(3) 0.3 mol $Na_2C_2O_4$

(4) 0.1 mol H_2O

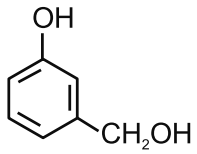
84. Total number of electrons in Na atom for which azimuthal quantum number (l) is 1, is

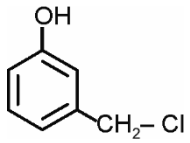
(1) 10 (2) 9

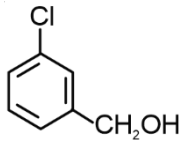
(3) 6 (4) 7

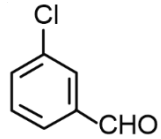
85. 

Major product (P) of the above reaction is

(1) 

(2) 

(3) 

(4) 

86. Excess of brown fumes are evolved when a salt is heated with copper turnings and concentrated sulphuric acid. The salt contains

(1) Sulphate ions

(2) Nitrate ions

(3) Nitrite ions

(4) Carbonate ions

87. Match List-I with List-II.

	List-I (Complexes)		List-II (Type of Isomerism)
(a)	$[Co(NH_3)_5NO_2]Br_2$ and $[Co(NH_3)_5ONO]Br_2$	(i)	Ionisation Isomerism
(b)	$[Cr(NH_3)_6][Co(CN)_6]$ and $[Co(NH_3)_6]\ [Cr(CN)_6]$	(ii)	Coordination Isomerism
(c)	$[Co(H_2O)_5(SO_4)]Br$ and $[Co(H_2O)_5Br]\ SO_4$	(iii)	Linkage Isomerism
(d)	$[Cr(H_2O)_6]Cl_3$ and $[Cr(H_2O)_5Cl]Cl_2.H_2O$	(iv)	Solvate Isomerism

Choose the correct answer from the options given below.

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

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

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

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

88. Given below are the two statements

Statement I: For irreversible expansion of an ideal gas under isothermal condition, $\Delta U = 0$ and $\Delta S_{total} \neq 0$.

Statement II: For free expansion of an ideal gas under isothermal condition, $q = 0$, $\Delta T = 0$ and $w = 0$.

In the light of above statements, choose the correct answer.

(1) Statement I is correct but statement II is incorrect

(2) Both statement I and statement II are correct

(3) Both statement I and statement II are incorrect

(4) Statement I is incorrect but statement II is correct

89. The molar entropy change for the melting of ice at 0°C is 5.260 cal/(mol K). The enthalpy of fusion of water is

(1) 0.563 kcal/mol

(2) 2.765 kcal/mol

(3) 1.436 kcal/mol

(4) 13.982 kcal/mol

90. In a zero order reaction for every 10° rise of temperature the rate is doubled. If the temperature is increased from 10°C to 80°C, the rate of the reaction will become

(1) 256 times (2) 128 times

(3) 32 times (4) 512 times

BOTANY

91. Read the following statements.

a. Vegetative reproduction takes place by fragmentation.

b. Sexual spores are endogenously produced.

c. Mycelium is unbranched and septate

d. Sex organs are absent in them

Regarding mushrooms the **correct** statements are

(1) a and c

(2) b, c and d

(3) a and d

(4) b and d only

92. Which of the following karyotypic conditions can lead to the disorder which causes gynaecomastia as one of the prominent features?

(1) 44 + XXY (2) 44 + XY

(3) 44 + XO (4) 44 + XYY

93. Which of the following criteria is **not** considered while identifying any areas as hotspots?

(1) They have very high degree of endemism

(2) They have very high level of species richness

(3) These regions are resistant to habitat loss

(4) They require certain measures to save it from extinction

94. Which process is performed in a template dependent manner?

(1) Tailing of hnRNA

(2) Capping of hnRNA

(3) RNA polymerisation by a polynucleotide phosphorylase

(4) Synthesis of hnRNA

95. False fruit
(1) Develops only from the ovary
(2) Develops without the process of fertilisation
(3) Are seedless and produced through application of auxin
(4) Develops from other floral parts along with ovary

96. Select the **incorrect** match
(1) Ethanol – Fungal product
(2) Cyclosporin A – Bacterial product
(3) Butyric acid – Produced by *Clostridium*
(4) Streptokinase – Used as clot buster

97. In which among the following cases, a child will exhibit heterozygous genotype for blood group A?
A. Both the parents have same genotype, *i.e.,* I^AI^0.
B. Both the parents are of blood group O.
C. One of the parent may have blood group AB while other have O.
(1) Only A (2) B and C
(3) Only B (4) A and C

98. Read the following statements and choose the appropriate option.
Statement A : In C_3 plant, RuBisCO functions only as carboxylase.
Statement B : Photorespiration results in the release of CO_2 with the utilisation of ATP.
(1) Only statement A is correct
(2) Only statement B is correct
(3) Both the statement A and statement B are correct
(4) Both the statement A and statement B are incorrect

99. Read the following statements and choose the **correct** option.
(a) Net primary productivity is the available biomass for the consumption to secondary consumers.
(b) Primary productivity depends on the plant species and environmental factors.
(1) Only (a) is true
(2) Both (a) and (b) are true
(3) Only (b) is true
(4) Both (a) and (b) are false

100. Select the **incorrect** statement w.r.t. physiological effects of ethylene.
(1) It increases the number of female flowers in cucumber
(2) It accelerates abscission of plant parts
(3) It inhibits sprouting of potato tubers
(4) It breaks dormancy of seeds

101. Select the **incorrect** statement w.r.t. mesosomes.
(1) They are formed by the extension of plasma membrane into the cell
(2) These are present in the form of vesicles, tubules and lamellae
(3) They contain photosynthetic pigments in some prokaryotes like cyanobacteria
(4) They help in cell wall formation

102. The beginning of diplotene is recognised by which of the given events?
(1) Bivalent formation
(2) Crossing over
(3) Terminalisation of chiasmata
(4) Dissolution of synaptonemal complex

103. If a meiocyte has 18 chromosomes, how many bivalents will be formed during the process of meiosis I?
(1) 9 (2) 18
(3) 36 (4) 4

104. How many kingdoms w.r.t. Whittaker's classification system exhibit only autotrophic and only heterotrophic mode of nutrition respectively?
(1) 1 and 3 (2) 1 and 2
(3) 2 and 1 (4) 2 and 3

105. From which of the given regions of root-tip, root hairs develop?
(1) Root cap
(2) Region of meristematic activity
(3) Region of elongation
(4) Region of maturation

106. There is no secondary growth in monocot root, **because**
(1) Of the presence of large pith
(2) Vascular bundle is polyarch in them
(3) Of the absence of cambium
(4) Root never increases its girth

107. Select the **incorrect** statement w.r.t photosystem II.
(1) The reaction centre is P_{680}
(2) PS II occurs only on the outer surface of stroma lamellae
(3) Involved in non-cyclic photophosphorylation
(4) Associated with splitting of water and release of O_2

108. Which of the given steps is catalysed by pacemaker enzyme w.r.t. EMP pathway?
(1) Glucose to Glucose-6-phosphate
(2) Fructose-6-phosphate to fructose-1, 6-bisphosphate
(3) 2-phosphoglycerate to phosphoenolpyruvate
(4) Glyceraldehyde-3-phosphate to 1, 3-bisphosphoglyceric acid

109. Select the **incorrect** match.
(1) Tuber – Potato
(2) Rhizome – Banana
(3) Bulb – Onion
(4) Phyllode – *Euphorbia*

110. To fix every CO_2 molecule entering Calvin cycle, how many molecules of ATP and NADPH are required respectively?
(1) 3 and 2 (2) 2 and 3
(3) 4 and 5 (4) 5 and 4

111. Consider the following statements.
Assertion (A): In the plant cell, the concentration of ions is significantly higher in the vacuole than in the cytoplasm.
Reason (R): The membrane of the vacuole facilitates the transport of ions, only along the concentration gradient into a vacuole.
In the light of above statements choose the **correct** option.
(1) Both (A) and (R) are true and (R) is correct explanation of (A)
(2) Both (A) and (R) are true and (R) is not the correct explanation of (A)
(3) (A) is true and (R) is false
(4) Both (A) and (R) are false

112. Racemose inflorescence is characterised by
(1) Limited growth of main axis
(2) Basipetal order of flowers borne on it
(3) Position of flower at the tip of main axis
(4) Presence of younger flowers towards the apex

113. Choose the statement which is **not** true for endodermis.
(1) In roots, it comprises of barrel-shaped cells in which the cell walls have deposition of suberin
(2) It is present in both monocot stem and root
(3) It is innermost layer of cortex
(4) The cells of endodermis can store starch grains in dicot stem

114. All of the following are characteristic of flowers pollinated by insects or animals, **except**
(1) They are large and colorful
(2) They provide rewards to pollinator
(3) They can be white and rich in nectar
(4) Non-sticky pollens are present in them

115. *i* gene of *lac* operon
(1) Produces repressor protein which binds to RNA polymerase
(2) Synthesises β galactosidase
(3) Cannot express itself in absence of lactose
(4) Is a constitutive gene

116. DNA in the nucleus of a typical mammalian cell contains 6.6×10^9 bp. How many nucleosomes in the chromatin are possible?
(1) 3.3×10^7 (2) 6.6×10^7
(3) 6.6×10^9 (4) 3.3×10^9

117. Match the following column w.r.t. sacred groves/lake with their locations and choose the **correct** option.

Column I	Column II
a. Khecheopalri lake	(i) Karnataka
b. Aravalli hills	(ii) Meghalaya
c. Western Ghats	(iii) Sikkim
d. Khasi and Jaintia hills	(iv) Rajasthan

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

118. The equation that represents geometric fashion of growth of a population is
(1) $\frac{dN}{dt} = rN$ (2) $\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$
(3) $\frac{dN}{dt} = rN\left(\frac{K}{K+N}\right)$ (4) $\frac{dN}{dt} = N^{rt}$

119. Identify the **incorrect** statements about sickle cell anaemia and choose the option accordingly.

i. This disorder is caused by a transition mutation.

ii. This disorder is developed due to presence of two pairs of alleles on the same chromosome.

iii. It is an autosomal recessive trait.

iv. This defect is caused due to substitution of valine by glutamine in β-chain of haemoglobin molecule.

v. Individual with genotype Hb^AHb^s is normal but carrier.

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

(3) iv and v (4) i, ii and iv

120. Read the following statements

Assertion (A): At the end of meiosis II four haploid cells are formed from a diploid cell.

Reason (R): Meiosis involves pairing of homologous chromosomes and recombination between non-sister chromatids of homologous chromosomes.

In the light of above statements, choose the **correct** option.

(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 and (R) is false

(4) Both (A) and (R) are false

121. Which of the given gametic fusion results nullisomic condition?

(1) n × (n – 1) (2) (n – 1) × (n – 1)

(3) n × (n + 1) (4) (n + 1) × (n + 1)

122. Which of the given is **not** the characteristics of anthropogenic ecosystem?

(1) Possess self regulatory mechanism

(2) Have little diversity

(3) Little cycling of nutrients

(4) Simple food chain

123. Select the **incorrect** match w.r.t. number of species of different vertebrates in Amazonian rain forest.

(1) Mammals – 427

(2) Birds – 13000

(3) Reptiles – 378

(4) Fishes – 3000

124. **Assertion (A) :** When a person goes to high altitudes he experiences altitude sickness with symptoms like difficulty in breathing and heart palpitations.

Reason (R) : Due to low atmospheric pressure at high attitudes, the body does not get sufficient oxygen.

In the light of above statements, choose the **correct** option.

(1) Both (A) and (R) are false statements

(2) Only (R) is true statement

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

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

125. In taxonomic hierarchy, the number of similar characters of the organisms belonging to the particular category decreases from

(a) Kingdom to species

(b) Lowest to highest rank

(c) Highest to lowest rank

The **correct** one(s) is/are:

(1) Only (a) (2) Both (a) and (b)

(3) Only (b) (4) Both (a) and (c)

126. For artificial hybridisation, there is no need of emasculation when

(1) Female parent produces unisexual flowers

(2) Female parent produces bisexual flowers

(3) There is a synchrony between maturation of stamen and pistil in a flower

(4) Anthers and stigma lie close to each other in a flower

127. In which of the following plants, ovary becomes two-chambered due to false septum?

(1) *Argemone*

(2) *Dianthus*

(3) *Primrose*

(4) Pea

128. Who performed series of experiments that revealed essential role of air in the growth of green plants?

(1) Cornelius van Niel

(2) Jan Ingenhousz

(3) Julius von Sachs

(4) Joseph Priestley

129. The simple tissue which is dead and without protoplast performs all of the given functions, **except**
(1) Provides mechanical support to the organs
(2) Provides gritty texture to guava
(3) Performs photosynthesis
(4) Provides hardness to fruit walls of nuts, walnuts, almonds etc.

130. Select the **incorrect** statement w.r.t. humus.
(1) It is formed by the process of decomposition of detritus
(2) It is light coloured amorphous substance
(3) It is slightly acidic, colloidal and acts as reservoir of nutrients
(4) It is highly resistant to microbial action

131. Mark the **incorrect** statement regarding the features of human genome.
(1) The human genome contains 3164.7 million bp
(2) The DNA sequences that are repeated many times have direct coding functions in genome.
(3) Less than 2% of the genome codes for proteins
(4) The average gene consists of 3000 bases, but the size vary greatly

132. The physical process w.r.t treatment of waste water involves
(A) Removal of floating debris
(B) Formation of flocs in aeration tank
(C) Digestion of bacteria and fungi present in sludge in anaerobic sludge digester
(D) Removal of soil and small pebbles
The **correct** ones are
(1) A and B (2) B and C
(3) C and D (4) A and D

133. Mark the **incorrect** statement for the members of algae which have mannitol and laminarin as stored food?
(1) They are brown algae
(2) They contain chlorophyll *a*, *c* and fucoxanthin as major pigments
(3) They have cellulose, pectin and polysulphate esters in their cell wall
(4) Their zoospores are characterised by presence of two, unequal, lateral flagella

134. Which of the given statements is **not** true for stenothermal organisms?
(1) They live in areas where the temperature is uniform throughout the year
(2) They cannot tolerate large temperature variations
(3) They include most of the mammals and birds
(4) They are restricted to narrow range of temperatures.

135. Select the **odd** one out w.r.t. features of liverworts.
(1) Plant body is thalloid
(2) Sporophyte is the main plant body
(3) Asexual reproduction takes place by fragmentation
(4) Spores produced within the capsule germinate to form free-living gametophyte

ZOOLOGY

136. In a human female, all of the given structures are paired, **except**
(1) Labia minora (2) Vagina
(3) Fallopian tube (4) Labia majora

137. How many of the structures given in the box below are present in the head region of a cockroach?

Ocellus, Mandible, Filiform antennae, Tegmina, Hypopharynx

Select the **correct** option.
(1) Four (2) Three
(3) Five (4) Two

138. When a person is sweating profusely, it may lead to
(1) Activation of osmoreceptors that stimulate the synthesis of ADH in neurohypophysis
(2) Activation of JG cells to inhibit the release of renin which converts angiotensinogen to angiotensin II
(3) Release of aldosterone from adrenal medulla
(4) Activation of osmoreceptors that stimulate hypothalamus to release vasopressin from posterior pituitary

139. Relaxation of skeletal muscles induced by masking of actin filaments occurs, when Ca^{++} are pumped back into
(1) Sarcomere
(2) Sarcoplasmic cisternae
(3) Sarcoplasm
(4) Sarcolemma

140. The feature not exhibited by *Struthio* is
(1) Oviparity
(2) Air sacs for exchange of gases between body cells and atmosphere
(3) Fully ossified bones
(4) Presence of beak

141. Match column I and column II w.r.t. secondary metabolites.

	Column I		Column II
a.	Polymeric substance	(i)	Cellulose
b.	Pigment	(ii)	Curcumin
c.	Drug	(iii)	Codeine
d.	Lectin	(iv)	Carotenoid
		(v)	Concanavalin A

Choose the **correct** option.
(1) a(ii), b(iii), c(iv), d(i) (2) a(i), b(iv), c(ii), d(v)
(3) a(i), b(iii), c(iv), d(v) (4) a(i), b(ii), c(iv), d(v)

142. Choose the **incorrect** statement w.r.t. oxyhaemoglobin.
(1) Increase in hydrogen ion concentration at the tissue site favors its dissociation.
(2) Its formation is primarily related to partial pressure of O_2.
(3) Its concentration is increased during carbon monoxide poisoning.
(4) The oxyhaemoglobin dissociation curve is sigmoid in shape.

143. In response to A blood pressure, aldosterone causes B of C from DCT. Choose the option that fills the blanks **correctly**.

	A	B	C
(1)	High	Secretion	K^+
(2)	Low	Reabsorption	K^+
(3)	High	Secretion	Na^+
(4)	Low	Reabsorption	Na^+

144. The total number of metatarsals in one limb of an adult man is
(1) Equal to the number of lumbar vertebrae in an adult man
(2) More than the number of metacarpals in one limb of man
(3) Less than the number of floating ribs in an adult man
(4) Equal to the number of false ribs in an adult man

145. Select the **incorrect** statement.
(1) *Myxine* exhibits open type of blood circulation.
(2) In *Carcharodon*, notochord is persistent throughout the life.
(3) *Pterophyllum* exhibits external fertilisation.
(4) In *Hyla*, tympanum represents the ear.

146. Read the following statements A and B w.r.t bioreactors and choose the correct option.

Statement A: Bioreactors can provide the optimum conditions for achieving the desired product.

Statement B: Bioreactors are well suited for large-scale production of microorganisms under aseptic conditions.
(1) Both the statements A and B are correct
(2) Both the statements A and B are incorrect
(3) Only statement A is correct
(4) Only statement B is correct

147. Arrange the following lung volumes/capacities in increasing order according to their numerical values in a healthy adult man.
a. Tidal volume
b. Residual volume
c. Expiratory capacity
d. Vital capacity

Choose the **correct** option.
(1) a < c < b < d
(2) a < d < c < b
(3) a < b < c < d
(4) a < d < b < c

148. Given below are four statements regarding human blood circulatory system:
(a) Arteries are thick-walled and have narrow lumen as compared to veins.
(b) Angina is acute chest pain due to reduced blood circulation to the brain.
(c) Person with blood group AB can donate blood to person with any blood group.
(d) Calcium ions play a very important role in blood clotting.
Which of the above statements are correct?
(1) (a) and (d) (2) (a) and (b)
(3) (b) and (c) (4) (c) and (d)

149. If a female wants to postpone her menstruation for few days then which of the following hormones she should take?
(1) Estrogen
(2) Progesterone
(3) Synthetic oxytocin
(4) Follicle stimulating hormone

150. Choose the **incorrect** match.
(1) Chitin - Polymer of N-acetyl glucosamine
(2) Inulin - Polymer of fructose
(3) Lipids - Polymer of fatty acids
(4) Starch - Polymer of glucose

151. Select the **incorrect** option w.r.t. general features of cyclostomes.
(1) Presence of sucking and circular mouth
(2) Absence of paired fins
(3) Body devoid of scales
(4) Shows endoparasitism

152. Which peptide chain is removed from proinsulin during its conversion into mature insulin?
(1) Chain B and chain C
(2) Only chain A
(3) Only chain C
(4) Chain A and chain C

153. Which one of the following is not true for *Rana*?
(1) They are homeotherms.
(2) Their feet have webbed digits.
(3) They exhibit both cutaneous and pulmonary respiration.
(4) Their tongue is bilobed.

154. The correct order of different stages of embryonic development w.r.t. humans among the following is
(1) 2-cell stage → 4-cell stage → Morula → Blastocyst
(2) 2-cell stage → 4-cell stage → Blastocyst → Morula
(3) 4-cell stage → 8-cell stage → Gastrula → Morula
(4) 3-cell stage → 7-cell stage → Blastocyst → Morula

155. Closure of semilunar valves occur at the beginning of **'X'** whereas closure of tricuspid valve occurs at the beginning of **'Y'**. Identify '**X**' and '**Y**' and select the correct option.

	X	Y
(1)	Atrial diastole	Atrial systole
(2)	Joint diastole	Atrial systole
(3)	Ventricular systole	Atrial diastole
(4)	Joint diastole	Ventricular systole

156. Consider the following statements.
a. Allows passage of small amounts of urea into the medullary interstitium
b. Selective secretion of H^+ and K^+
The above mentioned functions are performed by
(1) PCT
(2) DCT
(3) Loop of Henle
(4) Collecting duct

157. Juxta medullary nephrons in humans can be differentiated from cortical nephrons on the basis of all of the following, **except**
(1) Former participates in counter current mechanism
(2) Vasa recta is highly reduced or absent in latter
(3) Latter comprise the major portion of the total nephrons
(4) Latter produce more concentrated urine than former

158. Select the correct option w.r.t. HIV.
(1) T_H cells act like a HIV-factory
(2) Viral DNA is converted into viral RNA by reverse transcriptase
(3) It is an enveloped virus
(4) HIV infection spreads by merely touching the infected person

159. In a monomeric antibody, the number of intrachain and interchain disulphide bonds respectively are
(1) Four, Twelve
(2) Twelve, Four
(3) Twelve, Six
(4) Six, Twelve

160. The hormone which attains peak twice during a 28 days menstrual cycle in a healthy female
(1) Is progesterone
(2) Is a pituitary hormone
(3) Acts *via* second messengers
(4) Interacts with intracellular receptors

161. Consider the following features.
a. Body is covered by calcareous shell and does not show metameric segmentation.
b. Feather-like gills are present in the mantle cavity.

Choose the **correct** set of organisms which exhibit the above features.
(1) *Octopus* and *Limulus*
(2) *Pila* and *Dentalium*
(3) *Pinctada* and *Laccifer*
(4) *Nereis* and *Aplysia*

162. In the structure of an antibody, antigen binding sites are present in close proximity of
(1) N terminal of each light and heavy chain
(2) C terminal of heavy and light chain
(3) C terminal of only the heavy chain
(4) N terminal of only the light chain

163. The velocity of an enzyme catalysed chemical reaction rises at first but it becomes constant after a certain concentration of substrate because
(1) All the enzymes bind only to non-specific substrates
(2) As the reaction proceeds, enzymes are used up completely in the chemical reaction
(3) All the active sites of the enzymes are completely occupied on increasing the substrate concentration
(4) Chemical reaction always stops after a particular time period

164. How many of the cells given in the box below are haploid in nature?

Gamete mother cell, Primary spermatocyte, Primary oocyte, Secondary spermatocyte, Ovum, Spermatid

Select the **correct** option.
(1) Two
(2) Three
(3) Four
(4) Five

165. In RNAi, there is silencing of the target mRNA due to
(1) ssRNA
(2) dsRNA
(3) dsDNA
(4) ssDNA

166. In gene therapy, periodic infusion of genetically engineered lymphocytes is required for the treatment of ADA deficiency, as
(1) They get damaged after genetic engineering
(2) They are mortal cells
(3) All the cDNA is used up together at once after their insertion
(4) Life span of lymphocytes gets altered after genetic engineering

167. Select the **incorrect** match among the following with respect to organisms and their respiratory organs.
(1) *Planaria* – Body surface
(2) *Pheretima* – Moist cuticle
(3) Prawn – Lungs
(4) *Periplaneta americana* – Tracheal tubes

168. If a student wish to isolate the genetic material of HIV from an infected host cell.
Which among the following must not be used by him?
(1) Amylase
(2) Protease
(3) Ribonuclease
(4) Lipase

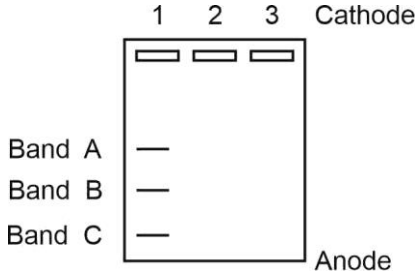
169. The role of oxygen in the regulation of respiratory rhythm is quite insignificant and changes in CO_2 and H^+ concentration in blood are recognized by receptors present in
(1) Vena cava and aorta
(2) Coronary artery and pulmonary vein
(3) Aortic arch and carotid artery
(4) Pulmonary artery and vena cava

170. In ZIFT, embryos upto which cell stage is transferred into the fallopian tube?
(1) 16 blastomeres
(2) 8 blastomeres
(3) 64 blastomeres
(4) 32 blastomeres

171. In electrophoretic apparatus, the separated DNA fragments can be visualised only after staining the DNA with __X__ followed by exposure to __Y__ .
Identify 'X' and 'Y' and select the **correct** option.

	X	Y
(1)	Bromophenol blue	UV radiation
(2)	Ethidium bromide	UV radiation
(3)	Aniline blue	Visible light
(4)	Ethidium bromide	Visible light

172. The order of three different linear fragments of DNA on the basis of their sizes is as follows:
P > Q > R
After performing agarose gel electrophoresis, the obtained positions of these three DNA fragments are shown in lane 1.



Select the **correct** option w.r.t. the gel image.
(1) Band A – Represents 'Q' DNA fragment
(2) Band B – Represents DNA fragment having larger size than DNA fragment in band A
(3) Band C – Represents the smallest DNA fragment
(4) Band A and B – Represent DNA fragments of same size

177. A patch of nodal tissue present in the lower left corner of the right atrium close to the atrio-ventricular septum is known as
(1) AVN
(2) SAN
(3) Bundle of His
(4) Purkinje fibres

178. Which of the following ions play the most crucial role in exocytosis of synaptic vesicles at the chemical synapse?
(1) Na^+ (2) K^+
(3) Ca^{2+} (4) Cl^-

179. Which of the following set of diseases are transmitted by insect vector?
(1) Typhoid, Plague, Tuberculosis
(2) Diphtheria, Measles, Small pox
(3) Ringworm, Amoebiasis, Filariasis
(4) Malaria, Filariasis, Dengue

180. In a population of 200 individuals, 32 individuals are suffering from a disease caused by homozygous recessive condition. If the population is in Hardy-Weinberg equilibrium, what will be the number of heterozyogous individuals?
(1) 16 (2) 48
(3) 96 (4) 72

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