

STELLA MARIS MEDICAL FOUNDATION

NEET – MODEL EXAM – 1

Times : 3 Hrs

Total Marks : 720

INSTRUCTIONS

- **Physics (180 Marks)** : Questions No.1 to 45 are of 4 Marks each
- **Chemistry (180 Marks)** : Questions No. 46 to 90 are of 4 Marks each
- **Biology (360 Marks)** : Questions No. 91 to 180 are of 4 Marks each.
- **Negative Marking** : One Mark will be deducted for indicating incorrect response of each question.

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

Read Carefully the Instructions on the Back Cover of this Text Booklet.

PHYSICS

SECTION A

1. A Molecule of a substance has permanent dipole moment P . A mole of this substance is polarized by applying a strong electrostatic field E . The direction of the field is Suddenly changed by an angle of 60° . If N is the Avogadro's number of amount of work done by the field is:

- 1) $2 NpE$ 2) $\frac{1}{2} NpE$
3) NpE 4) $\frac{3}{2} NpE$

2. If the angle of a prism is 60° and angle of minimum deviation is 40° , then angle of refraction will be:
1) 4° 2) 30° 3) 20° 4) 3°

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

- 1) 7.73cm 2) 7.23 cm
3) 7.023cm 4) 7.073cm

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

1) $\frac{46}{7} \lambda_0$ 2) $\frac{20}{3} \lambda_0$

3) $\frac{36}{5} \lambda_0$ 4) $\frac{27}{4} \lambda_0$

5. A Circular coil of radius 10cm, 500 turns and resistance 2Ω is placed with its plane, perpendicular to the horizontal component of the earth's magnetic field. It is rotated about its vertical diameter through 180° in 0.25s. The induced e.m.f. in the coil is

(Take $H_E=3.0 \times 10^{-5}T$):

1) $6.6 \times 10^{-4}V$ 2) $1.4 \times 10^{-2}V$

3) $2.6 \times 10^{-2}V$ 4) $3.8 \times 10^{-3}V$

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

- 1) low permeability and high retentivity
- 2) high permeability and low retentivity
- 3) low permeability and low retentivity
- 4) high permeability and high retentivity

7. A girl jumps down from a moving bus, along the direction of motion of the bus, tilting slightly forward. She falls on (a) a sheet of ice (b) a patch of glue.

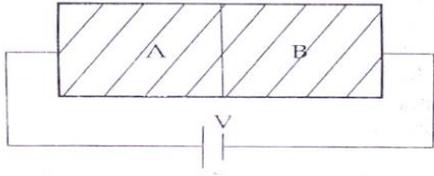
- 1) In case (a) she falls backward and in case (b) she falls forward.
- 2) In both cases (a) and (b) she falls forward.
- 3) In both cases (a) and (b) she falls backward.
- 4) In case (a) she falls forward and in case (b) she falls backward.

8. A person has near point at 60cm. The focal length of spectacles lenses to read at 22cm having glasses separated 2cm from the eyes, is:

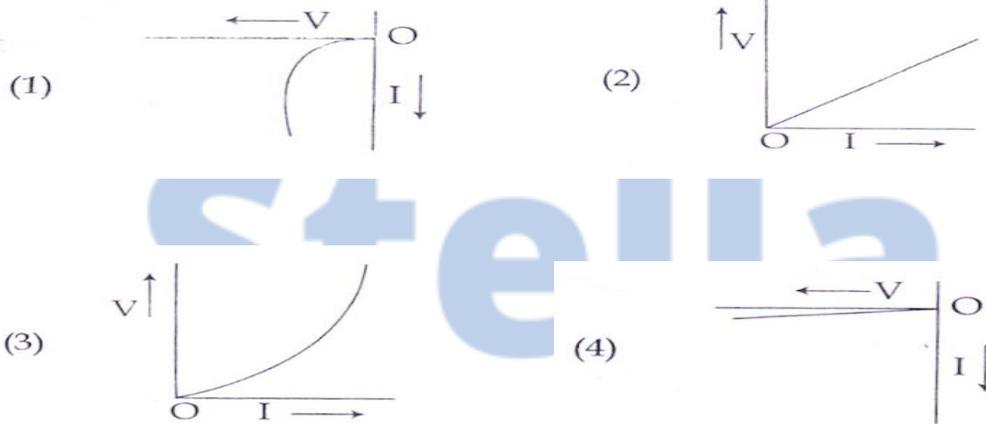
1) 40 cm 2) 10 cm

3) 20cm 4) 30 cm

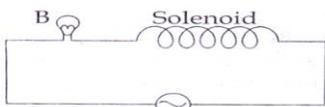
9. Two sides of a semiconductor germanium crystal A and B are doped with arsenic and indium, respectively. They are connected to a battery as shown in figure.



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



10. A bulb connected in series with an air-cored solenoid is lit by an a.c. Source. If a soft iron core is introduced in the solenoid.



- 1) The bulb stops glowing
 - 2) The bulb will glow brighter.
 - 3) There is no change in glow of bulb.
 - 4) The bulb will become dimmer.
11. A metal rod of 1 m length, is dropped exact vertically on to a hard metal floor. With an oscilloscope, it is determined that the impact produces a longitudinal wave of 1.2kHz frequency. The speed of sound in the metal rod is:
- 1) 600 m/s
 - 2) 2400m/s
 - 3) 1800m/s
 - 4) 1200m/s

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

- 1) $\frac{n^2 P^2}{2}$ 2) $\frac{P^2 [1+n^2]}{2m}$
 3) $\frac{n^2 P^2}{2m}$ 4) $n^2 P^2 \times 2m$

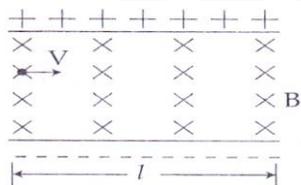
13. A Parallel-plate capacitor is to be designed, using a dielectric of dielectric constant 5, so as to have a dielectric strength of 109 Vm^{-1} . If the voltage rating of the capacitor is 12 kV , the minimum area of each plate required to have a capacitance of 80 pF is:

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

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

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

15. An electron moves straight inside a charged parallel plate capacitor of uniform charge density σ . The space between the plates is filled with uniform magnetic field of intensity B , as shown in the figure. Neglecting effect of gravity, the time of straight line motion of the electron in the capacitor is:



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

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

- 1) t^2 2) no variation 3) t^3 4) t

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

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

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

- 1) 60% 2) 10% 3) 15% 4) 30%

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

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

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

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

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

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

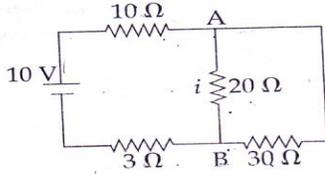
22. The density of a metal at normal pressure is ρ . Its density when it is subjected to an excess pressure p is ρ' . If B is Bulk modulus of the metal, the ratio of $\frac{\rho'}{\rho}$ is:

- 1) $1 + \frac{B}{P}$ 2) $\frac{1}{1 - \frac{P}{B}}$

$$3) 1 + \frac{P}{B}$$

$$4) \frac{1}{1 + \frac{P}{B}}$$

23. In the electrical circuit shown in the figure, the current I through the side AB is:



$$1) \frac{6}{25} \text{ A}$$

$$2) \frac{10}{33} \text{ A}$$

$$3) \frac{1}{5} \text{ A}$$

$$4) \frac{10}{63} \text{ A}$$

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

$$1) 1.4 \times 10^{-11} \text{ m}$$

$$2) 1.6 \times 10^{-10} \text{ m}$$

$$3) 1.65 \times 10^{-11} \text{ m}$$

$$4) 1.4 \times 10^{-10} \text{ m}$$

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

(where g is the value of acceleration due to gravity on the surface of earth), the ratio of $\frac{h}{d}$ will be:

$$1) 1$$

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

$$3) \frac{3}{2}$$

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

26. One mole of a gas obeying the equation of state $P(V-b) = RT$ is made to expand from a state with coordinates (P_1, V_1) to a state with (P_2, V_2) along a process that is depicted by a straight line on a P - V diagram. Then, the work done is given by:

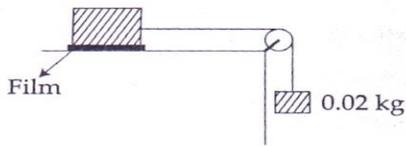
$$1) \frac{1}{2} (P_2 - P_1)(V_2 + V_1 + 2b)$$

$$2) \frac{1}{2} (P_1 + P_2)(V_2 - V_1)$$

$$3) \frac{1}{2} (P_2 - P_1)(V_2 - V_1)$$

$$4) \frac{1}{2} (P_1 + P_2)(V_2 - V_1 + 2b)$$

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



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

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

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

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

- 1) 1:3 2) 1:2 3) 1:1 4) 2:1

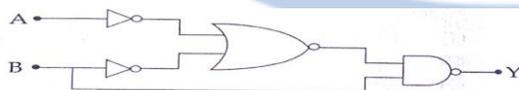
30. A body initially at rest, breaks up into two pieces of masses 2M and 3M respectively, together having a total kinetic energy E. The piece of mass 2M, after breaking up, has a kinetic energy:

- 1) $\frac{2E}{5}$ 2) $\frac{E}{2}$ 3) $\frac{E}{5}$ 4) $\frac{3E}{5}$

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

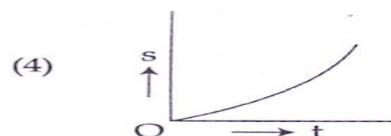
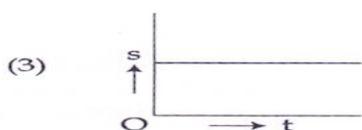
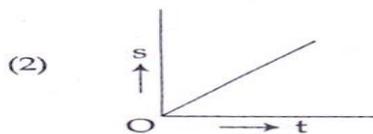
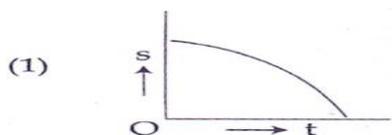
- 1) $\sqrt{3} : \sqrt{2}$ 2) $1 : \sqrt{2}$ 3) $\sqrt{2} : 1$ 4) $\sqrt{2} : \sqrt{3}$

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



- 1) NAND gate 2) AND gate
 2) OR gate 4) NOT gate

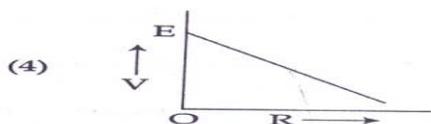
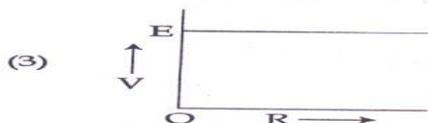
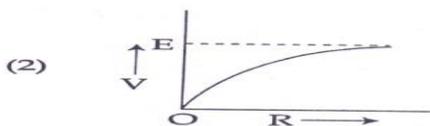
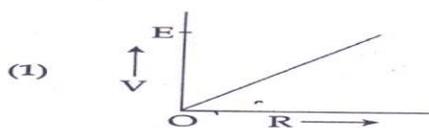
33. A body starts moving unidirectionally under the influence of a source of constant power. Which one of the graph correctly shows the variation of displacement(s) with time (t)?



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

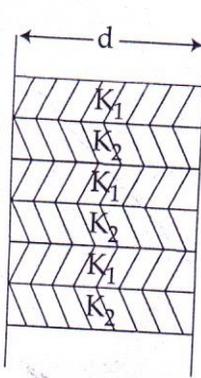
- 1) $V_2 > 2V_1$ 2) $V_2 < V_1$
 3) $V_1 < V_2 < 2V_1$ 4) $V_2 = 2V_1$

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



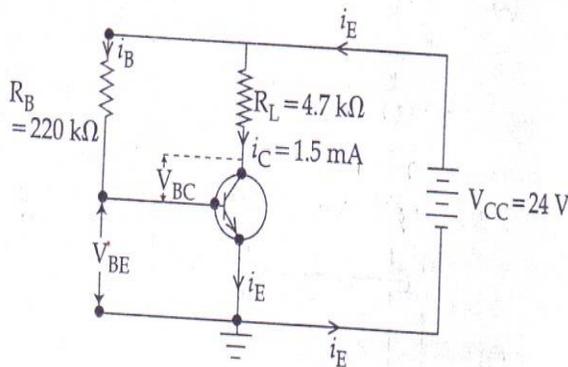
SECTION B (any 10 questions only)

36. A wall consists of alternating blocks of length 'd' and coefficient of thermal conductivity K_1 and K_2 respectively as shown in figure. The cross sectional area of the blocks are the same. The equivalent coefficient of thermal conductivity of the wall between left and right is:



- 1) $\frac{K_1 + K_2}{2}$ 2) $\frac{2K_1K_2}{K_1 + K_2}$
 3) $\frac{K_1 + K_2}{3}$ 4) $\frac{3K_1K_2}{K_1 + K_2}$

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



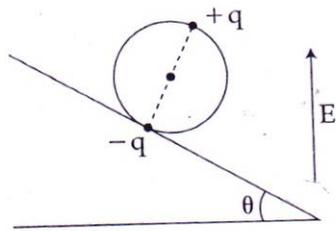
We find that:

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

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

- 1) $\frac{GM_E m}{3R_E}$ 2) $\frac{GM_E m}{18R_E}$
 3) $\frac{3GM_E m}{2R_E}$ 4) $\frac{GM_E m}{9R_E}$

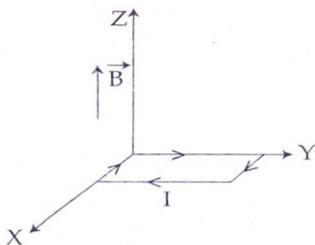
39.



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

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

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



- 1) $+1.8 \times 10^{-2} \hat{i} \text{ Nm}$ 2) $-1.8 \times 10^{-2} \hat{j} \text{ Nm}$
 3) zero 4) $-1.8 \times 10^{-2} \hat{i} \text{ Nm}$

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

- 1) $42J$ 2) $60J$ 3) $36J$ 4) $70J$

42. An object is placed at a distance of 40 cm from a concave mirror of focal length 15 cm. If the object is displaced through a distance of 20 cm towards the mirror, the displacement of the image will be
- 1) 36 cm towards the mirror
 - 2) 30 cm away from the mirror
 - 3) 30 cm towards the mirror
 - 4) 36 cm away from the mirror
43. The refractive index of the material of a prism is $\sqrt{2}$ and the angle of the prism is 30° . One of the two refracting surfaces of the prism is made a mirror inwards, by silver coating. A beam of monochromatic light entering the prism from the other face will retrace its path (after reflection from the silvered surface) if its angle of incidence on the prism is
- 1) zero
 - 2) 60°
 - 3) 30°
 - 4) 45°
44. In a p-n junction diode, change in temperature due to heating
- 1) affects the overall V-I characteristics of p-n junction
 - 2) affects only reverse resistance
 - 3) does not affect resistance of p-n junction
 - 4) affects only forward resistance
-
45. The power radiated by a black body is P and it radiates maximum energy at wavelength, λ_0 . If the temperature of the black body is now changed so that it radiates maximum energy at wavelength $\frac{3}{4}\lambda_0$, the power radiated by it becomes nP. The value of n is
- 1) $\frac{81}{256}$
 - 2) $\frac{3}{4}$
 - 3) $\frac{256}{81}$
 - 4) $\frac{4}{3}$
46. Two wires are made of the same material and have the same volume. The first wire has cross-sectional area A and the second wire has cross-sectional area 3A. If the length of the first wire is increased by Δl on applying a force F, how much force is needed to stretch the second wire by the same amount?
- 1) F
 - 2) 9F
 - 3) 4F
 - 4) 6F
47. A small sphere of radius 'r' falls from rest in a viscous liquid. As a result, heat is produced due to viscous force. The rate of production of heat when the sphere attains its terminal velocity, is proportional to

- 1) r^4 2) r^3 3) r^5 4) r^2

48. The ratio of kinetic energy to the total energy of an electron in a Bohr orbit of the hydrogen atom, is

- 1) 1 : -2 2) 1 : 1 3) 2 : -1 4) 1 : -1

49. A pendulum is hung from the roof of a sufficiently high building and is moving freely to and fro like a simple harmonic oscillator. The acceleration of the bob of the pendulum is 20 m/s^2 at a distance of 5 m from the mean position. The time period of oscillation is

- 1) 1 s 2) 2π s 3) 2 s 4) π s

50. An electron falls from rest through a vertical distance h in a uniform and vertically upward directed electric field E . The direction of electric field is now reversed, keeping its magnitude the same. A proton is allowed to fall from rest in it through the same vertical distance h . The time of fall of the electron, in comparison to the time of fall of the proton is

- 1) equal 2) smaller
3) 10 times greater 4) 5 times greater

Maris

CHEMISTRY

SECTION -A

51. Iron exhibits bcc structure at room temperature. Above 900°C it transforms to fcc structure.

The ratio of density of iron at room temperature to that at 900°C (assuming molar mass and atomic radii of iron remains constant with temperature) is

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

52. Magnesium reacts with an element (X) to form an ionic compound. If the ground state electronic configuration of (X) is $1s^2 2s^2 2p^3$, the simplest formula for this compound is

- 1) Mg_3X_2 2) Mg_2X_3 3) Mg_2X 4) MgX_2

53. Consider the following species:

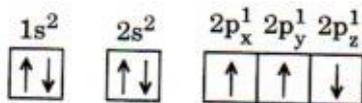
CN^+ , CN^- , NO and CN

Which one of these will have the highest bond order

- 1) CN 2) NO 3) CN^+ 4) CN^-

54. Which one is a wrong statement?

- 1) The value of m for d_{z^2} is zero.
2) Total orbital angular momentum of electron in 's' orbital is equal to zero
3) The electronic configuration of N atom is



- 4) An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers.

55. A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. H_2SO_4 . The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be

- 1) 4.4 2) 1.4 3) 2.8 4) 3.0

56. The difference between amylose and amylopectin is

- 1) Amylose is made up of glucose and galactose
2) Amylopectin have $1 \rightarrow 4$ α -linkage and $1 \rightarrow 6$ α -linkage
3) Amylopectin have $1 \rightarrow 4$ α -linkage and $1 \rightarrow 6$ β -linkage
4) Amylose have $1 \rightarrow 4$ α -linkage and $1 \rightarrow 6$ β -linkage

57. Which of the following oxides is most acidic in nature?

- 1) CaO 2) MgO 3) BaO 4) BeO

58. Nitration of aniline in strong acidic medium also gives m-nitroaniline because

- 1) In acidic (strong) medium aniline is present as anilinium ion
- 2) In spite of substituents nitro group always goes to only m-position
- 3) In absence of substituents nitro group always goes to m-position
- 4) In electrophilic substitution reactions amino group is meta directive

59. Regarding cross-linked or network polymers, which of the following statements is incorrect?

- 1) They contain strong covalent bonds in their polymer chains
- 2) They contain covalent bonds between various linear polymer chains
- 3) Examples are bakelite and melamine
- 4) They are formed from bi- and tri-functional monomers

60. For the redox reaction

$\text{MnO}_4^- + \text{C}_2\text{O}_4^{2-} + \text{H}^+ \rightarrow \text{Mn}^{2+} + \text{CO}_2 + \text{H}_2\text{O}$ the correct coefficients of the reactants for the balanced equation are

	MnO_4^-	$\text{C}_2\text{O}_4^{2-}$	H^+
1)	5	16	2
2)	16	5	2
3)	2	16	5
4)	2	5	16

61. Which one of the following conditions will favour maximum formation of the product in the reaction, $\text{A}_2(\text{g}) + \text{B}_2(\text{g}) \rightleftharpoons \text{X}_2(\text{g}) \Delta_r H = -X \text{ kJ}$?

- 1) High temperature and low pressure
- 2) Low temperature and high pressure
- 3) High temperature and high pressure
- 4) Low temperature and low pressure

62. The correction factor 'a' to the ideal gas equation corresponds to

- 1) forces of attraction between the gas molecules
- 2) density of the gas molecules
- 3) electric field present between the gas molecules
- 4) volume of the gas molecules

63. When initial concentration of the reactant is doubled, the half-life period of a zero order reaction

3) 0.00224 L of water vapours at 1 atm and 273 K

4) 0.18 g of water

69. Consider the change in oxidation state of Bromine corresponding to different emf values as shown in the diagram below:



Then the species undergoing disproportionation is

- 1) HBrO 2) BrO_3^- 3) Br_2 4) BrO_4^-

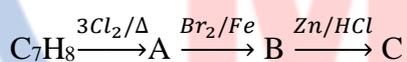
70. Among CaH_2 , BeH_2 , BaH_2 the order of ionic character is

- 1) $\text{BaH}_2 < \text{BeH}_2 < \text{CaH}_2$
2) $\text{BeH}_2 < \text{CaH}_2 < \text{BaH}_2$
3) $\text{BeH}_2 < \text{BaH}_2 < \text{CaH}_2$
4) $\text{CaH}_2 < \text{BeH}_2 < \text{BaH}_2$

71. The correct difference between first and second order reactions is that

- 1) the rate of a first-order reaction does depend on reactant concentrations; the rate of a second-order reaction does not depend on reactant concentrations
2) the rate of a first-order reaction does not depend on reactant concentrations; the rate of a second-order reaction does depend on reactant concentrations
3) a first-order reaction can be catalyzed; a second-order reaction cannot be catalyzed
4) the half-life of a first-order reaction does not depend on $[\text{A}]_0$; the half-life of a second-order reaction does depend on $[\text{A}]_0$

72. The compound C_7H_8 undergoes the following reactions:



The product 'C' is

- 1) p-bromotoluene
2) m-bromotoluene
3) 3-bromo-2,4,6-trichlorotoluene
4) o-bromotoluene

73. Hydrocarbon (A) reacts with bromine by substitution to form an alkyl bromide which by Wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon atoms. (A) is

- 1) CH_4 2) $\text{CH} \equiv \text{CH}$ 3) $\text{CH}_3 - \text{CH}_3$ 4) $\text{CH}_2 = \text{CH}_2$

74. The compound A on treatment with Na gives B, and with PCl_5 gives C. B and C react together to give diethyl ether. A, B and C are in the order

- 1) $C_2H_5OH, C_2H_5ONa, C_2H_5Cl$
- 2) $C_2H_5OH, C_2H_6, C_2H_5Cl$
- 3) $C_2H_5Cl, C_2H_6, C_2H_5OH$
- 4) $C_2H_5OH, C_2H_5Cl, C_2H_5Ona$

75. In the structure of ClF_3 , the number of lone pairs of electrons on central atom 'Cl' is

- 1) three
- 2) one
- 3) four
- 4) two

76. The correct order of atomic radii in group 13 elements is

- 1) $B < Ga < Al < In < Tl$
- 2) $B < Al < In < Ga < Tl$
- 3) $B < Ga < Al < Tl < In$
- 4) $B < Al < Ga < In < Tl$

77. Considering Ellingham diagram, which of the following metals can be used to reduce alumina?

- 1) Cu
- 2) Fe
- c) Mg
- d) Zn

78. Which of the following statement is not true for halogens?

- 1) Chlorine has the highest electron-gain enthalpy
- 2) All form monobasic oxyacids
- 3) All but fluorine show positive oxidation states
- 4) All are oxidizing agents

79. On which of the following properties does the coagulating power of an ion depend?

- 1) The sign of charge on the ion alone
- 2) The magnitude of the charge on the ion alone
- 3) Both magnitude and sign of the charge on the ion
- 4) Size of the ion alone

80. Following solutions were prepared by mixing different volumes of NaOH and HCl of different concentrations:

- 1) a. $60 \text{ mL } \frac{M}{10} \text{ HCl} + 40 \text{ mL } \frac{M}{10} \text{ NaOH}$
- 2) b. $55 \text{ mL } \frac{M}{10} \text{ HCl} + 45 \text{ mL } \frac{M}{10} \text{ NaOH}$
- 3) c. $75 \text{ mL } \frac{M}{5} \text{ HCl} + 25 \text{ mL } \frac{M}{5} \text{ NaOH}$
- 4) d. $100 \text{ mL } \frac{M}{10} \text{ HCl} + 100 \text{ mL } \frac{M}{10} \text{ NaOH}$

pH of which one of them will be equal to?

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

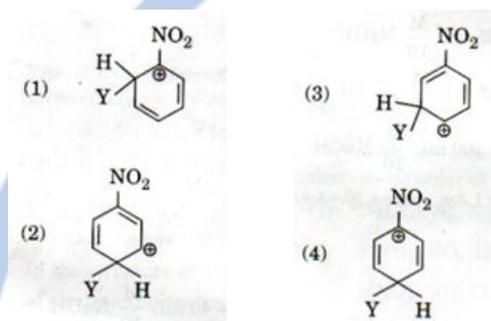
81. Given van der Waals constant for NH_3 , H_2 , O_2 and CO_2 are respectively 4.17, 0.244, 1.36 and 3.59 which one of the following gases is most easily liquefied?

- 1) CO_2 2) NH_3 3) O_2 4) H_2

82. Which of the following is correct with respect to $-I$ effect of the substituents? (R =alkyl)

- 1) $-\text{NR}_2 > -\text{OR} > -\text{F}$ 2) $-\text{NH}_2 < -\text{OR} < -\text{F}$
 3) $-\text{NH}_2 > -\text{OR} > -\text{F}$ 4) $-\text{NR}_2 < -\text{OR} < -\text{F}$

83. Which of the following carbocations expected to be most stable?



84. Which of the following ions exhibits d-d transition and paramagnetism as well?

- 1) MnO_4^{2-} 2) CrO_4^{2-} 3) MnO_4^- 4) $\text{Cr}_2\text{O}_7^{2-}$

SECTION - B

ANSWER ANY 10 QUESTIONS

85. . The type of isomerism shown by the complex $[\text{CoCl}_2(\text{en})_2]$ is

- 1) Linkage isomerism
 2) Geometrical isomerism
 3) Ionization isomerism
 4) Coordination isomerism

86. Match the metal ions given in Column I with the spin magnetic moments of the ion given in Column II and assign the correct code:

Column I

- a. Co^{3+}
 b. Cr^{3+}
 c. Fe^{3+}
 d. Ni^{2+}

Column II

- i. $\sqrt{8}$ B.M.
 ii. $\sqrt{35}$ B.M.
 iii. $\sqrt{3}$ B.M.
 iv. $\sqrt{24}$ B.M.
 v. $\sqrt{15}$ B.M.

- a b c d

- | | | | | |
|----|-----|----|-----|-----|
| 1) | iii | v | i | ii |
| 2) | iv | v | ii | i |
| 3) | iv | i | ii | iii |
| 4) | i | ii | iii | iv |

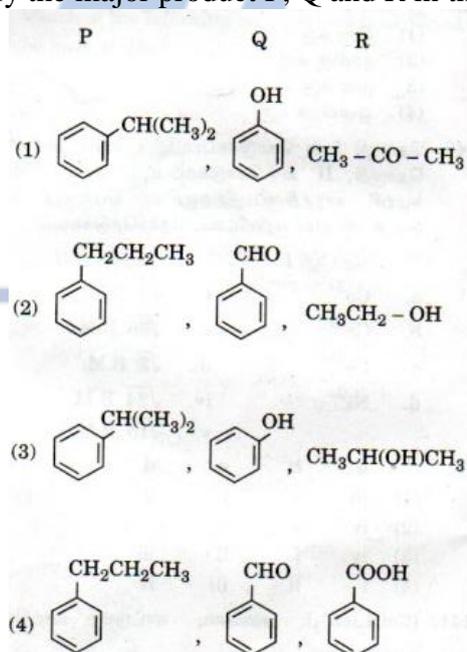
87. The geometry and magnetic behaviour of the complex $[\text{Ni}(\text{CO})_4]$ are

- 1) tetrahedral geometry and paramagnetic
- 2) square planar geometry and diamagnetic
- 3) square planar geometry and paramagnetic
- 4) tetrahedral geometry and diamagnetic

88. Which of the following compounds can form a zwitterion?

- 1) Glycine
- 2) Aniline
- 3) Benzoic acid
- 4) Acetanilide

89. Identify the major product P, Q and R in the following sequence of reactions:



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

- 1) Glycine
- 2) Proline
- 3) Serine
- 4) Leucine

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

- 1) H_2Se
- 2) H_2S

3) H₂Te

4) H₂O

92. The zinc/silver oxide cell is used in electric watches. The reaction is as following,
 $Zn^{2+} + 2e^- \rightarrow Zn$; $E^\circ = -0.760V$

$Ag_2O + H_2O + 2e^- \rightarrow 2Ag + 2OH^-$; $E^\circ = 0.344V$ If F is $96,500C\ mol^{-1}$, ΔG° of the cell will be:

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

93. For dry cleaning of clothes instead of tetrachloroethane which is carcinogen in nature, which of the following solvents can be used?

1) Petrol 2) Liquid CO₂

3) H₂O₂ 4) Liquid O₃

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

1) BrO₃⁻, XeO₃ 2) ICl₄⁻, XeF₄

2) ClO₃⁻, CO₃²⁻ 4) IBr₂⁻, XeF₂

95. Among halogens, the one which can oxidise water to oxygen is:

1) Iodine 2) chlorine

3) bromine 4) fluorine

96. The reaction: $ArN_2Cl \xrightarrow{Cu/HCl} ArCl + N_2$ is known as:

1) Balz Schiemann reaction

2) Sandmeyer reaction

3) Finkelstein reaction

4) Gattermann reaction

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

1) Chlorobenzene 2) Benzene

3) Nitro benzene 4) Toluene

98. Which one of the following ions is **not** tetrahedral in shape:

1) [NiCl₄]²⁻ 3) NH₄⁺

2) BF₃ 4) [Cu(NH₃)₄]²⁺

99. The letter 'D' in D- glucose signifies,:

1) Configuration at the penultimate Chiral carbon

2) Configuration at all Chiral Carbons

- 3) Dextrorotatory
- 4) That it is a monosaccharide

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

- 1) Saccharin 2) Aspartame
- 3) Alitame 4) Sucralose

The logo consists of a large, light blue circle. Inside the circle, the word "Stella" is written in a large, bold, blue sans-serif font. Below "Stella" is a horizontal blue line. Underneath the line, the word "Maris" is written in a large, bold, pinkish-red sans-serif font.

Stella

Maris

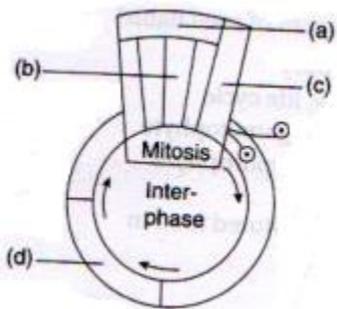
BOTANY

Section - A

101. Thermococcus, Methanococcus and Methanobacterium exemplify
- bacteria that contain a cytoskeleton and ribosomes.
 - archaeobacterial that contain protein homologous to eukaryotic core histones
 - archaeobacterial that lack any histones resembling those found in eukaryotes but whose DNA is negatively supercoiled.
 - bacteria whose DNA is relaxed or positively supercoiled but which have a cytoskeleton as well as mitochondria.
102. Cellulose is the major component of cell walls of
- Saccharomyces
 - Pythium
 - Xanthomonas
 - Pseudomonas
103. T.O. Diener discovered a
- free infectious DNA
 - Rhodospirillum
 - Chlorobium
 - Chromatium
104. Phylogenetic system of classification is based on
- more morphological features
 - chemical constituents
 - floral characters
 - evolutionary relationship
105. The fruit is chambered, developed from inferior ovary and has seeds with succulent testa in
- cucumber
 - pomegranate
 - orange
 - guava
106. Dry indehiscent single-seeded fruit that form bicarpellary syncarpous inferior ovary is
- cremocarp
 - caryopsis
 - cysela
 - berry
107. A fruit developed from hypanthodium inflorescence is called
- sorosis
 - syconus
 - caryopsis
 - hesperidium
108. An example of axile placentation is
- Dianthus
 - lemon
 - marigold
 - Argemone
109. Vascular tissues in flowering plants develop from
- dermatogen
 - phellogen
 - plerome
 - periblem
110. The length of different internodes in a culm of sugarcane is variable because of
- intercalary meristem
 - shoot apical meristem
 - position of axillary buds
 - size of leaf lamina at the node below each internode
111. Palisade parenchyma is absent in leaves of
- mustard
 - soybean
 - gram
 - sorghum
112. In barley stem vascular bundles are
- closed and scattered
 - open and in a ring

- c) closed and radial d) open and scattered

113. In germinating seeds fatty acids are degraded exclusively
 a) mitochondria b) plastids c) glyoxysomes d) peroxisomes
114. The two sub-units of ribosome remain united at a critical ion level of
 a) calcium b) copper c) manganese d) magnesium
115. Middle lamella is composed mainly of
 a) muramic acid b) calcium pectate c) phospholipids d) hemicellulose
116. Given below is a schematic break-up of the phases/ stages of cell cycle:



Which one of the following is the correct indication of the stage/ phase in the cell cycle?

- a) (c) - Karyokinesis b) (d) –Synthetic phase c) (a) - Cytokinesis d) (b) Metaphase

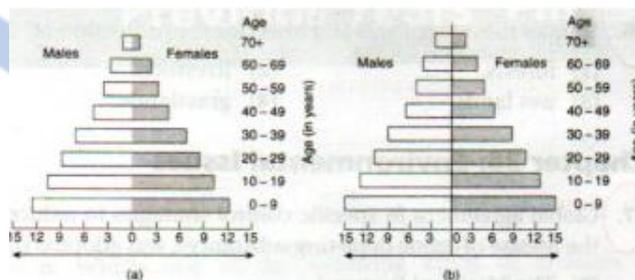
117. A competitive inhibitor of succinic dehydrogenase is
 a) malate b) malonate c) oxaloacetate d) α -ketoglutarate
118. The rupture and fractionation do not usually occur in the water column in vessel/tracheids during the ascent of sap because of
 a) transpiration pull b) lignified thick walls
 c) cohesion and adhesion d) weak gravitation pull
119. Nitrogen fixation in root nodules of *Alnus* is brought about by
 a) Azorhizobium b) Bradyhizobium c) Clostridium d) Frankia
120. Guard cells help in
 a) transpiration b) guttation c) fighting against infection d) protection against grazing
121. Which of the following is a symbiotic nitrogen fixer?
 a) Azotobacter b) Frankia c) (a) azolla d) Glomus
122. The C_4 plants are photosynthetically more efficient than C_3 plants because
 a) they have more chloroplasts b) the CO_2 compensation point is more
 c) CO_2 generated during photorespiration is trapped and recycled through PEP carboxylase
 d) the CO_2 efflux is not prevented.

123. Cyclic photophosphorylation results in the formation of
a) ATP and NADPH b) ATP, NADPH and O₂ c) ATP d) NADPH
124. Stroma in the chloroplasts of higher plant contains
a) light –dependent reaction enzymes b) ribosomes
c) chlorophyll d) light –independent reaction enzymes
125. The energy releasing process in which the substrate is oxidised without an external electron acceptor is called
a) glycolysis b) fermentation c) photorespiration d) aerobic respiration
126. Aerobic respiratory pathway is appropriately termed as
a) parabolic b) amphibolic c) anabolic d) catabolic
127. Senescence as an active developmental cellular process in the growth and functioning of a flowering plant, is indicated in
a) floral parts b) vessels and tracheid differentiation
c) leaf abscission d) annual plants
128. One of the synthetic auxin is
a) IAA b) GA c) IBA d) NAA
129. Vegetative propagation in mint occurs by
a) offset b) rhizome c) sucker d) runner
130. Unisexuality of flowers prevents
a) autogamy and geitonogamy b) autogamy, but not geitonogamy
c) both geitonogamy and not geitonogamy d) geitonogamy, but not xenogamy
131. Bacterial leaf blight of rice is caused by a species of
a) Erwinia b) Xanthomonas c) Pseudomonas d) Alternaria
132. Modern detergents contain enzyme preparations of
a) thermophiles b) acidophiles
c) alkaliphiles d) thermoacidophiles
133. Which one of the following proved effective for biological control of nematodal disease in plants?
a) Paecilomyces liacinus b) Pisolithus tinctorius
c) Pseudomonas cepacia d) Gliocladium virens
134. Somaclones are obtained by
a) plant breeding b) irradiation c) genetic engineering d) tissue culture
135. Which of the following plant species you would select for the production of bioethanol?
a) Zea mays b) Pongamia c) Jatropha d) Brassica

SECTION -B

ANSWER ANY 10 QUESTIONS

136. Which one is the wrong pairing for the disease and its causative organism?
- a) Black rust of wheat – Pucciniagraminis b) Loose smut of wheat – Ustilagonuda
c) Root-knot of vegetables – Meloidogynesp d) Late blight of potato – Alternariasolani
137. Trichodermaharzianum has proved a useful microorganism for
- a) biological control of soil borne plant pathogens b) bioremediation of contaminated soils
c) Reclamation of wastelands d) gene transfer in higher plants
138. Which one of the following pairs is wrongly matched?
- a) Alcohol - Nitrogenase b) Fruit juice - Pectinase
c) Textile - Amylase d) Detergents – Lipase
139. Which of the following is not used as a biopesticide?
- a) Trichodermaharzianum b) Nuclear Polyhedrosis Virus (NPV)
c) Xanthomonascampestris d) Bacillus thuringiensis
140. Which one of the following is commonly used in transfer of foreign DNA into a crop plants?
- a) Meloidogyne incognita b) Agrobacterium tumefaciens
c) Penicilliumexpansum d) Trichodermaharzianum
141. Transgenic plants are the ones
- a) generated by introducing foreign DNA into a cell and regenerating a plant from that cell
b) produced after protoplast fusion in artificial medium
c) growth in artificial medium after hybridization in the field
d) produced by a somatic embryo in artificial medium
142. A country with a high rate of population growth took measures to reduce it. The figure below shows age-sex pyramids of populations (a) and (b) , 20 years apart select the correct interpretation about them



- a) (a) is earlier pyramid and shows stabilized growth rate
b) (b) is more recent showing that population is very young

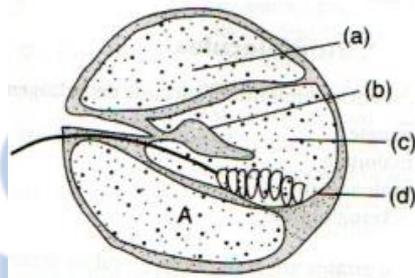
- c) (a) is the earlier pyramid and no change has occurred in the growth rate
d) (a) is more recent and shows slight reduction in the growth rate
143. About 70% of total global carbon is found in
a) forests b) grasslands c) agroecosystems d) Oceans
144. World summit on Sustainable Development (2202) was held in
a) South Africa b) Brazil c) Sweden d) Argentina
145. Quercus species are the dominant component in
a) tropical rain forests b) temperate deciduous forests
146. DDT residues are rapidly passed through food chain causing biomagnification, because DDT is
a) moderately toxic b) non-toxic to aquatic animals
c) water soluble d) lipid soluble
147. Which one of the following types of organisms occupies more than one trophic level in a pond ecosystem?
a) Fish b) Zooplankton c) Frog d) Phytoplankton
148. Which one of the following has maximum genetic diversity in India?
a) Mango b) Wheat c) Tea d) Teak
149. Tiger is not a resident of which one of the following national park?
a) Sunderbans b) Gir c) Jim Corbett d) Ranthambhor
150. Chipko movement was launched for the protection of
a) forests b) livestock c) wet lands d) grasslands

ZOOLOGY

SECTION -A

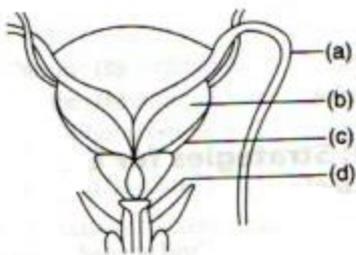
151. Which type of white blood cells are concerned with the release of histamine and the natural anticoagulant heparin?
a) Monocytes b) Neutrophils c) Basophils d) Eosinophils
152. The most active phagocytic white blood cells are
a) neutrophils and monocytes b) neutrophils and eosinophils
c) lymphocytes and macrophages d) eosinophils and lymphocytes
153. The epithelial tissue present on the inner surface of bronchioles and fallopian tubes is
a) glandular b) ciliated c) squamous d) cuboidal
154. The cell junctions called tight , adhering and gap junctions are found in
a) connective tissue b) epithelial tissue c) neural tissue d) muscular tissue
155. Which one of the following is the correct matching of the site of action on the given substrate, the enzyme action upon it and the end product?
a) Stomach – Fats $\xrightarrow{\text{Lipase}}$ Micelles
b) Small intestine – Triglycerides $\xrightarrow{\text{Trypsin}}$ Monoglycerides
c) Small intestine – Starch $\xrightarrow{\alpha\text{Amylase}}$ Disaccharide
d) Small intestine – Proteins $\xrightarrow{\text{Pepsin}}$ Amino acids
156. What is vital capacity of our lungs?
a) Total lungs capacity minus residual volume
b) Inspiratory reserve volume plus tidal volume
c) Total lungs capacity minus expiratory reserve volume
d) Inspiratory reserve volume plus expiratory reserve volume
157. Globulins contained in human blood plasma are primarily involved in
a) osmotic balance of body fluids b) oxygen transport in the blood
c) clotting of blood d) defence mechanisms of body
158. In humans, blood passes from the post-caval to the diastolic right atrium of heart due to
a) pressure difference between the post – caval and atrium
b) pushing open of the venous valves
c) suction pull d) stimulation of the sino-auricular node.
159. Uric acid is the chief nitrogenous component of the excretory products of
a) earthworm b) cockroach c) frog d) man

160. Which one of the following items gives its correct total number?
- a) Cervical vertebrae in humans - 8 b) Floating ribs in humans - 4
 c) Amino acids found in proteins - 16 d) Types of diabetes - 3
161. Which one of the following is correct pairing of a body part and the kind of muscle tissue that moves it?
- a) Biceps of upper arm - Smooth muscle fibres b) Abdominal wall - Smooth muscle fibres
 c) Iris - Involuntary smooth muscle d) Involuntary unstriated muscle
162. Given below is diagrammatic cross section of single loop of human cochlea:



Which one of the following options correctly represents the names of three different parts?

- a) (a) - Perilymph; (b) - Tectorial membrane; (c) - Endolymph
 b) (b) - Tectorial membrane; (c) - Perilymph; (d) - Secretory cells
 c) (c) - Endolymph; (d) - Sensory hair cells; (a) Serum
 d) (d) - Sensory hair cells; (a) - Endolymph; (b) Tectorial membrane
163. Which part of human brain is concerned with the regulation of body temperature?
- a) Cerebellum b) Cerebrum c) Hypothalamus d) Medulla Oblongata
164. Which of the following pairs of organs includes only the endocrine glands?
- a) Adrenal and Ovary b) Parathyroid and Adrenal
 c) Pancreas and Parathyroid d) Thymus and Testes
165. Given below is a diagrammatic sketch of portion of human male reproductive system, select the correct set of the names of the parts labelled (a) - (d)



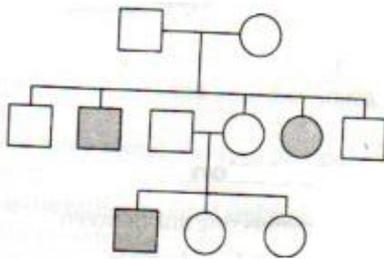
	(1)	(2)	(3)	(4)
a)	Vasdeferens	Seminal vesicle	Prostate	Bulbourethral gland
b)	Vas deferens	Seminal vesicle	Bulbourethral gland	Prostate
c)	Ureter	Seminal vesicle	Prostate	Bulbourethral gland
d)	Uterer	Prostate	Seminal vesicle	Bulbourethral gland

166. Which extraembryonic membrane in humans prevents desiccation of the embryo inside the uterus?

- a) Amnion b) Chorion c) Allantois d) Yolk sac

167. Study the pedigree chart given below

What does it show?



- a) Inheritance of a condition like phenylketonuria as autosomal recessive trait
 b) The pedigree chart is wrong as this is not possible
 c) Inheritance of recessive sex-lined disease like haemophilia
 d) Inheritance of a sex-lined inborn error of metabolism like phenylketonuria

168. Given below are four methods (a) –(d) and their modes of action (i) – (iv) in achieving contraception. Match Column –I with Column – II select the correct option

Column – I (Method)	Column – II (Mode of action)
a) The pill	(i) Prevents sperms reaching cervix
b) Condom	(ii) prevents implantation
c) vasectomy	(iii) Prevents ovulation
d) Copper T	(iv) Semen contain no sperms

- a) (a) –(ii); (b) – (iii); (c) – (i); (d) – (iv) b) (a) –(iii); (b) – (i); (c) – (iv); (d) – (ii)
- c) (a) –(iv); (b) – (i); (c) – (ii); (d) – (iii) d) (a) –(iii); (b) – (iv); (c) – (i); (d) – (ii)
169. Which one of the following conditions in humans is correctly matched with its chromosomal abnormality/ linkage?
- a) Down syndrome – 44 autosomes + XO
 b) Klinefeltersundrome – 44 autosomes + XXY
 c) Colour blindness – Y- linked d) Erythroblastosisfoetalis – X linked
170. Which one of the following pairs of nitrogenous bases of nucleic acids, is wrongly matched with the category mentioned against it ?
- a) Adenine , Thymine - Purines b) Thymine, Uracil - Pyrimidnes
 c) Uracil, Cytosine - Pyrimidines d) Guanine, Adenine
171. Which one of the following pairs of codons is correctly matched with their function or the signal for the particular amino acid?
- a) UUA, UCA - Leucine b) GUU, GCU - Alanine
 c) UAG, UGA - Stop d) AUG, ACG – Start / Methionine
172. There is no DNA in
- a) mature RBCs b) a mature spermatozoan
 c) hair root d) an enucleated ovum
173. Semiconservative replication of DNA was first demonstrated in
- a) Escherichia coli b) Streptococcus pneumoniae
 c) Salmonella typhimurium d) Drosophila melanogaster
174. Thorn of Bougainvillea and tendril of cucurbita are examples of
- a) retrogressiveevolution b) analogous organs
 c) homologous organs d) vestigial organs
175. Which one of the following scientist's name is correctly matched with the theory put forth by him?
- a) Mendel – Theory of Pangenesis b) Weismann – Theory of continuity of Germplasm
 c) Pasteur – Inheritance of acquired characters d) de Vries – Natural selection
176. Darwin's Finches are an excellent example of
- a) connecting links b) adaptive radiation
 c) seasonal migration d) brood parasitism

184. The linking of antibiotic resistance gene with the plasmid vector became possible with
a) exonucleases b) DNA ligase c) endonucleases d) DNA Soybean
185. Cry I endotoxins obtained from *Bacillus thuringiensis* are effective against
a) boll worms b) mosquitoes c) flies d) nematodes

SECTION – B

ANSWER ANY 10 QUESTIONS

186. Which of the following hormones can play a significant role in osteoporosis?
a) Parathyroid hormone and Prolactin
b) Aldosterone and Prolactin
c) Estrogen and Parathyroid hormone
d) Progesterone and Aldosterone
187. Which of the following structures or regions is **incorrectly** paired with its function?
a) **Corpus callosum** : band of fibers connecting left and right cerebral hemispheres
b) **Medulla oblongata**: controls respiration and cardiovascular reflexes
c) **Hypothalamus** : production of releasing hormones and regulation of temperature, hunger and thirst
d) **Limbic system** : consists of fibre tracts that interconnect different regions of brain; controls movement.
188. Hormones secreted by the placenta to maintain pregnancy are
a) hCG, progestogens, estrogens, glucocorticoids
b) hCG, hPL, progestogens, prolactin
c) hCG, hPL, progestogens, estrogens
d) hCG, hPL, estrogens, relaxin, oxytocin
189. The contraceptive 'SAHELI'
a) is a post-coital contraceptive
b) blocks estrogen receptors in the uterus, preventing eggs from getting implanted
c) is an IUD
d) increases the concentration of estrogen and prevents ovulation in females
190. A woman has an X-linked condition on one of her X chromosomes. This chromosome can be inherited by

- a) Both sons and daughters
- b) Only daughters
- c) Only grandchildren
- d) Only sons

191. AGGTATCGCAT is a sequence from the coding strand of a gene. What will be the corresponding sequence of the transcribed mRNA?

- a) UCCAUAGCGUA
- b) AGGUAUCGCAU
- c) ACCUAUGCGAU
- d) 4) UGGTUTCAT

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

Column I

Column II

- | | |
|------------------------|------------------------------------|
| a. Proliferative Phase | i. Breakdown of endometrial lining |
| b. Secretory Phase | ii. Follicular Phase |
| <hr/> | |
| c. Menstruation | iii. Luteal Phase |

- | | a | b | c |
|----|-----|-----|----|
| a) | iii | i | ii |
| b) | iii | ii | i |
| c) | ii | iii | i |
| d) | i | iii | ii |

193. Which part of poppy plant is used to obtain the drug “Smack”?

- 1) Leaves 2) Flowers 3) Roots 4) Latex

194. Which of the following gastric cells indirectly help in erythropoiesis?

- 1) Parietal cells 2) Chief cells
3) Goblet cells 4) Mucous cells

195 . Which of the following is an occupational respiratory disorder?

- 1) Emphysema 2) Anthracis 3) Botulism 4) Silicosis

196. Calcium is important in skeletal muscle contraction because it

- a) prevents the formation of bonds between the myosin cross bridges and the actin filament
- b) binds to troponin to remove the masking of active sites on actin for myosin
- c) detaches the myosin head from the actin filament
- d) activates the myosin ATPase by binding to it

197. Which of the following animals does not undergo metamorphosis?

- 1) Starfish 2) Earthworm 3) Moth 4) Tunicate

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

Column I

a. Glycosuria

b. Gout

c. Renal calculi

d. Glomerular nephritis

Column II

i. Accumulation of uric acid in joints

ii. Mass of crystallised salts within the kidney

iii. Inflammation in glomeruli

iv. Presence of glucose in urine

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

199. Which of the following pairs is **wrongly** matched?

- a) T.H. Morgan : Linkage
- b) Starch synthesis in pea : Multiple alleles
- c) XO type sex determination : Grasshopper
- a) ABO blood grouping : Co-dominance

200. The correct order of steps in Polymerase Chain Reaction (PCR) is

- a) Denaturation, Annealing, Extension
- b) Extension, Denaturation, Annealing
- c) Denaturation, Extension, Annealing
- d) Annealing, Extension, Denaturation