KINETICS

NEET

PST- 24   SET-A

KINETICS
We Nurture The Future
IIT-JEE | Medical | Foundations

Batch: UDAN
Date: 21/10/2024
Marks: 720
TOPIC:
PHYSICS: OPTICS (WAVE, RAY), MAGENTIC EFFECT OF CURRENT
CHEMISTRY: P BLOCK(XI), COORDINATION, PERIODIC PROPERTIES & CHEMICAL BONDING
BIOLOGY: HUMAN HEALTH AND DIESES, evolution, sexual reproduction of flowering plants, human reproduction

PHYSICS
SECTION-I

1. A 10 eV electron is circulating in a plane at right angles to a uniform field at magnetic induction $10^{-4} Wb/m^2$ ($=1.0$ gauss), the orbital radius of electron is
(a) 11 cm   (b) 18 cm
(c) 12 cm   (d) 16 cm.

2. Image formed by a convex mirror is
(a) Virtual   (b) Real
(c) Enlarged   (d) Inverted

3. The resistance of an ammeter is 13 Ω and its scale is graduated for a current upto 100 amps. After an additional shunt has been connected to this ammeter it becomes possible to measure currents upto 750 amperes by this meter. The value of shunt - resistance is
(a) 2 Ω (b) 0.2 Ω
(c) 2 $k\Omega$ (d) 20 Ω.

4. The magnetic field of given length of wire for single turn coil at its centre is B then its value for two turns coil for the same wire is
(a) $B/4$ (b) $B/2$
(c) $4B$ (d) $2B$.

5. Two long conductors, separated by a distance d carry current I_1 and I_2 in the same direction. They exert a force F on each other. Now the current in one of them is increased to two times and its directions is reversed. The distance is also increased to $3d$. The new value of the force between them is
(a) $-2F$ (b) $F/3$
(c) $2F/3$ (d) $-F/3$

6. The magnetic induction at a point P which is at the distance of 4 cm from a long current carrying wire is 10^{-3} T. The field of induction at a distance 12 cm from the current will be
(a) $3.33 \times 10^{-4} T$ (b) $1.11 \times 10^{-4} T$
(c) $33 \times 10^{-3} T$ (d) $9 \times 10^{-3} T$.

7. The time required to pass the light through a glass slab of 2 mm thick is ($\mu_{glass} = 1.5$)
(a) $10^{-5} s$ (b) $10^{-11} s$
(c) $10^{-9} s$ (d) $10^{-13} s$

8. An equiconvex lens is cut into two halves along (i) XOX' and (ii) YOY' as shown in the figure. Let $f, f f''$ be the focal lengths of the complete lens, of each half incase (i), and of each half in case (ii), respectively. Choose the correct statement from the following
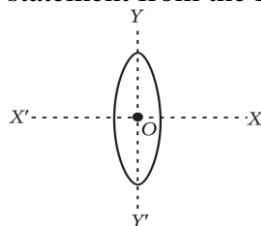
(a) $f' = f, f'' = 2f$
(b) $f' = 2f, f'' = f$
(c) $f' = f, f'' = f$

(d) $f' = 2f$, $f'' = 2f$

9. If a convex lens of focal length 80 cm and a concave lens of focal length 50 cm are combined together, what will be their resulting power?.
(a) $+7.5D$ (b) $-0.75D$
(c) $+6.5D$ (d) $-6.5D$.

10. An electron having mass m and kinetic energy E enter in uniform magnetic field B perpendicularly, then its frequency will be
(a) $\dfrac{eE}{qvB}$ (b) $\dfrac{2\pi m}{eB}$

(c) $\dfrac{eB}{2\pi m}$ (d) $\dfrac{2m}{eBE}$

11. The magnetic field $d\vec{B}$ due to a small current element $d\vec{l}$ at a distance $\vec{r}$ and element carrying current i is

(a) $d\vec{B} = \dfrac{\mu_0}{4\pi} i^2 \left(\dfrac{d\vec{l} \times \vec{r}}{r} \right)$

(b) $d\vec{B} = \dfrac{\mu_0}{4\pi} i \left(\dfrac{d\vec{l} \times \vec{r}}{r^3} \right)$

(c) $d\vec{B} = \dfrac{\mu_0}{4\pi} i \left(\dfrac{d\vec{l} \times \vec{r}}{r} \right)$

(d) $d\vec{B} = \dfrac{\mu_0}{4\pi} i^2 \left(\dfrac{d\vec{l} \times \vec{r}}{r^2} \right)$

12. For total internal reflection to take place, the angle of incidence i and the refractive index μ of the medium must satisfy the inequality
  (a) $\dfrac{1}{\sin i} < \mu$ (b) $\dfrac{1}{\sin i} > \mu$
  (c) $\sin i < \mu$ (d) $\sin i > \mu$

13. A ray of light is incident on a transparent glass slab of refractive index 1.62. The reflected and the refracted rays are mutually perpendicular. The angle of incidence is
  (a) 58.3°   (b) 50°
  (c) 35°   (d) 30°

14. For a colour of light the wavelength for air is 6000 Å and in water the wavelength is 4500 Å. Then the speed of light in water will be
  (a) $5. \times 10^{14} \ m/s$ (b) $2.25 \times 10^8 \ m/s$

(c) $4.0 \times 10^8 \ m/s$ (d) Zero

15. A rod of length 10 cm lies along the principal axis of a concave mirror of focal length 10 cm in such a way that its end closer to the pole is 20 cm away from the mirror. The length of the image is
(a) 10 cm   (b) 15 cm
(c) 2.5 cm   (d) 5 cm.

16. In a concave mirror experiment, an object is placed at a distance x_1 from the focus and the image is formed at a distance x_2 from the focus. The focal length of the mirror would be
  (a) $x_1 x_2$ (b) $\sqrt{x_1 x_2}$
  (c) $\dfrac{x_1 + x_2}{2}$ (d) $\sqrt{\dfrac{x_1}{x_2}}$

17. A particle having the same charge as of electron moves in a circular path of radius 0.5 cm under the influence of a magnetic field of 0.5 T. If an electric field of 100 V/m makes it to move in a straight path then the mass of the particle is (Given charge of electron = 1.6×10^{-19}C)

(a) 9.1×10^{-31} kg   (b) 1.6×10^{-27} kg
(c) 1.6×10^{-19} kg   (d) 2.0×10^{-24} kg

18. The focal length of a concave mirror is f and the distance from the object to the principle focus is x. The ratio of the size of the image to the size of the object is
 (a) $\dfrac{f+x}{f}$ (b) $\dfrac{f}{x}$
  (c) $\sqrt{\dfrac{f}{x}}$ (d) $\dfrac{f^2}{x^2}$

19. A length L of wire carries a steady current I. It is bent first to form a circular plane coil of one turn. The same length is now bent more sharply to give a double loop of smaller radius. The magnetic field at the centre caused by the same current is
  (a) A quarter of its first value
  (b) Unaltered
  (c) Four times of its first value
  (d) A half of its first value

20. In the figure, shown the magnetic induction at the centre of there arc due to the current in portion AB will be
  (a) $\dfrac{\mu_0 i}{r}$
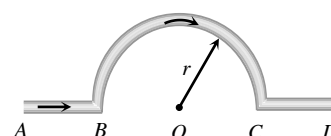
(b) $\dfrac{\mu_0 i}{2r}$

(c) $\dfrac{\mu_0 i}{4r}$

(d) Zero

21. A point object is placed at a distance of $10\,cm$ and its real image is formed at a distance of $20\,cm$ from a concave mirror. If the object is moved by $0.1\,cm$ towards the mirror, the image will shift by about

(a) $0.4\,cm$ away from the mirror

(b) $0.4\,cm$ towards the mirror
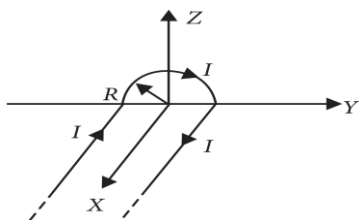
(c) $0.8\,cm$ away from the mirror

(d) $0.8\,cm$ towards the mirror

22. An object of size $7.5\,cm$ is placed in front of a convex mirror of radius of curvature $25\,cm$ at a distance of $40\,cm$. The size of the image should be

(a) $2.3\,cm$ (b) $1.78\,cm$

(c) $1\,cm$ (d) $0.8\,cm$

23. Which one of the following phenomena is not explained by Huygen's construction of wavefront?.

(a) Refraction   (b) Reflection

(c) Diffraction   (d) Origin ofspectra

24. A wire carrying current I has the shape as shown in adjoining figure. Linear parts of the wire are very long and parallel to X‑axis while semicircular portion of radius R is lying in Y‑Z plane. Magnetic field at point O is

(a) $\vec{B} = -\dfrac{\mu_0}{4\pi}\dfrac{I}{R}\left(\pi\hat{i} + 2\hat{k}\right)$ (b)

$\vec{B} = \dfrac{\mu_0}{4\pi}\dfrac{I}{R}\left(\pi\hat{i} - 2\hat{k}\right)$

(c) $\vec{B} = \dfrac{\mu_0}{4\pi}\dfrac{I}{R}\left(\pi\hat{i} + 2\hat{k}\right)$ (d)

$\vec{B} = -\dfrac{\mu_0}{4\pi}\dfrac{I}{R}\left(\pi\hat{i} - 2\hat{k}\right)$.

25. A deuteron of kinetic energy 50 keV is

describing a circular orbit of radius 0.5 metre in a plane perpendicular to magnetic field B. The kinetic energy of the proton that describes a circular orbit of radius 0.5 metre in the same plane with the same B is

(a) 25 keV (b) 50 keV

(c) 200 keV (d) 100 keV

26. A small coin is resting on the bottom of a beaker filled with liquid. A ray of light from the coin travels upto the surface of the liquid and moves along its surface. How fast is the light travelling in the liquid?
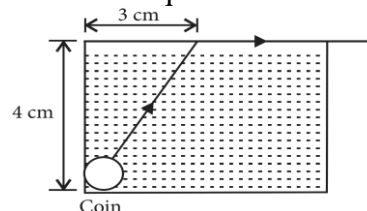
(a) $2.4\times10^8\,m/s$ (b) $3.0\times10^8\,m/s$

(c) $1.2\times10^8\,m/s$ (d) $1.8\times10^8\,m/s$.

27. A fish is a little away below the surface of a lake. If the critical angle is $49°$, then the fish could see things above the water surface within an angular range of θ^o where

(a) $\theta = 49^o$

(b) $\theta = 90^o$

(c) $\theta = 98^o$

(d) $\theta = 24\dfrac{1^o}{2}$
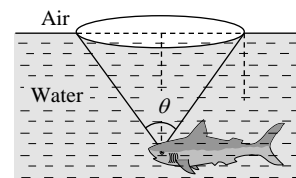
28. Two long parallel wires are at a distance of 1 metre. Both of them carry one ampere of current. The force of attraction per unit length between the two wires is

(a) $5\times10^{-8}\,N/m$ (b) $2\times10^{-8}\,N/m$

(c) $2\times10^{-7}\,N/m$ (d) $10^{-7}\,N/m$

29. The image formed by a convex mirror of focal length $30\,cm$ is a quarter of the size of the object. The distance of the object from the mirror is

(a) $30\,cm$ (b) $90\,cm$

(c) $120\,cm$ (d) $60\,cm$

30. In Young's experiment, two coherent sources are placed 0.90 mm apart and fringes are observed one metre away. If it produces second dark fringe at a distance of 1 mm from central fringe, the wavelength of monochromatic light is used would be

(a) $60\times10^{-4}\,cm$ (b) $10\times10^{-4}\,cm$

(c) $10 \times 10^{-5} cm$ (d) $6 \times 10^{-5} cm.$

31. A plano convex lens is made of refractive index 1.6. The radius of curvature of the curved surface is 60 cm. The focal length of the lens is

(a) 200 cm   (b) 100 cm

(c) 50 cm   (d) 400 cm.

32. If number of turns, area and current through a coil is given by n, A and i respectively then its magnetic moment will be

(a) niA (b) $n^2 iA$

(c) niA^2 (d) $\dfrac{ni}{\sqrt{A}}$ (2001)

33. Which is a vector quantity

   (a) Density   (b)   Magnetic flux

   (c) Intensity of magnetic field   (d)   Magnetic potential

34. Under the influence of a uniform magnetic field, a charged particle moves with a constant speed v in a circle of radius R. The time period of rotation of the particle

(a) depends on R and not on v

(b) is independent of both v and R

(c) depends on both v and R

(d) depends on v and not on R.

35. A charge moving with velocity v in X ‑ direction is subjected to a field of magnetic induction in negative X ‑ direction. As a result, the charge will

(a) remain unaffected

(b) start moving in a circular path Y ‑ Z plane

(c) retard along X ‑ axis

(d) moving along a helical path around X ‑ axis.

SECTION-II

36. Refractive index of air is 1.0003. The correct thickness of air column which will have one more wavelength of yellow light (6000 Å) than in the same thickness in vacuum is

   (a) $2\ mm$ (b) $2\ cm$

   (c) $2\ m$ (d) $2\ km$

37. There long straight wires A, B and C are carrying current as shown figure. Then the resultant force on B is directed .....
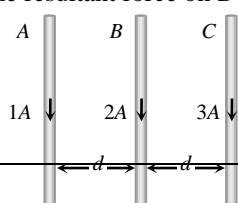
   (a) Towards A

   (b) Towards C

   (c) Perpendicular to the plane of paper and outward

   (d) Perpendicular to the plane of paper and inward

38. The magnetic field at a distance r from a long wire carrying current i is 0.4 tesla. The magnetic field at a distance $2r$ is

(a) 0.2 tesla   (b) 0.8 tesla

(c) 0.1 tesla   (d) 1.6 tesla.

39. A virtual image three times the size of the object is obtained with a concave mirror of radius of curvature $36 cm$. The distance of the object from the mirror is

   (a) $5 cm$ (b) $12 cm$

   (c) $10 cm$ (d) $20 cm$

40. Ratio of intensities of two waves are given by 4 : 1. nen ratio of the amplitudes of the two waves is

(a) 2: 1   (b) 1 : 2

(c) 4: 1   (d) 1 : 4.

41. If a long hollow copper pipe carries a current, then produced magnetic field will be

(a) both inside and outside the pipe

(b) outside the pipe only

(c) inside the pipe only

(d) neither inside nor outside the pipe

42. A convex mirror of focal length f forms an image which is $\dfrac{1}{n}$ times the object. The distance of the object from the mirror is

   (a) $(n-1)f$ (b) $\left(\dfrac{n-1}{n}\right)f$

   (c) $\left(\dfrac{n+1}{n}\right)f$ (d) $(n+1)f$

43. Image formed by a concave mirror of focal length 6 cm, is 3 times of the object, then the distance of object from mirror is

   (a) $-4\ cm$ (b) $8\ cm$

   (c) $6\ cm$ (d) $12\ cm$

44. Two thin lenses of focal lengths f_1 and f_2 are in contact and coaxial. The power of the combination is

(a) $\dfrac{f_1 + f_2}{2}$ (b) $\dfrac{f_1 + f_2}{f_1 f_2}$

(c) $\sqrt{\dfrac{f_1}{f_2}}$ (d) $\sqrt{\dfrac{f_2}{f_1}}$.

45. An object is placed $40\,cm$ from a concave mirror of focal length $20\,cm.$ The image formed is

     (a) Real, inverted and same in size

     (b) Real, inverted and smaller

     (c) Virtual, erect and larger

     (d) Virtual, erect and smaller

46. The wavelength of light in two liquids 'x' and 'y' is 3500 Å and 7000 Å, then the critical angle of x relative to y will be

     (a) 60°   (b) 45°

     (c) 30°   (d) 15°

47. A point object is placed at a distance of 30 cm from a convex mirror of focal length $30\,cm.$ The image will form at

     (a) Infinity

     (b) Focus

     (c) Pole

     (d) 15 cm behind the mirror

48. Stars are twinkling due to

     (a) Diffraction   (b) Reflection

     (c) Refraction   (d) Scattering

49. Four lenses of focal length ±15 cm and ±150 cm are available for making a telescope. To produce the largest magnification, the focal length of the eyepiece should be

(a) $+15\,cm$ (b) $+150\,cm$

(c) $-150\,cm$ (d) $-15\,cm$.

50. The relation between the linear magnification $m,$ the object distance u and the focal length f is

     (a) $m = \dfrac{f-u}{f}$ (b) $m = \dfrac{f}{f-u}$

     (c) $m = \dfrac{f+u}{f}$ (d) $m = \dfrac{f}{f+u}$

CHEMISTRY
SECTION-I

51. For the electrolytic refining of aluminium, the three fused layers consist of

	Bottom Layer	**Middle Layer**	**Upper Layer**
(a)	Cathode of pure Al	Cryolite and fluorspar	Anode of Al and Cu alloy
(b)	Cathode of Al and Cu alloy	Bauxite and cryolite	Anode of pure Al
(c)	Anode of Al and Cu alloy	Cryolite and barium fluoride	Cathode of pure Al
(d)	Anode of impure Al	Bauxite, cryolite and fluorspar	Cathode of pure Al

52. Which of the following molecule does not possess a permanent dipole moment?

(a) CS_2 (b) SO_3

(c) H_2S (d) SO_2

53. Which of the following complexes is used to be as an anticancer agent?.

(a) $mer-\left[Co\left(NH_3\right)_3 Cl_3\right]$

(b) $cis-[PtCl_2\left(NH_3\right)_2]$

(c) $cis-K_2\left[PtCl_2Br_2\right]$

(d) Na_2CoCl_4 (2014)

54. Among the following complexes the one which shows zero crystal field stabilization energy (CFSE) is

(a) $[Mn(H_2O)_6]^{3+}$

(b) $[Fe(H_2O)_6]^{3+}$

(c) $[Co(H_2O)_6]^{2+}$

(d) $[Co(H_2O)_6]^{3+}$ (2014)

55. The pairs of species of oxygen and their magnetic behaviour are noted below. Which of the following presents the correct description?

(a) $O_2^-,\ O_2^{2-}$ -Both diamagnetic

(b) $O^+,\ O_2^{2-}$ -Both paramagnetic

(c) $O_2^+,\ O_2$ -Both paramagnetic

(d) $O,\ O_2^{2-}-$ Both paramagnetic

56. Soft heavy metal melts at $30^o C$ and is used in making heat sensitive thermometers the metal is

(a)   Galium   (b)   Sodium

     (c)   Potassium   (d)   Caesium

57. In metal carbonyl having general formula $M(CO)_x$ where $M =$ metal $x = 4$ and the metal is bonded to

(a) carbon and oxygen

(b) $C \equiv O$

(c) oxygen

(d) carbon. (1995)

58. Crystal field splitting energy for high spin d^4 octahedral complex is

(a) $-1.2\Delta_o$ (b) $-0.6\Delta_o$

(c) $-0.8\Delta_o$ (d) $-1.6\Delta_o$ (*KarnatakaNEET2013*)

59. In which of the following pair both the species have sp^3 hybridization?

(a) SiF_4, BeH_2 (b) NF_3, H_2O

(c) NF_3, BF_3 (d) H_2S, BF_3

60. An excess of $AgNO_3$ is added to 100 mL of a 0.01 M solution of dichlorotetraaqua- chromium (III) chloride.

The number of moles of $AgCl$ precipitated would be

(a) 0.003   (b) 0.01

(c) 0.001   (d) 0.002(*NEET2013*)

61. Select the pair of molecules which has tetrahedral molecular geometry.

    (a) PCl_5 and SF_6

    (b) CH_4 and NH_4^+

    (c) SP_4 and BrF_5

    (d) ClP_3 and H_2O

62. Aluminium vessels should not be washed with materials containing washing soda since

    (a) Washing soda is expensive

    (b) Washing soda is easily decomposed

    (c) Washing soda reacts with aluminium to form soluble aluminate

    (d) Washing soda reacts with aluminium to form insoluble aluminium oxide

63. Out of $TiF_6^{2-}, CoF_{6^{3-}}, Cu_2Cl_2$ and $NiCl_4^{2-}$ Z of $Ti = 22, Co = 27, Cu = 29, Ni = 28$ the colourless species are

(a) Cu_2Cl_2 and $NiCl_4^{2-}$

(b) TiF_6^{2-} and Cu_2Cl_2

(c) $CoF_{6^{3-}}$ and $NiCl_4^{2-}$

(d) TiF_6^{2-} and $CoF_{6^{3-}}$ (*2009*)

64. Type metal is an alloy of Pb, Sb and Sn. It consists of

    (a) Equal amounts of the three metals

    (b) More amount of lead

    (c) More amount of antimony

    (d) More amount of tin

65. H_2O_2 on reaction with *PbS* gives

(a) PbO (b) $PbSO_4$

(c) PbO_2 (d) $PbHSO_4$

66. Which of the following does not apply to metallic bond?

(a) Overlapping valence orbitals

(b) Mobile valence electrons

(c) Delocalized electrons

(d) Highly directed bonds

67. The sum of lone pair of electrons present in the molecule of NH_3 and NF_3 is/are

(a) one

(b) two

    (c) three

    (d) zero.

68. Number of possible isomers for the complex $\left[Co(en)_2 Cl_2 \right] Cl$ will be (*en* = ethylenediamine)

(a) 1   (b) 3

(c) 4   (d) 2 (*2015*)

69. The complex ion $[Co(NH_3)_6]^{3+}$ is formed by sp^3d^2 hybridisation. Hence the ion should possess

(a) octahedral geometry

(b) tetrahedral geometry

(c) square planar geometry

(d) tetragonal geometry.

70. One would expect proton to have very large

(a) charge

(b) ionization potential

(c) hydration energy

(d) radius.

                 (*1993*)

71. Right order of dissociation energy N_2 and N_2^+ is

(a) $N_2 > N_2^+$ (b) $N_2 = N_2^+$

(c) $N_2^+ > N_2$ (d) none.

72. Which of the following pairs of compounds is isoelectronic and isostructural?

(a) $TeI_2,\ XeF_2$ (b) $IBr_{2^-},\ XeF_2$

(c) $IF_3,\ XeF_2$ (d) $BeCl_2,\ XeF_2$

73. Which of the following complexes exhibits the highest paramagnetic behaviour?.

(a) $[Co(ox)_2(OH)_2]^-$

(b) $[Ti(NH_3)_6]^{3+}$

(c) $[V(gly)_2(OH)_2(NH_3)_2]^+$

(d) $[Fe(en)(bpy)(NH_3)_2]^{2+}$ where $gly =$ glycine, $en =$ ethylenediamine and $bpy =$ bipyridylmoities. (At. nos. Ti $= 22,\ V = 23, Fe = 26, Co = 27$) (2008)

74. The first ionization potentials (eV) of Be and B respectively are
(a) 8.29, 8.29
(b) 9.32, 9.32
(c) 8.29, 9.32
(d) 9.32, 8.29

(1998)

75. Cobalt (III) chloride forms several octahedral complexes with ammonia. Which ofthe following will not give test for chloride ions with silver nitrate at $25^o C$?.

(a) $CoCl_3 \cdot 5NH_3$

(b) $CoCl_3 \cdot 6NH_3$

(c) $CoCl_3 \cdot 3NH_3$

(d) $CoCl_3 \cdot 4NH_3$ (2015, Cancelled)

76. Which one of the following is an inner orbital complex as well as diamagnetic in behaviour?

(a) $[Zn(NH_3)_6]^{2+}$

(b) $[Cr(NH_3)_6]^{3+}$

(c) $[Co(NH_3)_6]^{3+}$

(d) $[Ni(NH_3)_6]^{2+}$ (Atomic number: $Zn = 30, Cr = 24, Co = 27,$ Ni $= 28$) (2005)

77. Litharge is chemically

(a) PbO (b) PbO_2

(c) Pb_3O_4 (d) $Pb(CH_3COO)_2$

78. In Goldschmidt aluminothermic process, thermite contains

(a) 3 parts of Al_2O_3 and 4 parts of Al

(b) 3 parts of Fe_2O_3 and 2 parts of Al

(c) 3 parts of Fe_2O_3 and 1 part of Al

(d) 1 part of Fe_2O_3 and 1 part of Al

79. Which one of the following is expected to exhibit optical isomerism?.($en =$ ethylenediamine)

(a) $cis-\left[Pt\left(NH_3\right)_2Cl_2\right]$

(b) $trans-\left[Pt\left(NH_3\right)_2Cl_2\right]$

(c) $cis-[Co\left(en\right)_2Cl_2]^+$

(d) $trans-[Co\left(en\right)_2Cl_2]^+$ (2005)

80. Which of the following molecules has the highest bond order?

(a) O_2^- (b) O_2

(c) O_2^+ (d) O_2^{2-}

81. Which is diamagnetic?

(a) $[Co(F)_6]^{3-}$

(b) $[Ni(CN)_4]^{2-}$

(c) $[NiCl_4]^{2-}$

(d) $[Fe(CN)_6]^{3-}$ (KarnatakaNEET2013)

82. Match the column I with column II and select the correct code given below.

Column I Hybridisation	Column II Geometry
(P) sp^3	(i) Tetrahedral
(Q) $dsp2$	(ii) Square planar
(R) sp^3d	(iii) Trigonal bipyramidal
(S) sp^3d^2	(iv) Octahedral

(a) P-(i),Q-(ii),R-(iii),S-(iv)
(b) P-(i),Q-(iii),R-(iv),S-(ii)
(c) P-(iii),Q-(iv),R-(ii),S-(i)
(d) P-(ii),_O-(i),R-(iii),S-(iv)

83. $[Cr(H_2O)_6]Cl_3$ (At. no. of Cr $= 24$) has a magnetic moment of 3.83 B.M. The correct distribution of $3d$ electrons in the chromium of the complex is

(a) $3d_{xy}^1, 3d_{yz}^1, 3d_{z^2}^1$

(b) $3d_{(x^2-y^2)}^1, 3d_{z^2}^1, 3d_{xz}^1$

(c) $3d^1_{xy}, 3d^1_{(x^2-y^2)}, 3d^1_{yz}$

(d) $3d^1_{xy}, 3d^1_{yz}, 3d^1_{xz}$ (2006)

84. Among the following which one has the highest cation to anion size ratio?

(a) CsI (b) CsF

(c) LiF (d) NaF

(Mains2010)

85. Atomic number of Cr and Fe are respectively 24 and 26, which of the following is paramagnetic with the spin of electron?.
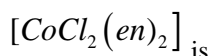
(a) $[Cr(CO)_6]$

(b) $[Fe(CO)_5]$

(c) $[Fe(CN)_6]^{4-}$

(d) $[Cr(NH_3)_6]^{3+}$

SECTION-II

86. Which of the following options represents the correct bond order?

(a) $O_{2^-} > O_2 < O_2^+$ (b) $O_{2^-} \langle O_2 \rangle O_2^+$

(c) $O_{2^-} > O_2 > O_2^+$ (d) $O_{2^-} < O_2 < O_2^+$

87. The type of isomerism shown by the complex $[CoCl_2(en)_2]$ is

(a) geometrical isomerism

(b) coordination isomerism

(c) ionization isomerism

(d) linkage isomerism. (NEET2018)

88. In the periodic table from left to right in a period, the atomic volume

(a) decreases

(b) increases

(c) remains same

(d) first decrease then increases. (1993)

89. The purification of alumina is called

     (a) Bosch process   (b) Caster process

     (c) Baeyer's process   (d) Hoop's process

90. Noble gases are absorbed on

(a) Anhydrous $CaCl_2$ (b) Charcoal

(c) Conc. H_2SO_4 (d) Coconut

91. The ions O^{2-}, F^-, Na^+, Mg^{2+} and Al^{3+} are isoelectronic. Their ionic radii show

(a) a significant increase from O^{2-} to Al^{3+}

(b) a significant decrease from O^{2-} to Al^{3+}

(c) an increase from O^{2-} to F^- and then decrease from Na^+ to Al^{3+}

(d) a decrease from O^{2-} to F^- and then increase from Na^+ to Al^{3+}. (2003)

92. Which gas is liberated when Al_4C_3 is hydrolysed

     (a) CH_4 (b) C_2H_2

     (c) C_2H_6 (d) CO_2

93. The type of glass used in making lenses and prisms is

     (a) A flint glass   (b) Jena glass

     (c) Pyrex glass   (d) Quartz glass

94. The element $Z = 114$ has been discovered recently. It will belong to which of the following family/group and electronic configuration?

(a) Carbon family [Rn] $5f^4 6d^{10} 7s^2 7p^2$

(b) Oxygen family [Rn] $5f^4 6d^{10} 7s^2 7p^4$

(c) Nitrogen family, [Rn] $5f^4 6d^{10} 7s^2 7p^6$

(d) Halogen family, [Rn] $5f^4 6d^{10} 7s^2 7p^5$

(NEET2017)

95. XeF_2 is isostructural with

(a) $SbCl_3$ (b) $BaCl_2$

(c) TeF_2 (d) ICl_2^-

96. Which complex compound will give four isomers?.

(a) $[Fe(en)_3]Cl_3$

(b) $[Co(en)_2Cl_2]Cl$

(c) $[Fe(PPh_3)_3 NH_3 ClBr]Cl$

(d) $[Co(PPh_3)_3 Cl]Cl_3$ (2000)

97. Which one of the following orders is not in accordance with the property stated against it?

(a) $F_2 > Cl_2 > Br_2 > I_2$: Bond dissociation energy

(b) $F_2 > Cl_2 > Br_2 > I_2$: Oxidising power

(c) $HI > HBr > HCl > HF$: Acidic property in water

(d) $F_2 > Cl_2 > Br_2 > I_2$: Electronegativity

(*2006*)

98. The name of complex ion, $[Fe(CN)_6]^{3-}$ is

(a) hexacyanitoferrate (III) ion

(b) tricyanoferrate (III) ion

(c) hexacyanidoferrate (III) ion

(d) hexacyanoiron (III) ion. (*2015*)

99. Na^+, Mg^{2+}, Al^{3+} and Si^{4+} are isoelectronic. the order of their ionic size is

(a) $Na^+ > Mg^{2+} < Al^{3+} < Si^{4+}$

(b) $Na^+ \langle Mg^{2+} \rangle Al^{3+} > Si^{4+}$

(c) $Na^+ > Mg^{2+} > Al^{3+} > Si^{4+}$

(d) $Na^+ \langle Mg^{2+} \rangle Al^{3+} < Si^{4+}$

(*1993*)

100. Carbon and silicon belong to (IV) group. The maximum coordination number of carbon in commonly occurring compounds is 4, whereas that of silicon is 6. This is due to

(a) Large size of silicon

(b) More electropositive nature of silicon

(c) Availability of low lying *d*-orbitals in silicon

(d) Both (a) and (b)

BIOLOGY
SECTION-I

101. Match between the following representing parts of the sperm and their functions and choose the correct option.

Column A	Column B
(A) Head	**(i) Enzymes**
(B) Middle piece	**(ii) Sperm motility**
(C) Acrosome	**(iii) Energy**
(D) Tail	**(iv) Genetic material**

(a) A-ii, B-iv, C-i, D-iii   (b) A-iv, B-iii, C-i, D-ii

(c) A-iv, B-i, C-ii, D-iii   (d) A-ii, B-i, C-iii, D-iv

102. The gynoecium consists of many free pistils in flowers of

(a) Aloe   (b) Tomato

(c) Papaver   (d) Michelia

103. In an embryo sac, the cells that degenerate after fertilization are

(a) Synergid and primary endosperm nucleus cell

(b) Synergid and antipodal

(c) Antipodal and primary endosperm nucleus cell

(d) Egg and antipodals

104. Urethral meatus refers to the

(a) Urinogenital duct

(b) Opening of vas deferens into urethra

(c) External opening of the urinogenital duct

(d) Muscles surrounding the urino genial duct

105. The concept of chemical evolution was given by

(a) Louis Pasteur   (b) Oparin and Haldane

(c) Morgan   (d) Darwin

106. The disease chikungunya is transmitted by

(a) house flies   (b) Aedes mosquitoes

(c) cockroach   (d) female Anopheles

107. From among the situations given below, choose the one that prevents both autogamy and geitonogamy.

(a) Monoecious plant bearing unisexual flowers.

(b) Dioecious plant bearing only male or female flowers.

(c) Monoecious plant with bisexual flowers.

(d) Dioecious plant with bisexual flowers.

108. Identify the human development stage shown below as well as the related right place of its occurrence in a normal pregnant women and select the right option for the two together:
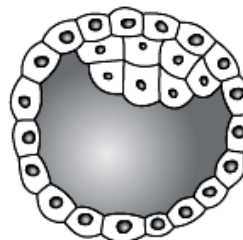
Developmental stage	Site of occurrence
(a) Blastula	End part of fallopian tube
(b) Blastocyst	Uterine wall
(c) 8-celled morula	Starting point of fallopian tube
(d) Late morula	Middle part of fallopian tube

109. Which is-the correct chronological sequence of human evolution -

(a) Dryopithecus -» Ramapithecus -» Australopithecus -» Homohabilis -» H. erectus -> Cro-magnonon -> H. sapiens sapeins

(b) Ramapithecus -» Australopithecus -> Homohabilis -> H. erectus -> Cro-magnonon -» Dryopithecus -> H. sapiens sapeins

(c) Dryopithecus -> Ramapithecus -» Homohabilis -» H. erectus -» Cro-magnonon -» Australopithecus -> H. sapiens sapeins

(d) Dryopithecus ->• Ramapithecus -» H. sapiens sapeins -> Australopithecus -» Homohabilis —> H. erectus -> Cro-magnonon

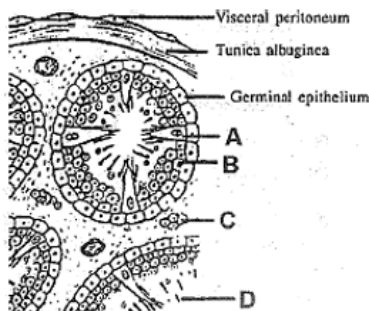**110. Non-albuminous seed is produced in**

(a) Maize   (b) Castor

(c) Wheat   (d) Pea

111. Which one of the following is not a male accessory gland?

(a) Seminal vesicle   (b) Ampulla

(c) Prostate   (d) Bulbourethral gland

**112. The below diagram refers to T.S. of testis showing sectional view of a few seminiferous tubules.**

(a) A - Sertoli cells, B - Spermatozoa, C - Interstitial cells, DSperms

(b) A - Sertoli cells, B - Secondary spermatocyte, C – Interstitial cells, D - Sperms

(c) A- Interstitial cells, B - Spermatogonia, C - Sertoli cells, DSperms

(d) A- Sertoli cells, B- spermatogonia, C- interstitial cells, D- sperms

113. Sertoli cells are found in

(a) Ovaries and secrete progesterone

(b) Adrenal cortex and secrete adrenalin

(c) Seminiferous tubules and provide nutrition to germ cells

(d) Pancreas and secrete cholecystokinin

114. The following diagram refers to L.S. of testis showing various parts. In which one of the option all the six parts are correct.
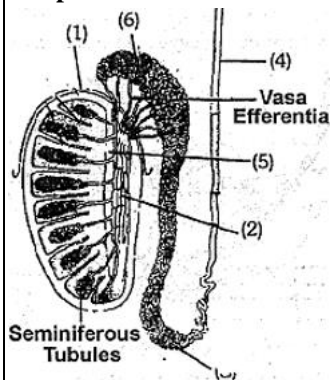
(a) 1 -Tunica Vagin s, 2 - Rete Testis, 3 - Caput Epididymis, 4 -Vas Deferens, 5 - Mediastinum Testis, 6 - Cauda Epididymis

(b) 1 - Tunica Vagin s, 2 - Rete Testis, 3 - Cauda Epididymis, 4 - Mediastinum Testis, 5 - Vas Deferens, 6- Cauda Epididymis

(c) 1 -Tunica Vagin s, 2 - Rete Testis, 3 - Cauda Epididymis, 4 -Vas Deferens, 5 - Mediastinum Testis, 6- Cauda Epididymis

(d) 1 - Tunica Vagin s, 2 - Rete Testis, 3 - Caput Epididymis, 4 - Mediastinum Testis, 5 - Vas Deferens, 6 - Cauda Epididymis

115. Match columns I and II and select the correct option using the codes given below.

Column-I   Column-II

(A) Monocarpellary   (1) Pistils fused

(B) Multicarpellary   (2) Pistils free

(C) Apocarpous   (3) Single pistil

(D) Syncarpous   (4) More than one pistil

Codes	A	B	C	D
(a)	3	4	1	2
(b)	3	4	2	1
(c)	4	3	1	2
(d)	4	3	2	1

116. A _____ to an anther is like embryo sac to ovule

(a) stamen

(b) filament

(c) pollen grain

(d) androecium

117. Which of the following theories of the origin of life supports drifting of life containing spores through the space to Earth?

(a) Theory of panspermia

(b) Spontaneous generation of life

(c) Abiogenesis

(d) Chemical evolution of life

118. Which of the following statements regarding evolution is incorrect?

(a) Evolution explains the origin of both presentday and extinct organisms.

(b) Evolution creates diversity in populations.

(c) Evolution is the accumulation of genetic changes in a population over generations.

(d) In biology, evolution refers to the genetically identical line of descent.

119. Which one of the following statements is correct with respect to immunity?

(a) The antibodies against small pox pathogen are produced by T-lymphocytes.

(b) Antibodies are protein molecules each of which has four light chains.

(c) Rejection of a kidney graft is the function of B-lymphocytes.

(d) Preformed antibodies need to be injected to treat the bite by a viper snake.

120. Match columns I and II and select the correct option using the codes given below.

Column-I (Structure)   Column-II (Shape)

(A) Anther   (1) Spindle shaped

(B) Microsporangium   (2) Spherical shaped

(C) Pollen grain   (3) Tetragonal

(D) Generative cell   (4) Near circular outline

Codes	A	B	C	D
(a)	4	3	1	2
(b)	3	4	2	1
(c)	1	2	3	4
(d)	2	1	4	3

121. Which one of the following generate new genetic combinations leading to variation?

(a) Parthenogenesis   (b) Sexual reproduction
(c) Nucellar polyembryony   (d) Vegetative reproduction

122.For the MN-blood group system, the frequencies of M and N alleles are 0.7 and 0.3, respectively.

The expected frequency of MN-blood group bearing organisms is likely to be

(a) 42 per cent   (b) 49 per cent
(c) 9 per cent   (d) 58 per cent

123.Match the following -

Column A	Column B
I. Allergy	(i) Typhoid fever
II. T-helper cells	(ii) Single stranded RNA
III. Hallucinogens	(iii) Wuchereria
IV. Liver	(iv) IgE
V. Widal test	(v) Cirrhosis
VI. Filariasis	(vi) Atropa belladona
VII. ELISA test	(vii) Activation of B-cells
VIII. AIDS virus	(viii) Carcinogens
IX Treatment of cancer	(ix)AIDS
X-rays	(x) Immunotherapy

(a) I - (iv), II - (vi), III - (viii), IV - (v), V - (i), VI - (iii), VII - (ix), VIII - (ii), IX - (x), X - (vii)

(b) I-.(iv), II - (vii), III - (vi), IV - (v), V - (i), VI - (iii), VII - (ix), VIII - (ii), IX - (x), X - (viii)

(c) I - (iv), II - (vii), III - (v), IV - (ii), V - (i), VI - (iii), VII - (ix), VIII - (vi), IX - (x), X - (viii)

(d) I - (iv), II - (vii), III - (vi), IV - (v), V - (i), VI - (ix), VII - (x), VIII - (ii), IX - (iii), X - (viii)

124.The megaspore mother cell forms megaspore without undergoing meiosis. What is the ploidy of the nuclei of the embryo sac developed from these megaspores?

     (a) Haploid
     (b) Diploid
     (c) A few haploid and a few diploid
     (d) With varying ploidy

125.Pollination occuring in closed flowers is -

(a) Bud pollination   (b) Cleistogamy
(c) Chasmogamy   (d) Allogamy

126.The phenomenon wherein, the ovary develops into a fruit without fertilization is called

(a) Parthenocarpy   (b) Apomixis
(c) Asexual reproduction   (d) Sexual reproduction

127.Pollen grains can be stored for several years in liquid nitrogen having temperature of

     (a) –196°C
     (b) –80°C
     (c) –120°C
     (d) –160°C

128.What is the function of germ pore?

(a) Absorption of water for seed germination
(b) Initiation of pollen tube
(c) Release of male gametes
(d Emergence of radical

129.Which of the following is used as an atmospheric pollution indicator?

(a) Lepidoptera   (b) Lichens
(c) Lycopersicon   (d) Lycopodium

130.AIDS is caused by HIV. Among the following, which one is not a mode of transmission of HIV?

(a) Transfusion of contaminated blood
(b) Sharing the infected needles
(c) Shaking hands with infected persons
(d) Sexual contact with infected persons

131.The following diagram refers to female reproductive system of human. Identify Ato E –
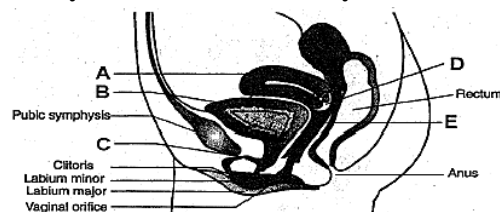
(a) A- Urethra, B - Urinary bladder, C - Uterus, D - Cervix, E - Vagina

(b) A - Uterus, B - Urinary bladder, C - Urethra, D - Vagina, E - Cervix

(c) A- Urethra, B - Urinary bladder, C - Uterus, D - Cervix, E - Vagina

(d) A - Uterus, B - Urinary bladder, C - Urethra, D - Cervix, E – Vagina

132.The study of the history of life forms of the earth is called

     (a) Evolutionary Biology   (b) Ecology
(c) Environmental biology   (d) Pathology

133.The structures associated with gynoecium are

     (a) stigma, ovule, embryo sac, placenta
     (b) thalamus, pistil, style, ovule
     (c) ovule, ovary, embryo sac, tapetum
     (d) ovule, stamen, ovary, embryo sac

134.Infection of Ascaris usually occurs by

(a) Drinking water containing eggs of ascaris
(b) Eating imperfectly cooked pork
(c) Tsetse fly
(d) Mosquito bite

135.Identify the odd one from the following:

(a) Labia minora   (b) Fimbriae
(c) Infundibulum   (d) Isthmus

136.Which of the following is used as an atmospheric pollution indicator?

(a) Lepidoptera   (b) Lichens
(c) Lycopersicon   (d) Lycopodium

137.Which of the following sets of organic products were obtained in the Miller experiment?

     (a) 25 amino acids, fatty acids, hydroxyl acids and amide products

     (b) more than 2 amino acids, fatty acids, hydroxyl acids and amide products

     (c) Fatty acids, hydroxyl acids, and amide products

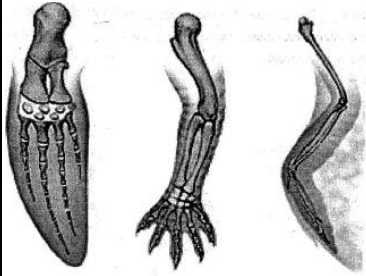   (d) 25 amino acids and amide products

138. The vasa deferens receives duct from the seminal vesicle and opens into urethra as

(a) epididymis   (b) ejaculatory duct

(c) efferent ductule   (d) ureter

139. Cirrhosis of liver is caused by the chronic intake of

(a) Opium   (b) Alcohol

(c) Tobacco (chewing)   (d) Cocaine

140. What can you infer about these structures?

(a) they are homologous

(b) they are vestigial structures

(c) they are analogous

(d) they have nothing to do with each other

141. Choose the correct statements about diseases.

(I) Disease adversely affects the functioning of one or more organs.

(II) A disease is characterized by the appearance of various signs and symptoms.

(III) AIDS is a fatal non-infectious disease.

(IV) Cancer is an infectious disease.

       (a) (I) and (II)   (b) (II) and (III)

   (c) (III) and (IV)   (d) (I) and (IV)

142. The part of fallopian tube closest to the ovary is

(a) Isthmus   (b) Infundibulum

(c) Cervix   (d) Ampulla

143. Viviparity is considered to be more evolved because

(a) The young ones are left on their own.

(b) The young ones are protected by a thick shell.

(c) The young ones are protected inside the mother's body and are looked after they are born

leading to more chances of survival.

(d) The embryo takes a long time to develop.

144. Given below is the diagrammatic representation of Miller's experiment. Which of the following options correctly describe all the labels?
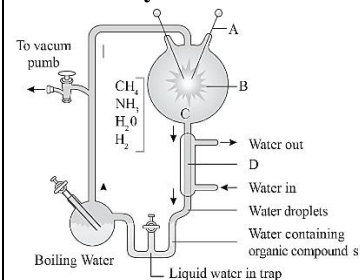
       (a) A: Spark; B: Electrodes; C: Condenser; D: Gases

       (b) A: Electrodes; B: Spark; C: Gases; D: Condenser

(c) A: Condenser; B: Spark; C: Gases; D: Electrodes

       (d) A: Spark; B: Condenser; C: Gases; D: Electrodes

145. The bones of forelimbs of whale, bat, cheetah and man are similar in structure, because

(a) One organism has given rise to another

(b) They share a common ancestor

(c) They perform the same function

(d) They have biochemical similarities

146. The phenomenon observed in some plants wherein the parts of the sexual apparatus used for forming embryos without fertilization is called

(a) Parthenocarpy   (b) Apomixis

(c) Vegetative propagation   (d) Sexual reproduction

147. Consider the following statements about the Big Bang Theory.

(A) The universe was formed in an instant due to a single big explosion.

(B) The outward distribution of all matter and energy started from that point. Select the correct option.

       (a) Both (A) and (B) are true

       (b) (A) is true but (B) is false.

       (c) Both (A) and (B) are false.

       (d) (A) is false but (B) is true.

148. Which of these is not an important component of initiation of parturition in humans?

(a) Increase in oestrogen and progesterone ratio

(b) Synthesis of prostaglandins

(c) Release of oxytocin

(d) Release of prolactin

149. Three forms of the peppered moth, Bistan betularia, namely the melanic form, the pale form, and a form intermediate between these two, are found in Britain today. The melanic form was first observed in 1848 and its frequency subsequently inqreased. This is thought to be the result of

(a) adaptive radiation.   (b) convergent evolution.

(c) divergent evolution.   (d) natural selection.

150. Assertion: The scrotum helps in maintaining the low temperature of the testes.

Reason: The low temperature of the testes is necessary for spermatogenesis.

       (a) Both assertion and reason are true and reason is the correct explanation of assertion.

       (b) Both assertion and reason are true, but reason is not the correct explanation of assertion.

       (c) Assertion is true, but reason is false.

       (d) Both assertion and reason are false.

151. Which is the most common type of embryo sac in angiosperms?

       (a) Tetrasporic with one mitotic stage of divisions

       (b) Monosporic with three sequential mitotic divisions

       (c) Monosporic with two sequential mitotic divisions

       (d) Bisporic with two sequential mitotic divisions

152. In which one of the following options the two examples are correctly matched with particular type of immunity?

Examples

       Type of immunity

(a) Polymorphonuclear leukocytes and monocytes
       Cellular barriers
(b) Anti-tetanus and anti-snake bite injections
       Active immunity
8.28 Human Health and Disease
(c) Saliva in mouth and tears in eyes
Physical barriers
(d) Mucus coating of epithelium lining the urinogenital
       Physiological barriers
tract and the HCl in stomach

153. One of the following is not the causal organism for ringworm.
(a) Microsporum   (b) Trichophyton
(c) Epidermophyton   (d) Macrosporum

154. What would be the number of chromosomes of the aleurone cells of a plant with 42 chromosomes in its root tip cells?
(a) 63   (b) 84
(c) 21   (d) 42

155. According to the Hardy-Weinberg's equation $p^2 + q^2 + 2pq$ should be equal to
(a) 1   (b) 5   (c) 8   (d) 7

156. Transmission tissue is the characteristic feature of
(a) Hollow style   (b) Solid style
(c) Dry stigma   (d) Wet stigma

157. Starting from the innermost part, the sequence of parts in an ovule are
   (a) egg, embryo sac, nucellus, integument
   (b) egg, nucellus, embryo sac, integument
(c) embryo sac, nucellus, integument, egg
   (d) egg, integument, embryo sac, nucellus

158. Which of the following depicts the correct pathway of transport of sperms?
(a) Rete testis → Epididymis → Efferent ductules → Vas deferens
(b) Rete testis → Vas deferens → Efferent ductules → Epididymis
(c) Efferent ductules → Rete testis → Vas deferens → Epididymis
(d) Rate Testis → Efferent ductules → Epididymis → Vas deferens

159. Which of the following is/are the ill-effect(s) of smoking?
(a) psychological stress   (b) reduces immunity
(c) coronary diseases   (d) Both b and c

160. Read the graph and correlate the uterine events that take place according to the hormonal levels on (I) 6-15 days (II) 16-25 days (III) 26-28 days (if the ovum is not fertilized)
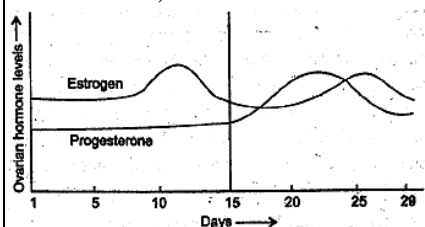
(a) I - Degeneration of endometrium, II -Myometrium thickens, becomes vascularised, ready to receive and implant embryo, III - Regeneration of endometrium.
(b) I - Degeneration of endometrium, II - Endometrium thickens, becomes vascularised, ready to receive and implant ovum, III - Regeneration of endometrium.
(c) I - Degeneration of endometrium, II - Endometrium thickens, becomes vascularised, ready to receive and implant embryo, III - Regeneration of endometrium.
(d) I - Regeneration of endometrium, II - Endometrium thickens, becomes vascularised, ready to receive and implant embryo, III - Degeneration of enddrhetrium.

161. Fertilization in humans is practically feasible only if
(a) The sperms are transported into vagina just after the release of ovum in fallopian tube.
(b) The sperms are transported into cervix within 48 hrs of release of ovum in uterus
(c) The ovum and sperms are transported simultaneously to ampullary–isthmic junction of the cervix.
(d) The ovum and sperms are transported simultaneously to ampullary–isthmic junction of the fallopian tube.

162. Which of the following options correctly represent the life cycle of Plasmodium?
A. sporozoites (human) —> RBCs —> liver cells gametocytes (RBCs) —> blood meal (female mosquito) —> multiply (mosquito) —» sporozoites (mosquito)
B. sporozoites (mosquito) —> bite —> RBC s (human) —> liver cells gametocytes (RBCs) —> sporozoites (human) —> blood meal (female mosquito).
C. sporozoites (human) —> liver cells —> RBCs. gametocytes (RBCs) —> blood meal (female mosquito) —> multiply (mosquito) —> sporozoites (mosquito).
D. blood meal (female mosquito) —> multiply (mosquito) —> spo ozoites (mosquito) —•> bite —> liver cells (human) —» RBCs —> gametocytes (RBCs)
(a) A and B are correct   (b) C and D are correct
(c) All are correct   (d) None

163. The wings of a bird and the wings of an insect are:
(a) Analogous structures and represent convergent evolution
(b) Phylogenetic structures and represent divergent evolution
(c) Homologous structures and represent convergent evolution
(d) Homologous structures and represent divergent evolution

164. Which of the following is not true for interferon?
(a) These act outside the cells   (b) These are quick acting
(c) Their action is long lasting   (d) These act against viruses

165. Acrosomal reaction of the sperm occurs due to
(a) Its contact with zona pellucida of the ova.
(b) Reactions within the uterine environment of the female.
(c) Reactions within the epididymal environment of the male.
(d) Androgens produced in the uterus.

166. Which one of the following statements is correct with respect to AIDS?

(a) The HIV can be transmitted through eating food together with an infected person.

(b) Drug addicts are least susceptible to HIV infection.

(c) AIDS patients are being fully cured 100 per cent with proper care and nutrition.

(d) The causative HIV retrovirus enters helper T-lymphocytes thus reducing their numbers.

167. In a normal pregnant woman, the amount of total gonadotropin activity was assessed. The result expected was

(a) High level of circulating FSH and LH in the uterus to stimulate implantation of the embryo.

(b) High level of circulating HCG to stimulate endometrial thickening.

(c) High level of FSH and LH in uterus to stimulate endometrial thickening.

(d) High level of circulating HCG to stimulate estrogen and progesterone synthesis.

168. The regions outside the seminiferous tubules that contain Leydig cells are called

    (a) interstitial spaces   (b) antrum

    (c) scrotum   (d) none of these

169. After diagnosis by a psychiatrist, an apparently healthy person was said to be unhealthy because the patient was

    (a) unefficient at his work

    (b) not prosperous economically

(c) not interested in sports

    (d) showing behavioural and social maladjustment

170. Earlier it was thought that persons with 'black bile'

    (a) belonged to hot personality

    (b) would have fevers

    (c) would have cancer

    (d) both (a) and (b)

171. The pathogen microsporum responsible for ringworm disease in humans belongs to the same kingdom of organisms as that of

(a) Taenia, a tapeworm

(b) Wuchereria, a filarial worm

(c) Rhizopus, a mould

(d) Ascaris, a round worm

172. In which one of the following, pollination is autogamous?

(a) Xenogamy   (b) Chasmogamy

(c) Cleistogamy   (d) Geitonogamy

173. The adjacent diagram shows some of the changes in blood hormone concentration which occur during the menstrual cycle. Complete the diagram using labels from the following list
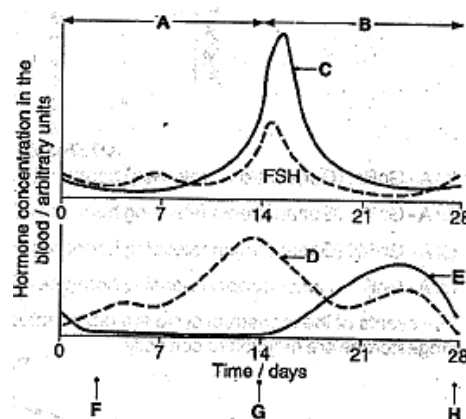
I. Oestrogen

II. Ovulation

III. Repair of endometrium ,

IV. Luteinising hormone '

V. Menstruation

VI. Luteal phase

VII. Progesterone

VIII. Ovarian phase.

(a) I - H, II - G, III - F, IV - E, V - D, VI - C, VII - B, VIII- A

(b) I - D, II - E, III - F, IV - G, V - H, VI -A, VII - C, VIII - C

(c) I - D, II - G, III - F, IV - C, V - H, VI - B, VII - E, VIII - A

(d) I - A, II - C, III - E, IV - G, V - H, VI - F, VII - D, VIII – B

174. Which of the following is/are example(s) of the natural passive immunity?

(a) inoculated antigen administration

(b) polio vaccine drops

(c) antitoxin serum

(d) colostrum

175. Which one of the following experiments suggest that the simplest living organisms could not have originated spontaneously from non-living matter?

    (a) Larvae could appear in decaying organic matter.

    (b) Microbes did not appear in stored meat.

    (c) Microbes appeared from unsterilized organic matter.

    (d) The meat was not spoiled when heated and kept sealed in a vessel.

176. Among the terms listed below, the below options which are not technically correct names for a floral whorl are

(i) Androecium   **(ii) Carpel**

(iii) Corolla   **(iv) Sepal**

(a) i and iv   (b) iii and iv

(c) ii and iv   (d) i and ii

177. Where will you look for the sporozoites of the malarial parasite?

(a) Red blood corpuscles of humans suffering from malaria.

(b) Spleen of infected humans.

(c) Salivary glands of freshly moulted female anopheles mosquito.

(d) Saliva of infected female anopheles mosquito.

178. Tobacco consumption is known to stimulate secretion of adrenaline and nor-adrenaline. The component causing this could be

(a) nicotine   (b) tannic acid

(c) curcumin   (d) catechin

179. Diseases can be caused by the infection of

    (a) bacteria   (b) viruses

    (c) helminths   (d) all of these

180. Which of the following glands is large sized at birth but reduces in size with ageing?

(a) Pineal   (b) Pituitary

(c) Thymus   (d) Thyroid

SECTION-II

181. Health is affected by

    (a) genetic disorders   (b) infections

    (c) lifestyle   (d) all of these

182. Which one of the following fruits is parthenocarpic?

(a) Apple   (b) Jackfruit

(c) Banana   (d) Brinjal

183. The theory of spontaneous generation stated that

    (a) life arose from living forms only.

    (b) life can arise from both living and non-living forms.

    (c) life can arise from non-living things only.

    (d) life arises spontaneously, neither from living nor from the non-living forms.

184. Among the following, identify the infectious diseases.

(I) Cancer

(II) Influenza

(III) Allergy

(IV) Smallpox

    (a) (I) and (II)   (b) (II) and (III)

    (c) (III) and (IV)   (d) (II) and (IV)

185. From the statements given below, choose the options that are true for a typical female gametophyte of a flowering plant.

(i) It is 8-nucleate and 7-celled at maturity.

(ii) It is free-nuclear during the development.

(iii) It is situated inside the integument but outside the nucellus.

(iv) It has an egg apparatus situated at the chalazal end.

Choose the correct answer from the options given below:

(a) i, ii and iii   (b) i, iii and iv

(c) I and ii   (d) ii, iii and iv

186. Artificial hybridization programme involving dioecious plants do not require which step?

    (a) Bagging of female flower

    (b) Dusting of pollen on stigma

    (c) Emasculation

    (d) Collection of pollen

187. The spermatogonia undergo division to produce sperms by the process of spermatogenesis.

Choose the correct one with reference to above.

(a) Spermatogonia have 46 chromosomes and always undergo meiotic cell division

(b) Primary spermatocytes divide by mitotic cell division

(c) Secondary spermatocytes have 23 chromosomes and undergo second meiotic division

(d) Spermatozoa are transformed into spermatids

188. The given image shows an experiment performed by Louis Pasteur to disapprove the theory of spontaneous generation. Which of the given flasks would exhibit the growth of microbes?
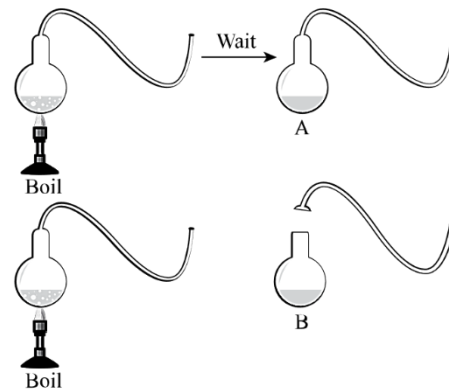
    (a) Both A and B   (b) Only A

    (c) Only B   (d) None

189. In malignant tumours, the cells proliferate, grow rapidly and move to other parts of the body to form new tumours. This stage of disease is called

(a) Metagenesis   (b) Metastasis

(c) Teratogenesis   (d) Mitosis

190. Testicular hormones called androgens are secreted by

(a) interstitial cells   (b) Leydig cells

    (c) Sertoli cells   (d) both (a) and (b)

191. Which of the given statements about the primitive Earth is incorrect?

    (a) There was no atmosphere on primitive Earth.

    (b) A gaseous blanket covered the Earth's thin crust around 4 billion years ago.

    (c) The early atmosphere of the Earth was a mix of gases such as hydrogen, nitrogen, carbon dioxide and oxygen.

    (d) Gases released from the volcanoes were the main source of early atmosphere of Earth.

192. Match Column-I with Column-II.

Column-I	Column-II
(A) Origin of the universe	**(1) 4.5 billion years ago**
(B) Origin of earth	**(2) 4 billion years ago**
(C) Origin of life	**(3) 2.7 billion years ago**
(D) Origin of first eukaryotes	**(4) 20 billion years ago**

Select the correct option.

	A	B	C	D
(a)	1	4	2	3
(b)	4	1	2	3
(c)	4	2	1	3
(d)	4	1	3	2

193. Which of the following is an example for link species?

(a) Lobe fish   (b) Dodo bird

(c) Sea weed   (d) Chimpanzee

194.The vas deferens receives duct from the seminal vesicle and opens into urethra as

(a) Epididymis   (b) Ejaculatory duct

(c) Efferent ductule   (d) Ureter

195.Secretions from which one of the following are rich in fructose, calcium and some enzymes?

(a) Male accessory glands   (b) Liver

(c) Pancreas   (d) Salivary glands

196.Embryo sac is to ovule as _____ is to an anther.

(a) Stamen   (b) Filament

(c) Pollen grain   (d) Androecium

197.Match the scientists listed under column 'A' with 'ideas listed in column 'B'.

	Column A	Column B
i.	Darwin	M. Abiogenesis
ii.	Oparin	N. Use and disuse of organs
iii.	Lamarck	O. Continental drift theory
iv.	Wagner	P. Evolution by natural selection

(a) i - M; ii - P; iii - N; iv - O

(b) i - P ; ii - M; iii - N; iv - O

(c) i - N; ii - P; iii - O; iv - M

(d) i - P; ii - O; iii - N; iv – M

198.Species is:

(a) population of one type

(b) a group of interbreeding populations

(c) a group of individuals inhabiting a geographical area

(d) populations of individual having same genotypes and phenotypes

199.AIDS can be diagnosed by

(a) radio immunoassay (RIA)

(b) enzyme linked immuno-sorbent assay (ELISA)

(c) western blotting (Confirm test)

(d) All of the above

200.Spot the odd one out from the following structures with reference to the male reproductive system.

(a) Rete testis   (b) Epididymis

(c) Vasa efferentia   (d) Isthmus