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STRONG ROOTS CREATE MERIT

NEET Like MOCK TEST-03

Time : 3.00Hrs

200 MCQs PATTERN

Max.Marks.720

INSTRUCTIONS

1. This test will be a 3 hours Test, Maximum Marks 720M.
2. This test consists of Physics, Chemistry, Botany and Zoology questions with equal weightage of 180 marks.
3. Each question is of 4 marks.
4. There are four parts in the question paper, consisting Part-I Physics (Q.no.1 to 50), Part-II Chemistry (Q.no.51 to 100), Part-III Botany (Q. no. 101 to 150) and Part-IV Zoology (Q. no.151 to 200). Each part is divided into two Sections, Section A consists of 35 multiple choice questions & Section-B consists of 15 Multiple choice questions, out of these 15 questions candidates can choose to attempt any 10 questions.
5. There will be only one correct choice in the given four choices for each question. For each question 4 marks will be awarded for correct choice, 1 mark will be deducted for incorrect choice and zero mark will be awarded for unattempted question.
6. Any textual, printed or written material, mobile phones, calculator etc. is not allowed for the students appearing for the test.
7. All calculations / written work should be done in the rough sheet provided.

Syllabus

Physics : CLASS XI & XII

Chemistry : CLASS XI & XII



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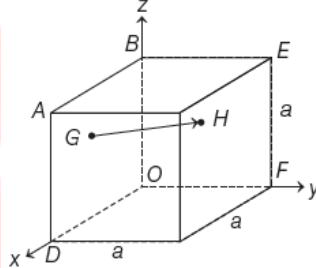
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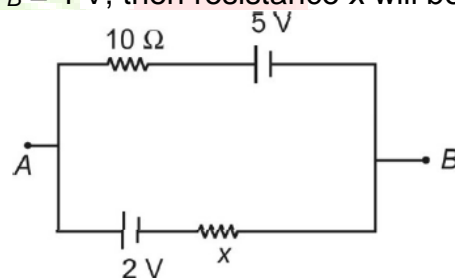
Biology : CLASS XI & XII

PART-1 : PHYSICS : SECTION-A

1. If $\frac{A}{\mu_0}$ has the dimensions $[MLT^{-4}]$, what is A?
(1) square of electric flux (2) square of magnetic flux
(3) square of electric field (4) square of energy
2. In the cube of side 'a' shown in the figure, the vector from the central point of the face ABOD to the central point of the face BEFO will be

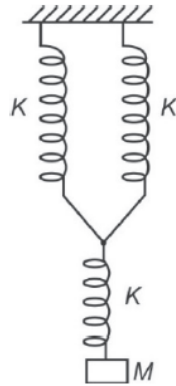


- (1) $\frac{1}{2}a(\hat{i} - \hat{k})$ (2) $\frac{1}{2}a(\hat{j} - \hat{i})$ (3) $\frac{1}{2}a(\hat{j} - \hat{k})$ (4) $\frac{1}{2}a(\hat{k} - \hat{i})$
3. A proton moves from large distance, with a speed of v m/s directly towards a free proton initially at rest. The distance of closest approach of two protons is (symbol have usual meanings)
- (1) $\frac{1}{4\pi\epsilon_0} \frac{2e^2}{mv^2}$ (2) $\frac{1}{4\pi\epsilon_0} \frac{4e^2}{mv^2}$ (3) $\frac{1}{4\pi\epsilon_0} \frac{e^2}{mv^2}$ (4) $\frac{1}{4\pi\epsilon_0} \frac{8e^2}{mv^2}$
4. In the circuit given, If $V_A - V_B = 4$ V, then resistance x will be



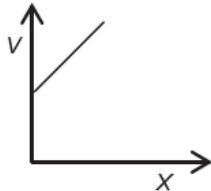
- (1) 5 Ω (2) 10 Ω (3) 15 Ω (4) 20 Ω
5. In a metallic conductor, drift velocity v_d is related with electric field E as
(1) $v_d \propto E^2$ (2) $v_d \propto E^{1/2}$ (3) $v_d \propto E^0$ (4) $v_d \propto E$
6. The height from surface of earth at which value of g becomes one fourth of that on earth's surface will be (R is radius of earth)
- (1) 2.45 R (2) 1.45 R (3) R (4) $\frac{5}{6} R$
7. The time period of mass M attached to the combination of three ideal and identical springs shown in figure is



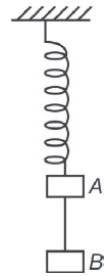


(1) $T = 2\pi\sqrt{\frac{M}{K}}$ (2) $T = 2\pi\sqrt{\frac{M}{3K}}$ (3) $T = 2\pi\sqrt{\frac{3M}{2K}}$ (4) $T = 2\pi\sqrt{\frac{2M}{3K}}$

8. In Millikan's oil drop experiment an oil drop carrying a charge Q is held stationary by a potential difference of 600 V between the horizontal plates. To keep the drop of double the radius stationary the potential difference has to be 3200 V. The charge on second drop is
- (1) $\frac{Q}{2}$ (2) $\frac{3Q}{2}$ (3) $\frac{4Q}{3}$ (4) $\frac{8Q}{6}$
9. The radius of a disc is 1.2 cm. Its area according to idea of significant figures is ($\pi = 3.14$)
- (1) 4.5216 cm² (2) 4.521 cm² (3) 4.52 cm² (4) 4.5 cm²
10. The velocity – displacement graph of a particle moving in a straight line is as shown in figure. The acceleration of the particle is

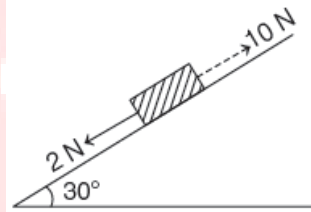


- (1) Constant (2) Increases linearly with x
(3) Increases parabolically with x (4) none of these
11. A body is projected with a velocity of $(3\hat{i} + 4\hat{j})$ m/s. The maximum height attained by projectile is ($g = 10 \text{ ms}^{-2}$)
- (1) 0.8 m (2) 8 m (3) 4 m (4) 0.4 m
12. Two blocks A and B of masses $2m$ and m respectively are connected by a massless inextensible string. The whole system is suspended by a massless spring as shown in figure. The magnitude of acceleration of A and B immediately after the string is cut, are respectively



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

13. A block kept on a rough inclined plane, as shown in the figure, remains at rest upto a maximum force 2 N down the inclined plane. The maximum external force up the inclined plane that does not move the block is 10 N. The coefficient of static friction between the block and the plane is (Take, $g = 10\text{m/s}^2$)



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

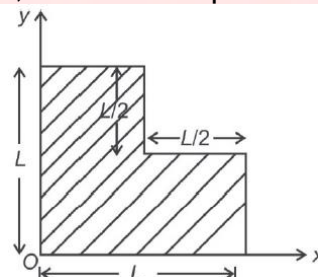
14. Under the action of a force a body of mass 5 kg moves such that its position as a function of time is given by $x = \frac{t^3}{3} + \frac{t^4}{4}$, where x is in metre and t is in second. The work done by force in first 2 s is

- (1) 160 J (2) 30 J (3) 80 J (4) 360 J

15. Two equal masses initially moving along the same straight line with velocity +4 m/s and -5 m/s respectively collides elastically. Their respective velocities after the collision will be

- (1) -5 m/s and +3 m/s (2) +4 m/s and -4 m/s
(3) -4 m/s and +4 m/s (4) -5 m/s and +4 m/s

16. The centre of mass, Co-ordinates, of a uniform plate of shape as shown in figure is



- (1) $\left(\frac{L}{2}, \frac{L}{2}\right)$ (2) $\left(\frac{5L}{12}, \frac{5L}{12}\right)$ (3) $\left(\frac{5}{3}L, \frac{2}{3}L\right)$ (4) $\left(\frac{3L}{4}, \frac{L}{2}\right)$

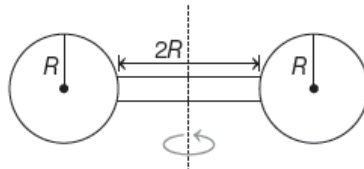
17. A circular road of radius 10 m has angle of banking of 45° . If coefficient of friction between the road and tyre is 0.6, then the maximum safe speed of a car of mass 2000 kg will be



($g = 10 \text{ m/s}^2$)

- (1) 20 m/s (2) 25 m/s (3) 24 m/s (4) 30 m/s

18. Two identical spherical balls of mass M and radius R each are stuck on two ends of a rod of length $2R$ and mass M (see figure).



The moment of inertia of the system about the axis passing perpendicularly through the centre of the rod is

- (1) $\frac{137}{15} MR^2$ (2) $\frac{209}{15} MR^2$ (3) $\frac{17}{15} MR^2$ (4) $\frac{152}{15} MR^2$

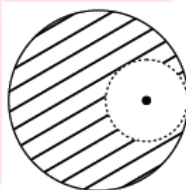
19. A block of mass m slides down on a smooth inclined plane and reaches the bottom with speed v . If the same mass is in the form of a ring which rolls down on an identical inclined plane, where friction is sufficient for pure rolling, the speed of ring at the bottom will be

- (1) v (2) $v\sqrt{2}$ (3) $\frac{v}{\sqrt{2}}$ (4) $v\sqrt{\frac{2}{5}}$

20. A long vertical pole of length l is standing vertically with one end hinged at the floor. If the pole is released and allowed to fall, then the angular velocity of rod just before hitting the floor is

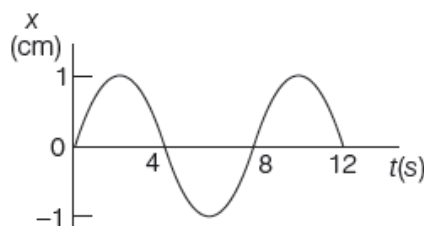
- (1) $\omega = \sqrt{\frac{3g}{l}}$ (2) $\omega = \sqrt{3gl}$ (3) $\omega = \sqrt{\frac{3}{2}gl}$ (4) $\omega = \sqrt{\frac{3g}{2l}}$

21. From a solid sphere of mass M and radius R , a spherical portion of radius $\left(\frac{R}{2}\right)$ is removed as shown in the figure. Taking gravitational potential $V = 0$ at $r = \infty$, the potential at the centre of the cavity thus formed is ($G =$ gravitational constant)



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

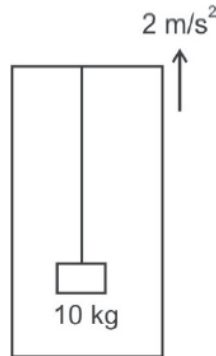
22. The $x-t$ graph of a particle undergoing simple harmonic motion is shown below. The acceleration of the particle at $t = 4/3$ s is





- (1) $\frac{\sqrt{3}}{32} \pi^2 \text{cms}^{-2}$ (2) $\frac{-\pi^2}{32} \text{cms}^{-2}$ (3) $\frac{\pi^2}{32} \text{cms}^{-2}$ (4) $-\frac{\sqrt{3}}{32} \pi^2 \text{cms}^{-2}$

23. One end of a light steel wire is fixed to ceiling of an elevator moving up with an acceleration of 2 m/s^2 and a load of 10 kg hangs from other end. If cross sectional area of wire is 2 mm^2 , the longitudinal strain in wire is ($g = 10 \text{ m/s}^2$, $Y = 2 \times 10^{11} \text{ N/m}^2$)



- (1) 2.5×10^{-5} (2) 3.0×10^{-4} (3) 2.0×10^{-5} (4) 2.5×10^{-4}
24. Assume that a drop of liquid evaporates by decrease in its surface energy, so that its temperature remains unchanged. What should be the minimum radius of the drop for this to be possible? The surface tension is T , density of liquid is ρ and L is its latent heat of vaporisation

- (1) $\frac{\rho L}{T}$ (2) $\sqrt{\frac{T}{\rho L}}$ (3) $\frac{T}{\rho L}$ (4) $\frac{2T}{\rho L}$

25. An aeroplane of mass $3 \times 10^4 \text{ kg}$ and total wing area 120 m^2 is in level flight at some height. The difference in pressure between upper and lower surfaces in kilopascal is ($g = 10 \text{ m/s}^2$)
- (1) 2.5 (2) 5.0 (3) 10.0 (4) 15.0

26. Consider an ideal gas confined in an isolated closed chamber. As the gas undergoes an adiabatic expansion, the average time of collision between molecules increases as V^q , where V is the volume of the gas. The value of q is $\left(\gamma = \frac{C_p}{C_v} \right)$

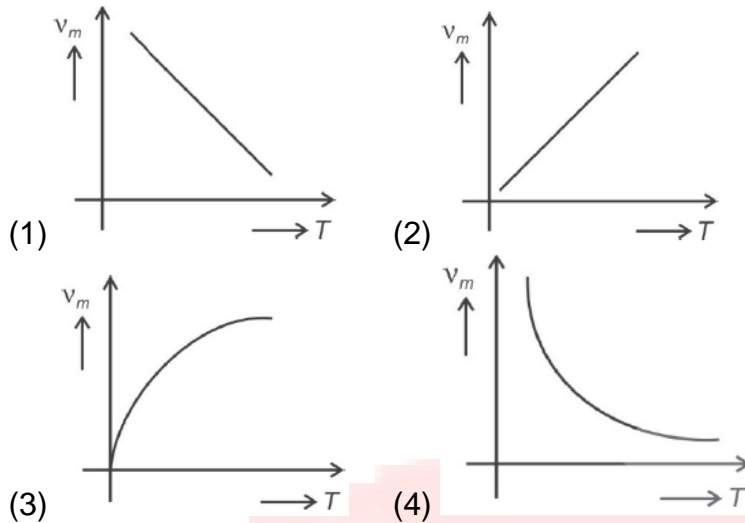
- (1) $\frac{3\gamma+5}{6}$ (2) $\frac{\gamma+1}{2}$ (3) $\frac{3\gamma-5}{6}$ (4) $\frac{\gamma-1}{2}$

27. In an isobaric process of an ideal gas, the ratio of heat supplied to work done by system is
- (1) 1 (2) $\frac{\gamma}{\gamma-1}$ (3) $\frac{\gamma-1}{\gamma}$ (4) γ

28. An ideal gas engine operates in Carnot cycle between temperatures 227°C and 127°C . It absorbs $6 \times 10^4 \text{ cal}$ of heat from high temperature. The amount of heat converted into work is

- (1) $4.8 \times 10^4 \text{ cal}$ (2) $2.4 \times 10^4 \text{ cal}$ (3) $3.6 \times 10^4 \text{ cal}$ (4) $1.2 \times 10^4 \text{ cal}$

29. Which of the following is the frequency (ν_m) of maximum intensity emitted v/s absolute temperature graph for a perfect black body?



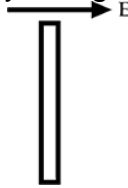
30. Which of the following is not true for the progressive wave $y = 4 \sin 2\pi \left(\frac{t}{0.02} - \frac{x}{100} \right)$ where x and y are in cm and t in second?
- (1) Amplitude of wave is 4 cm
(2) The wavelength of wave is 100 cm
(3) The frequency of wave is 50 Hz
(4) The velocity of wave propagation is 2 cm/s
31. A tuning fork of frequency 480 Hz is used in an experiment for measuring speed of sound (v) in air by resonance tube method. Resonance is observed to occur at two successive lengths of the air column $l_1 = 30$ cm and $l_2 = 70$ cm. Then, v is equal to
- (1) 332ms^{-1} (2) 384ms^{-1} (3) 338ms^{-1} (4) 379ms^{-1}
32. An object lies at the bottom of a salt water lake ($\mu = \sqrt{2}$) at a depth of 10 m. For the object to be visible to an observer in a boat on the surface, the maximum horizontal distance of the boat from the object is
- (1) 10 m (2) 20 m (3) 14 m (4) 7 m
33. A ray of light is incident at an angle of incidence of 60° on the face of a prism having prism angle of 30° . The ray emerging out of the prism makes an angle of 30° with the incident ray. The refractive index of material of prism is
- (1) $\sqrt{2}$ (2) $\sqrt{3}$ (3) 1.5 (4) 1.6
34. The focal length of objective and eye lenses of a telescope are respectively 200 cm and 5 cm. The maximum magnifying power of telescope is
- (1) - 40 (2) - 48 (3) - 60 (4) - 100
35. In Young's double slit experiment, the third bright fringe for light of wavelength 600 nm coincides with the fourth bright fringe for another source of light in same arrangement. The wavelength of second light source is
- (1) 360 nm (2) 400 nm (3) 450 nm (4) 550 nm

SECTION-B



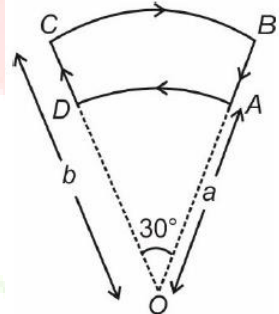
36. The axis of two polaroids are crossed. If now one of them is rotated through 30° and unpolarised light of intensity I_0 is incident on first polaroid, then intensity of transmitted light is
- (1) $\frac{I_0}{4}$ (2) $\frac{3I_0}{4}$ (3) $\frac{3I_0}{8}$ (4) $\frac{I_0}{8}$

37. An uncharged conducting large plate is placed as shown. Now an electric field E toward right is applied. Find the induced charge density on right surface of the plate

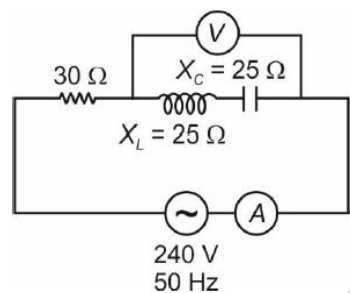


- (1) $-\epsilon_0 E$ (2) $\epsilon_0 E$ (3) $-2\epsilon_0 E$ (4) $2\epsilon_0 E$
38. You are given four capacitors each of capacitance $12 \mu\text{F}$. How can you connect the given capacitors to obtain a capacitance of $9 \mu\text{F}$.
- (1) All in series
(2) Two in parallel and other two in series
(3) Three in series and one in parallel with them
(4) Three in parallel one in series

39. A loop $ABCD$ carries a current I . The angle made by AB and CD at origin O is 30° . The magnitude of magnetic field due to loop $ABCD$ at origin is



- (1) Zero (2) $\frac{\mu_0 I (b-a)}{24ab}$ (3) $\frac{\mu_0 I}{4\pi} \left(\frac{b-a}{ab} \right)$ (4) $\frac{\mu_0 I}{6} \left(\frac{b-a}{ab} \right)$
40. Substance in which magnetic moment of a single atom and specimen both are zero, in the absence of magnetising field are known as
- (1) Paramagnetic (2) Ferromagnetic (3) Diamagnetic (4) Both 1 and 3
41. In the given circuit shown in figure. The voltmeter and ammeter readings are respectively (reactance are indicated in figure)

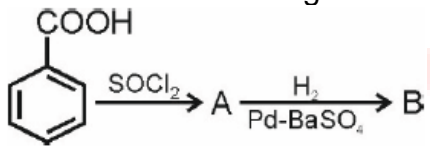
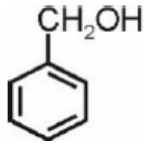
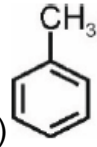
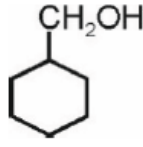
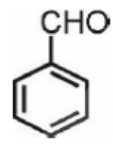




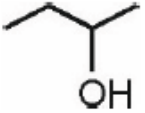
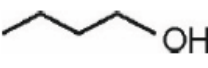
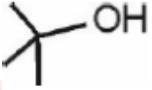
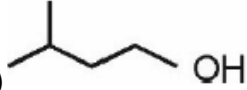
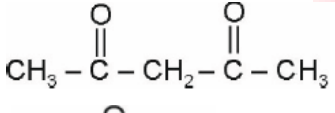
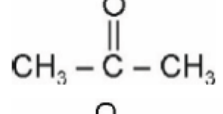
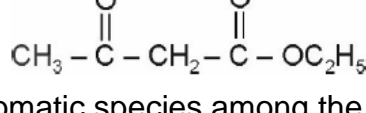




42. (1) 0 V, 3 A (2) 0 V, 8 A (3) 0 V, 8 16 A (4) 150 2 V, 8 2 A
A proton and an α -particle are having through the same kinetic energy. The ratio of their de-Broglie wavelength $\left(\frac{\lambda_p}{\lambda_\alpha}\right)$
43. (1) 1 : 1 (2) 1 : 2 (3) 2 : 1 (4) 4 : 1
200 g of a radioactive substance of half life 2 hour is taken. The amount of substance left after 10 hour is
44. (1) 3.125 g (2) 6.25 g (3) 12.5 g (4) 25.0 g
In the given circuit current through the Zener diode, of break down voltage of 12 V is
-
- (1) 6 mA (2) 4 mA (3) 7 mA (4) 10 mA
45. In semiconductor diode, the barrier potential offers opposition to flow of
(1) Majority charge carriers in both regions
(2) Minority charge carriers in both, regions
(3) Both majority and minority charge carriers
(4) Neither majority charge carrier, nor minority charge carrier
46. A solid cylindrical rod of cross-sectional radius $R = 2$ cm is carrying current I along its axis. The magnetic field at a perpendicular distance $r = 1$ cm from the central axis is
(1) $\frac{\mu_0 I}{2\pi}$ (2) $\frac{\mu_0 I}{4\pi}$ (3) $\frac{\mu_0 I}{8\pi}$ (4) $\frac{\mu_0 I}{16\pi}$
47. In a compound microscope the focal length of two lenses are 1.5 cm and 6.25 cm. An object is placed at 2 cm from objective lens and final image is formed at 25 cm from the eyepiece. The length of the microscope is
(1) 6 cm (2) 7.75 cm (3) 9.25 cm (4) 11 cm
48. A circular beam of light of diameter $\sqrt{6}$ cm falls on a plane surface of glass. The angle of incidence is 60° and the refractive index of glass is $\mu = \frac{3}{2}$. The diameter of refracted beam is
(1) 4 cm (2) 5 cm (3) 3 cm (4) 4.5 cm
49. A light ray is incident on a glass surface at polarizing angle 54° . The angle between the reflected ray and the refracted ray is
(1) 144° (2) 90° (3) 164° (4) 138°
50. The electric current passing through a resistance R is given by $I = 2 + 4 \sin \omega t$. The RMS value of this current is (symbols have SI units)
(1) $2\sqrt{2}A$ (2) $2\sqrt{3}A$ (3) 6 A (4) $3\sqrt{2}A$



PART-2 : CHEMISTRY : SECTION-A

51. Which among the following species is pyramidal in shape?
(1) BCl_3 (2) ClF_3 (3) PCl_3 (4) SF_4
52. If a particle of mass 500 mg is moving with a velocity of 100 m/s then the de-Broglie wavelength of the particle will be ($h = 6.625 \times 10^{-34}$ Js)
(1) 1.325×10^{-35} m (2) 1.325×10^{-32} m (3) 1.32×10^{-34} m (4) 1.32×10^{-31} m
53. Which among the following elements shows diagonal relationship with beryllium?
(1) Na (2) Li (3) Al (4) Si
54. Maximum number of electrons present in *d* subshell is
(1) 2 (2) 6 (3) 10 (4) 5
55. The species which does not exist is
(1) H_2^+ (2) Be_2 (3) O_2^- (4) N_2^+
56. Glucose does not react with which of the following reagents?
(1) NH_2OH (2) Br_2/water (3) NaHSO_3 (4) Acetic anhydride
57. Pair of compounds which cannot be distinguished by I_2/NaOH is
(1) Benzaldehyde and acetaldehyde
(2) Acetone and Ethanol
(3) Benzophenone and Acetophenone
(4) Propan-2-ol and Propan-1-ol
58. Ratio of rate of diffusion of H_2 and O_2 under identical condition of temperature and pressure will be
(1) 16 : 1 (2) 8 : 1 (3) 4 : 1 (4) $2\sqrt{2} : 1$
59. The gas which is most easy to liquify is
(1) CH_4 (2) NH_3 (3) H_2 (4) CO_2
60. pH of 0.2 M sodium phenoxide solution will be (pK_a of phenol = 9.95)
(1) 8.2 (2) 9.3 (3) 10.4 (4) 11.6
61. Which among the following is a Lewis base?
(1) B_2H_6 (2) AlCl_3 (3) H_2O (4) FeCl_3
62. Consider the following reaction
- 
- Product B is
- (1)  (2)  (3)  (4) 
63. The alkyl halide which react fastest by S_N^1 mechanism is



64. In the Haber process of synthesis of ammonia 28 g of N_2 is mixed with 10 g of hydrogen molecules. Maximum number of moles of ammonia produced in the reaction is
(1) 0.5 (2) 1.5 (3) 3.5 (4) 2
65. Molality of urea in an aqueous solution is 5. Mass percentage of urea in the solution is
(1) 12.2% (2) 23% (3) 32.2% (4) 18%
66. Which alcohol on reaction with Cu at 573 K gives ketone as major product?
(1)  (2)  (3)  (4) 
67. Condensation polymer among the following is
(1) Teflon (2) Orlon (3) Nylon 6, 6 (4) Buna-N
68. Incorrect statement among the following is
(1) Proline is a non-essential amino acid
(2) Glycine is an optically inactive molecule
(3) Myosin is fibrous protein
(4) Insulin has fibre-like structure
69. The compound which has maximum enol content is
(1) CH_3CHO
(2) 
(3) 
(4) 
70. Aromatic species among the following is
(1)  (2)  (3)  (4) 
71. Consider the following reaction
 $Ph-CH=CH_2 \xrightarrow{H_3O^+} A(\text{Major}) \xrightarrow[\text{(ii) } H_3O^+]{\text{(i) } I_2/NaOH} B+C$
Product B and C are
(1) $Ph-COOH$ and CHI_3 (2) $PhCH_2OH$ and CHI_3
(3) $Ph-CHO$ and CHI_3 (4) $PhCH_2I$ and $HCOOH$
72. Oxidation state of phosphorous in hypophosphorous acid is
(1) +3 (2) +1 (3) +4 (4) +5
73. Strongest acidic nature among the following is of



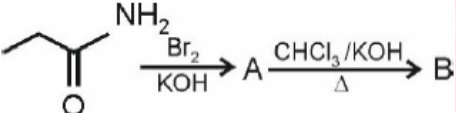
74. (1) H_2Se (2) H_2O (3) H_2S (4) H_2Te
 H_3PO_3 on heating gives
(1) H_3PO_4 (2) PH_3 (3) H_3PO_2 (4) Both (1) and (2)
75. Which gas is evolved when Zinc reacts with dilute nitric acid?
(1) NO_2 (2) NO (3) N_2O (4) N_2
76. Which among the following is a tranquilizer?
(1) Equanil (2) Ranitidine (3) Dimetapp (4) Aspirin
77. The metal ion which is colourless in aqueous medium is
(1) Sc^{3+} (2) Cr^{3+} (3) Fe^{3+} (4) Co^{3+}
78. Which coordination complex is diamagnetic in nature?
(1) $[\text{Mn}(\text{Cl})_6]^{3-}$ (2) $[\text{Fe}(\text{CN})_6]^{3-}$ (3) $[\text{Co}(\text{C}_2\text{O}_4)_3]^{3-}$ (4) $[\text{CoF}_6]^{3-}$
79. Strongest field ligand among the following is
(1) I^- (2) $\bar{\text{O}}\text{H}$ (3) $\bar{\text{C}}\text{N}$ (4) NH_3
80. Moles of $\text{C}_2\text{O}_4^{2-}$ ion oxidised by 2 moles of permanganate ion in acidic medium is
(1) 10 (2) 7 (3) 5 (4) 3
81. Approximate percentage of lanthanoids in mischmetal is
(1) 75% (2) 25% (3) 50% (4) 95%
82. Correct order of electron affinity of O, S, Se and Te is
(1) $\text{O} > \text{S} > \text{Se} > \text{Te}$ (2) $\text{S} > \text{Se} > \text{Te} > \text{O}$
(3) $\text{Te} > \text{Se} > \text{S} > \text{O}$ (4) $\text{S} > \text{O} > \text{Se} > \text{Te}$
83. 18 g of glucose is dissolved in 250 g of water. The freezing point of the solution will be (K_f of water = $1.86 \text{ K kg mol}^{-1}$)
(1) -1.8°C (2) -0.6°C (3) -1.2°C (4) -0.74°C
84. Packing fraction of body centred cubic structure is
(1) $\frac{\pi}{6}$ (2) $\frac{\sqrt{3}}{8}\pi$ (3) $\frac{\sqrt{2}}{8}\pi$ (4) $\frac{\sqrt{3}}{6}\pi$
85. If conductivity of 0.01 M KCl solution is 0.0015 S cm^{-1} then the molar conductivity of the solution will be
(1) $15 \text{ S cm}^2 \text{ mol}^{-1}$
(2) $150 \text{ S cm}^2 \text{ mol}^{-1}$
(3) $1.5 \times 10^3 \text{ S cm}^2 \text{ mol}^{-1}$
(4) $1.5 \text{ S cm}^2 \text{ mol}^{-1}$

SECTION - B

86. Which metal will not liberate hydrogen when reacted with dilute H_2SO_4
(1) Zn (2) Al (3) Ca (4) Au
87. If Rate constant of a chemical reaction is $4.606 \times 10^{-3} \text{ s}^{-1}$ then the time required for the completion of 90% of the reaction is
(1) 200 s (2) 300 s (3) 400 s (4) 500 s
88. Incorrect statement among the following is
(1) A catalyst does not change the equilibrium constant of a reaction
(2) A catalyst alters Gibbs energy, ΔG of a reaction
(3) Order of a reaction is an experimental quantity
(4) For complex reaction molecularity has no meaning





89. As_2S_3 sol is most easily precipitated by which ion?
(1) Al^{3+} (2) PO_4^{3-} (3) Ba^{2+} (4) SO_4^{2-}
90. The metal which is refined by distillation is
(1) Zn (2) Ni (3) Zr (4) Ti
91. Which is most easily soluble in water
(1) $MgSO_4$ (2) $CaSO_4$ (3) $BaSO_4$ (4) $SrSO_4$
92. When Aluminium carbide reacts with D_2O then the product formed is
(1) C_2D_2 (2) CD_4 (3) C_2D_4 (4) C_2D_6
93. Hybridisation of carbon in graphite is/are
(1) sp^2 (2) sp (3) sp^3 (4) Both (1) and (3)
94. 2 mole of an ideal gas undergo isothermal and reversible expansion from 2 litre to 20 litre at $127^\circ C$ the work done by the gas is
(1) -25.2 kJ (2) -15.3 kJ (3) -7.5 kJ (4) -35.1 kJ
95. Consider the following reaction sequence
- 
- Product B is
(1) CH_3CH_2CN (2) $CH_3CH_2CH_2CN$
(3) CH_3CH_2NC (4) $CH_3CH_2CH_2NC$
96. Which of the following is homopolymer as well as condensation polymer?
(1) Nylon 6, 6 (2) Polythene (3) Dacron (4) Nylon-6
97. Number of electrons present in 10 g of water sample having each molecule containing 10 neutrons are
(1) $10 N_A$ (2) N_A (3) $5 N_A$ (4) $20 N_A$
98. Which elements in the periodic table should be in liquid state at $35^\circ C$?
(1) Hg, Br_2 only (2) Hg, Cs only (3) Hg, Cs, Br_2 only (4) Hg, Br_2, Cs, Ga
99. Which of the following is correct relation for stability?
(1) $B_2 > O_2^{2-}$ (2) $H_2 < Li_2$ (3) $O_2 = O_2^+$ (4) $N_2 < N_2^+$
100. Which of the following is the correct real gas equation for 2 moles of gas at high pressure?
(1) $PV - 2 Pb = RT$ (2) $PV - Pb = RT$ (3) $PV = 2 (RT + Pb)$ (4) $PV - Pb = 2 RT$

PART-3 : BOTANY : SECTION-A

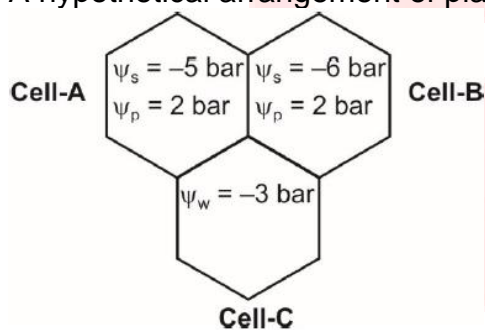
101. How many centrioles does a centrosome have?
(1) One (2) Zero (3) Two (4) Nine
102. A cell biologist found golgi apparatus and endoplasmic reticulum are in close association w.r.t. function during his experiment. Select the most appropriate reason for such association.
(1) A number of proteins are synthesized by ribosomes on the endoplasmic reticulum
(2) Golgi apparatus principally performs the function of packaging materials
(3) Materials to be packaged in the form of vesicles from the ER, fuse with cis face of the golgi apparatus and move towards maturing face



- (4) Golgi cisternae are concentrically arranged near the nucleus with its distinct forming and maturing face
103. The A together with B forms mitotic apparatus. Choose the option which **correctly** fills up the given blanks A and B.
- | A | B |
|----------------|----------------|
| (1) One aster | Spindle fibre |
| (2) Centriole | Centrosome |
| (3) Two asters | Spindle fibres |
| (4) Centrosome | Microtubule |
104. During which phase of Karyokinesis, chromosomes cluster at opposite spindle poles and their identity is lost as discrete elements?
- (1) Prophase (2) Metaphase (3) Anaphase (4) Telophase
105. Arrange the following categories in ascending order w.r.t. classification of Mango.
- A – Dicotyledonae, B – Anacardiaceae
C – Sapindales, D - Angiospermae
- (1) B→C→D→A (2) B→C→A→D (3) A→B→C→D (4) D→C→B→A
106. Scientific names of horsetails and monerans respectively are standardised by
- (1) ICBN and ICNB (2) ICNCP and ICNB
(3) ICBN and ICZN (4) ICZN and ICBN
107. State the given statements as True (T) or False (F) and select the **correct** option.
- A.** Cr-Jacob disease (CJD) in humans is caused by prions.
B. Infectious agent that causes potato spindle tuber disease lacks the protein coat which is found in viruses.
C. The algal component of lichens absorbs mineral nutrient and water for its partner.
- | | A | B | C |
|-----|---|---|---|
| (1) | T | T | T |
| (2) | T | T | F |
| (3) | F | F | T |
| (4) | T | F | F |
108. The cell wall is indestructible and impregnated with silica. This cell wall is found in members of which of the given kingdom according to Whittaker's classification system.
- (1) Monera (2) Protista (3) Fungi (4) Plantae
109. Select the plant from the given option in which more than two leaves arise at a node and form a whorl.
- (1) *Alstonia* (2) Mustard (3) Guava (4) *Calotropis*
110. Select the **incorrect** match w.r.t. types of aestivation of petals and plants.
- (1) *Calotropis* – Valvate
(2) Cotton – Twisted
(3) China rose – Vexillary
(4) *Cassia* – Imbricate
111. A tissue is a group of cells
- (1) Common in origin and usually performs a common function
(2) Dissimilar in origin and function



- (3) Common in origin but usually performs dissimilar function
(4) Dissimilar in origin and usually performs dissimilar function
112. The simple tissues which are 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, walnut, almond etc.
113. Sporophyte is dominant in all of the given plant groups, **except**
- (1) Angiosperm
 - (2) Bryophyte
 - (3) Gymnosperm
 - (4) Pteridophyte
114. Main plant body is thalloid and has rhizoids in
- (1) *Marchantia*
 - (2) *Selaginella*
 - (3) *Ginkgo*
 - (4) *Eucalyptus*
115. A hypothetical arrangement of plant cells (A, B and C) is given below.



- Select the **incorrect** statement w.r.t. arrangement of given plant cells.
- (1) There is a reversible flow of water in Cell-A and Cell-C
 - (2) For Cell-B, DPD is 4 bar
 - (3) Cell-B receives water from both Cell-A and Cell-C
 - (4) Net flow of water is zero between Cell-A and Cell-B
116. Select the most possible effect on water potential if there is the loss of solute from medium.
- (1) ψ_w remains same
 - (2) ψ_w increases
 - (3) ψ_w decreases
 - (4) ψ_w becomes more negative
117. The first stable product of nitrogen fixation is
- (1) NH_3
 - (2) NO_3^-
 - (3) Glutamic acid
 - (4) NO_2^-
118. During nitrogen cycle, denitrification is carried by
- (1) *Nitrococcus*
 - (2) *Thiobacillus*
 - (3) *Nitrobacter*
 - (4) *Nitrosomonas*
119. Biosynthetic phase of photosynthesis directly depends on
- (1) Presence of light
 - (2) Assimilatory power produced during light reaction
 - (3) Splitting of water



- (4) Diffusion of O_2 out of chloroplasts
120. During the stage of reduction in Calvin cycle, how many ATP and NADPH respectively are required to remove one molecule of glucose from the pathway.
(1) 12, 12 (2) 2, 2 (3) 18, 12 (4) 3, 2
121. In glycolysis, which of the given steps involves ATP utilisation?
(1) Glucose-6-phosphate \rightarrow Fructose-6-phosphate
(2) Glyceraldehyde-3-phosphate \rightarrow 1,3, bisphosphoglyceric acid
(3) Fructose-6-phosphate \rightarrow Fructose 1,6-bisphosphate
(4) 1,3 bisphosphoglyceric acid \rightarrow 3-phosphoglyceric acid
122. Select the **incorrect** statement w.r.t. ATP synthesis in mitochondria.
(1) F_1 headpiece is a peripheral membrane protein complex and contains the site for synthesis of ATP
(2) F_0 forms the channel through which proton cross the inner membrane
(3) For each ATP produces, $2H^+$ passes through F_1 from the intermembrane space to the matrix
(4) The energy released in ETS is utilised in synthesising ATP with the help of ATP synthase
123. Heterophyllous development due to environment is seen in
(1) Cotton (2) Coriander (3) Larkspur (4) Buttercup
124. Which of the given hormones initiates germination in peanut seeds?
(1) Ethylene (2) Auxin (3) Cytokinin (4) ABA
125. Arrange the given living organisms in ascending order w.r.t. their life span?
Crow, Parrot, Horse, Cow, Dog
(1) Crow < Cow < Horse < Dog (2) Crow < Cow < Dog < Horse
(3) Cow < Parrot < Horse (4) Dog < Horse < Cow
126. Select the **incorrect** match.
(1) Conidia – *Penicillium* (2) Offset – *Bryophyllum*
(3) Budding – *Hydra* (4) Bulbil – *Agave*
127. Endosperm is completely consumed during embryo development in
(1) Pea (2) Castor (3) Maize (4) Wheat
128. During artificial hybridisation, there is no need of emasculation when
(1) Female parent produces unisexual flower
(2) Female parent produces bisexual flower
(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
129. The pitch of B-DNA is
(1) 34 Å (2) 3.4 Å (3) 340 Å (4) $0.034 \times 10 \text{ Å}$
130. Failure of cytokinesis after telophase stage of cell division results in
(1) Gain or loss of chromosomes in an organisms
(2) An increase in a whole set of chromosomes in an organism
(3) Turners syndrome
(4) Aneuploidy
131. A typical mammalian cell contains 6.6×10^9 bp. How many nucleosomes are possible?
(1) 6.6×10^9 (2) 6.6×10^7 (3) 3.3×10^7 (4) 3.3×10^9
132. Choose the **incorrectly** matched pair
(1) RNA – Chargaff's rule is not applicable





- (2) Cellulose – Plant cell wall
(3) Uridylic acid – Nucleotide
(4) Chlorophyll – Secondary metabolite of plant cell
133. Which of the given gene codes for repressor protein w.r.t. inducible lac operon system?
(1) *i* (2) *z* (3) *y* (4) *a*
134. Pusa Snowball K-1 bred by hybridisation and selection, for disease resistance to black rot is a variety of
(1) Cauliflower (2) *Brassica* (3) Cowpea (4) Wheat
135. Which of the given is vitamin 'C' enriched vegetable crops released by IARI, New Delhi?
(1) Spinach (2) Bitter gourd (3) Pumpkin (4) Carrot

SECTION-B

136. The dough, which is used for making foods such as dosa and idli is fermented by
(1) *Lactobacillus acidophilus* (2) *Propionibacterium*
(3) Yeast (4) *Streptococcus*
137. Statins have been commercialised as blood cholesterol lowering agent are produced by
(1) *Monascus purpureus* (2) *Trichoderma polysporum*
(3) *Streptococcus* (4) *Aspergillus niger*
138. Read statements **A** and **B** and choose the **correct** option.
Statement A : *Agrobacterium tumefaciens* infects several dicot plants and transforms normal plant cells into a tumor.
Statement B : Retroviruses in animals have the ability to transform normal cells into cancerous cells.
(1) Both statements A and B are correct (2) Both statements A and B are incorrect
(3) Only statement A is correct (4) Only statement B is correct
139. Bt toxin genes are isolated from A and encode for protein which when activated cause death of the B. Here A and B are

	A	B
(1)	<i>Agrobacterium</i>	Cotton plant
(2)	<i>Bacillus thuringiensis</i>	Insect
(3)	<i>Agrobacterium</i>	<i>Bacillus thuringiensis</i>
(4)	<i>E. coli</i>	Insect

140. GM plants have been useful in many ways. Genetic modification has
(1) Made crops more susceptible to abiotic stresses
(2) Helped to reduce post harvest losses
(3) Increased reliance on chemical pesticides
(4) Decreased efficiency of mineral usage by plants
141. *Meloidogyne incognita* which infects the roots of tobacco plants is a
(1) Bacterium (2) Fungus (3) Nematode (4) Protozoan
142. Which of the following is not a character of anemophilous plant :
(1) Enormous amount of pollen grains
(2) Each ovary has many ovules



- (3) Pollination by wind is more common amongst abiotic pollination
(4) They often possess well exposed stamens
143. Bacteria involved in Gobar gas production belong to
(1) Eubacteria (2) Actinomycetes (3) Archeobacteria (4) Mycoplasma
144. Infectious agent of potato spindle tuber disease is
(1) Protein with abnormal folding (2) DNA without protein coat
(3) RNA molecule without protein coat (4) RNA molecule with protein coat
145. Match the following

List-I

M. UUU

N. AAA

O. CCC

P. GGG

List-II

I. Proline

II. Glycine

III. Phenyl alanine

IV. Lysine

	M	N	O	P
(1)	III	IV	I	II
(2)	III	II	I	IV
(3)	IV	III	I	II
(4)	III	IV	II	I

146. How many of the given taxa belongs to the taxonomic category that has maximum number of common characters in comparison to other taxa?
Poales, Anacardiaceae, Homo sapiens,
Panthera leo, Poaceae, Convolvulaceae
1) Six (2) Five (3) Three (4) Two
147. The prime source of taxonomic studies of various species of plants, animals and other organisms is
1) Collection of actual specimens (2) Identification
3) Description (4) Nomenclature
148. Select incorrect matching w.r.t. aestivation considering all columns

1)	Methanogens	Obilgate anaerobes
2)	Whittaker's system of classification	Brought together Chlorella with Paramecium and Amoeba in Protista
3)	Recycling nutrients	Chemosynthetic bacteria
4)	Thermoacidophiles	Heterotrophs and pathogenic

149. Both haploid and diploid plant body are multicellular and independent in
1) Naked seeded vascular plants (2) Chlorophyllous non-embryophytes
3) Atracheophyte archegoniates (4) Vascular cryptogams
150. Embryo sac of flowering plants
1) Is a 3 celled structure (2) Is formed in microsporangium
3) Has 7 cells and 8 nuclei (4) Has pollen tetrads in them





PART-4 :ZOOLOGY : SECTION-A

151. Select the set of animals which possess pseudocoelom and exhibit bilateral symmetry.

- (1) *Locusta*, *Ancylostoma*, *Hirudinaria* (2) *Nereis*, *Ascaris*, *Pheretima*
(3) *Ascaris*, *Wuchereria*, *Ancylostoma* (4) *Fasciola*, *Pleurobrachia*, *Ctenoplana*

152. Proboscis gland in hemichordates is associated with the function of

- (1) Digestion (2) Respiration (3) Excretion (4) Bioluminescence

153. *Hisardale* is a result of

- (1) Inbreeding (2) Cross-breeding (3) Out-crossing (4) Interspecific hybridisation

154. Notochord extends from head to tail region and is persistent throughout their life in

- (1) *Ascidia* (2) *Salpa* (3) *Doliolum* (4) *Branchiostoma*

155. A type of cell junction which primarily helps to cement neighbouring cells to keep them together is called

- (1) Adhering junction (2) Tight junction (3) Gap junction (4) Basement membrane

156. Identify which of the following features can be associated with smooth muscle fibres and choose the **correct** option

- (a) Fusiform (b) Striated (c) Unbranched (d) Contractility

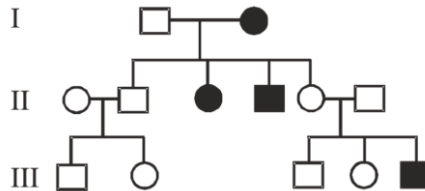
Choose the **correct** option.

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

157. Alveoli of lungs and blood vessels are internally lined by

- (1) Cuboidal epithelium (2) Squamous epithelium
(3) Columnar epithelium (4) Pseudostratified epithelium

158. A pedigree is shown below for disease the genetic make up of the first generation



- (1) AA, aa (2) Aa, aa (3) XY, X^C X^C (4) XY, X^A X^A

159. Among the red, green and brown algae that inhabit the sea, which is likely to be found in the deepest waters? why?

- (1) Blue algae because it absorb blue light
(2) Red algae because it absorb red light
(3) Red algae because it absorb blue light
(4) Green algae because it absorb red light

160. Match of the following column correctly :-



Column-I		Column-II	
A	Wild life protection Act	(i)	2015
B	Bhopal Gas tragedy	(ii)	1980
C	Joint forest Management	(iii)	1972
D	International year of soil	(iv)	1984

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

161. A type of dentition in which temporary milk teeth are replaced by a set of permanent or adult teeth is called

- (1) Thecodont (2) Acrodont (3) Diphyodont (4) Heterodont

162. For the given enzymatic reactions, choose the option which **correctly** identifies enzyme A and B
Di and Monoglycerides \xrightarrow{A} fatty acids + Glycerol Starch \xrightarrow{A} Disaccharides

	A	B
(1)	Sucrase	Amylase
(2)	Maltase	Trypsin
(3)	Lipase	Amylase
(4)	Nuclease	Dipeptidases

163. Vital capacity can be represented by all, **except**

- (1) IRV + TV + ERV (2) ERV + IC (3) TLC – RV (4) RV + TV

164. Select the set of factors favourable for dissociation of oxygen from the oxyhaemoglobin in the tissues

- (1) Low pO₂, high pCO₂, high H⁺ concentration
(2) High pO₂, low pCO₂, low H⁺ concentration
(3) Low pO₂, low pCO₂, high H⁺ concentration
(4) High pO₂, high pCO₂, low H⁺ concentration

165. Match the items given in **Column – I** with those in **Column – II** and select the correct option given below:

Column – I

- a. O blood group individuals
b. Basophils
c. AB blood group individuals

Column – II

- (i) Universal recipients
(ii) Granulocytes
(iii) Universal donors
(iv) Agranulocytes

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

166. Given below are four statements (a – d)

- (a) Coronary artery disease is referred to as atherosclerosis
(b) The P-wave of ECG represents the electrical excitation of the ventricles
(c) Annelids and chordates have a closed circulatory system





- (d) The cardiac output is defined as the volume of blood pumped out by each ventricle per stroke
Which two of the above statements are **correct**?
- (1) b and c (2) a and c (3) c and d (4) b and d
167. With decrease in blood pressure and blood volume the release of _____ is suppressed.
Choose the option which fills the blank **correctly**
- (1) Vasopressin (2) Aldosterone (3) ANF (4) Renin
168. How many of the following animals in the given box are ureotelic?
Frog, Pigeon, Lizards, Humans, Cockroach
- (1) Two (2) Three (3) Four (4) Five
169. The type of joint present between flat skull bones of cranium is
- (1) Cartilaginous joint (2) Fibrous joint (3) Saddle joint (4) Gliding joint
170. Select the **correct** option.
- (1) Rapid spasms in muscle due to low Ca^{++} in body fluid is termed muscular dystrophy.
(2) The 8th, 9th and 10th pairs of ribs are called floating ribs.
(3) The two halves of the pelvic girdle meet dorsally to form the pubic symphysis.
(4) Femur is the longest bone in human body.
171. Large triangular flat bone called scapula is situated in the dorsal part of the thorax between
- (1) 2nd and 7th ribs (2) 5th and 9th ribs
(3) 8th and 10th ribs (4) 2nd and 11th ribs
172. Select the **correct** match w.r.t structure of human eye.
- (1) Cornea – Anterior transparent extension of choroid layer
(2) Iris – Visible coloured portion of the eye
(3) Pupil – Inner layer of retina
(4) Lens – Diameter is regulated by the muscle fibres of iris
173. Select the **odd one** w.r.t brain stem.
- (1) Pons (2) Cerebellum (3) Medulla oblongata (4) Midbrain
174. Which one of the following pairs is **incorrectly** matched w.r.t hormone and its deficiency diseases/disorders?
- (1) GH – Pituitary dwarfism
(2) Thyroxine – Grave's disease
(3) Adrenal cortical hormones – Addison's disease
(4) ADH – Diabetes insipidus
175. Which among the given hormones would enter the target cell and interact with intracellular receptors to exert its function?
- (1) Insulin (2) Glucagon (3) Testosterone (4) Epinephrine
176. All of the following are parasitic adaptations seen in endoparasites **except**
- (1) Hooks
(2) Absorption of food through body surface
(3) Suckers
(4) Tegument with calcareous ossicles
177. Choose the **correct** set which contains only diploblastic animals.
- (1) *Physalia*, *Adamsia*, *Fasciola*
(2) *Pennatula*, Sea anemone, *Taenia*
(3) *Gorgonia*, *Meandrina*, *Adamsia*





(4) *Adamsia*, *Ancylostoma*, *Meandrina*

178. The water vascular system is distinctive feature of 'X' and help in 'Y'. Here 'X' and 'Y' are

	X	Y
(1)	Poriferans	Excretion
(2)	Echinoderms	Locomotion
(3)	Ctenophores	Transport of food
(4)	Cnidarians	Respiration

179. The malignant tumors show all the following features **except**

- (1) Uncontrolled and rapid growth
- (2) Damage to surrounding tissues
- (3) Presence of contact inhibition
- (4) Metastasis

180. Which of the following animals shows the presence of all the three features given below in the adult stage?

- (a) Air bladder (b) Bony endoskeleton (c) Operculum
(1) *Carcharodon* (2) *Labeo* (3) *Hyla* (4) *Petromyzon*

181. Read the given statements (a to e) and select the option which **correctly** states them as True (T) or False (F).

- (a) Respiration in flying fox is by lungs
- (b) Fertilisation is internal in *Ornithorhynchus*
- (c) Heart is four-chambered in *Chameleon*
- (d) *Salamandra* is an aquatic reptile
- (e) Air sacs in *Psittacula* supplement respiration

	a	b	c	d	e
(1)	T	F	F	T	T
(2)	T	F	T	T	T
(3)	T	T	F	F	T
(4)	T	T	T	F	F

182. How many of the following organs are secondary lymphoid organs in human body?

Bone marrow, Thymus, Peyer's patches, Spleen, Tonsils, Appendix, Lymph nodes

- (1) Three (2) Four (3) Five (4) Six

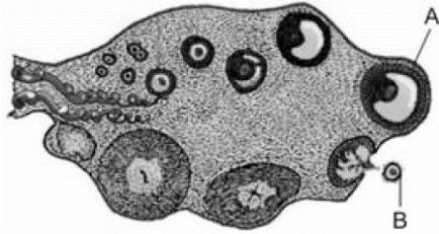
183. In a female cockroach, the location of which body part corresponds to 2nd to 6th abdominal segments?

- (1) Gonapophyses (2) Ovaries (3) Mushroom gland (4) Collateral gland

184. During fertilization changes induced in which layer ensures that only one sperm can fertilise an ovum?

- (1) Corona radiata (2) *Zona pellucida*
(3) Acrosomal layer of sperm (4) Trophoblast

185. A diagrammatic section of ovary is given below. Choose the option which **correctly** identifies A and B.



- | | |
|-----------------------|---------------|
| A | B |
| (1) Primary follicle | Ovum |
| (2) Graafian follicle | Ovum |
| (3) Graafian follicle | Corpus luteum |
| (4) Tertiary follicle | Corpus luteum |

SECTION-B

186. The normal site for meiotic division of the secondary oocyte in a human female is
(1) Fallopian tube (2) Ovary (3) Vagina (4) Cervix
187. Which of the following methods of birth control gives the additional benefit of protecting the user from contracting STIs and AIDS?
(1) Lippes loop (2) Condoms (3) Progestasert (4) Implants
188. Complete the analogy by choosing the **correct** option.
Removal of testes : Castration : : Removal of uterus : _____
(1) Oophorectomy (2) Hysterectomy
(3) Tubectomy (4) Mastectomy
189. Flying phalanger and flying squirrel show all of the following **except**
(1) Convergent evolution (2) Adaptive convergence
(3) Analogy (4) Adaptive radiation
190. All of the following gases were present in the urey-Miller experiment **except**
(1) CH₄ (2) O₂ (3) NH₃ (4) H₂
191. The first human – like being, the hominid, was called
(1) *Homo sapiens* (2) *Homo habilis*
(3) *Homo erectus* (4) Neanderthal man
192. If decomposers are completely removed from ecosystem the ecosystem functioning is badly affected because :-
(1) Herbivores will not receive Solar energy
(2) Rate of decomposition of other components will be very high
(3) Mineral movement will be blocked
(4) Energy flow will be blocked
193. How many of following hormone are formed in anterior pituitary in given list?
ACTH, TRH, ADH, LH, LTH, PIH, FSH
(1) Four (2) Five (3) Six (4) Seven
194. If due to some injury, the chordae tendineae of the tricuspid valve of the human heart become non-functional, what will be the immediate effect?



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- (1) The flow of blood into the aorta will be slow down
(2) The 'pacemaker' will stop working
(3) The blood will tend to flow back into the left atrium
(4) The flow of blood into the pulmonary artery will be reduced
195. Which of the following is common ancestor of birds and crocodiles?
(1) Pelycosaurs (2) Pteranodon (3) Thecodont (4) Therapsids
196. Which cells of the areolar connective tissue are involved in inflammatory reactions and secrete histamine, serotonin and heparin?
1) Fibroblasts 2) Macrophages 3) Mast cells 4) Eosinophils
197. With respect to population growth model study, the equation $\frac{dN}{dt} = rN$ describes
1) Carrying capacity 2) Logistic growth 3) S-shaped curve 4) Geometric growth
198. Find the odd one out w.r.t. narrowly utilitarian ecosystem services
1) Food and fibres 2) Drugs and industrial products
3) Pollination 4) Construction material & firewood
199. Each of the following statements concerning pneumonia are correct, except
1) It is caused by Streptococcus pneumonia and Hemophilus influenza
2) Pneumonia bacteria grow better at 33°C than at 37°C, hence they tend to cause the disease in upper respiratory tract rather than the lower respiratory tract
3) Bacteria infects alveoli of lungs
4) In pneumonia finger nails turn bluish in colour
200. Thorns of Bougainvillea and tendrils of Cucurbita exhibit
1) Homology 2) Analogy 3) Industrial melanism 4) Adaptive radiation



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