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eMedical Prep

Solved Paper
AIIMS - 1997

Time : 3½ Hours | Max. Marks : 200

PHYSICS

1. A charged hollow sphere does not produce an electric field at any
(a) inner point (b) outer point
(c) beyond 2 metres (d) beyond 10 metres

2. Time-period of a pendulum on a satellite, orbiting around the earth, is
(a) 0 (b) ∞
(c) $1/\pi$ (d) π

3. Chromatic aberration of lens can be corrected by
(a) providing different suitable curvature to its two surfaces
(b) proper polishing of its two surfaces
(c) suitably combining it with another lens
(d) reducing its aperture

4. Which of the following is the infrared wavelength?
(a) 10^{-4} cm (b) 10^{-5} cm
(c) 10^{-6} cm (d) 10^{-7} cm

5. A beam of light in air enters into the water. Which of the following characteristics of light will not change?
(a) colour (b) velocity
(c) amplitude (d) frequency

6. Whenever stationary waves are set up, in any medium, then
(a) condensations occur at nodes
(b) refractions occur at antinodes
(c) maximum strain is experienced at the nodes
(d) no strain is experienced at the antinodes

7. When there are no external forces, the shape of a small liquid drop is determined by
(a) surface tension of the liquid
(b) density of the liquid
(c) viscosity of air
(d) temperature of air

8. At sea level, the value of g is minimum at
(a) the poles (b) the equator
(c) 45° south latitude (d) 45° north longitude

9. What happens, when we multiply a vector by –2 ?
(a) direction reverses and unit changes
(b) direction reverses and magnitude is doubled
(c) direction remains unchanged but unit changes
(d) neither direction reverses nor unit changes but the magnitude is doubled

10. Conservation of linear momentum is equivalent to
(a) Newton's law of gravity
(b) Newton's first law of motion
(c) Newton's second law of motion
(d) Newton's third law of motion

11. What can be the angle between $\vec{P}+\vec{Q}$ and $\vec{P}-\vec{Q}$?
(a) 0° (b) 90°
(c) 180° (d) between 0° and 180°

12. In Lenz's law, there is a conversion of
(a) charge (b) energy
(c) current (d) momentum

13. The temperature of the sun is measured with
(a) pyrometer
(b) gas thermometer
(c) platinum resistance thermometer
(d) vapour pressure thermometer

14. The objectives with large apertures are used in telescopes for
(a) greater magnification
(b) greater resolution
(c) reducing lens aberrations
(d) ease of manufacture

15. If the magnetic field is parallel to a surface, then magnetic flux at right angle to the surface, is
(a) zero (b) infinite

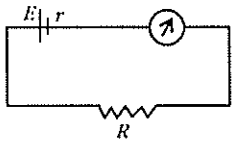
(c) small but not zero (d) large but not infinite

16. In some substances, charge can flow at ordinary temperature, but not at very low temperatures. These substances are called
(a) conductors (b) insulators
(c) dielectrics (d) semiconductors

17. A choke coil should have
(a) high resistance and low inductance
(b) high resistance and high inductance
(c) low resistance and high inductance
(d) low resistance and low inductance

18. In a pure semiconductor crystal, if current flows due to breakage of crystal bonds, then the semi-conductor, is called
(a) donor (b) acceptor
(c) intrinsic semi-conductor
(d) extrinsic semi-conductor

19. A battery of emf 10 V and internal resistance 3 Ω is connected to a resistor. If the current in the circuit is 0.5 A, what is the resistance of the resistor?



(a) 13 Ω (b) 15 Ω
(c) 17 Ω (d) 19 Ω

20. When a large bubble rises from the bottom of a lake to the surface, its radius is doubled. The atmospheric pressure is equal to that of a column of water of height H. The depth of the lake is
(a) $8H$ (b) $7H$
(c) $2H$ (d) H

21. If a star is moving towards the earth, then the spectrum lines are shifted towards
(a) red (b) infrared
(c) blue (d) green

22. Viscous force exerted by the liquid flowing between two plates in a streamline flow depends upon the
(a) area of the plates
(b) pressure of the liquid
(c) temperature of the liquid
(d) level of the liquid surface

23. The ratio of magnitudes of average velocity to average speed, is
(a) always less than one
(b) always equal to one
(c) always more than one
(d) equal to or more than one

24. During melting process, the heat given to a body is utilised in
(a) increasing the temperature
(b) increasing the density of the material
(c) increasing the average distance between the molecules
(d) decreasing the mass of the body

25. If two mirrors are kept at 60° to each other and a body is placed at the middle, then total number of images formed, is
(a) six (b) five
(c) four (d) three

26. In an A.C.circuit containing only capacitance, the current
(a) leads the voltage by 180°
(b) lags the voltage by 90°
(c) leads the voltage by 90°
(d) remains in phase with the voltage

27. Two charged spheres separated by a distance 'd' exert some force on each other. If they are immersed in a liquid of dielectric constant 2, then what is the force exerted, if all other conditions are same?
(a) $F/2$ (b) F
(c) $2F$ (d) $4F$

28. Which of the following instrument is used to measure temperature of the source from its thermal radiations?
(a) thermometer (b) thermopile
(c) pyrometer (d) barometer

29. A wire of radius r has resistance R. If it is stretched to a radius of $r/2$, its resistance becomes
(a) $0.5\ R$ (b) $2\ R$
(c) $4\ R$ (d) $16\ R$

30. If thermal conductivity of rod is 4, then its thermal resistivity will be
(a) 0.25 (b) 1.0
(c) 4.0 (d) 16.0

31. The mass moment of inertia, of a body depends upon
(a) angular velocity of the body
(b) angular acceleration of the body

(c) mass of the body
(d) distribution of mass and axis of rotation

32. During the production of X–rays, if voltage is increased then the
(a) wavelength decreases
(b) minimum wavelength increases
(c) intensity decreases
(d) intensity increases

33. In a diode, when there is a saturation current, the plate resistance (r_p), is
(a) zero (b) infinite quantity
(c) data insufficient (d) some finite quantity

34. The binding energy per nucleon of deuteron ($_1H^2$) and helium atom ($_2He^4$) is 1.1 MeV and 7 MeV respectively. If two deuteron atoms react to form a single helium atom, the released energy, is
(a) 13.9 MeV (b) 26.9 MeV
(c) 23.6 MeV (d) 19.2 MeV

35. In p–type semiconductor, major current carriers are
(a) electrons (b) negative ions
(c) mobile holes (d) both 'a' and 'b'

36. If the mass of a body on the earth surface is M, then its mass on the moon surface, is
(a) $6\,M$ (b) $2\,M$
(c) M (d) $M/6$

37. In a coil of self-inductance 5 henry, the rate of change of current is 2 ampere per second. The e.m.f. induced in the coil, is
(a) 10 V (b) – 10 V
(c) 5 V (d) – 5 V

38. Electron-volt (eV) is the unit of
(a) energy (b) charge
(c) current (d) potential

39. If 'S' is stress and 'Y' is Young's modulus of a wire material, then energy stored in the wire per unit volume, is
(a) $\frac{S^2}{2Y}$ (b) $\frac{2Y}{S^2}$
(c) $\frac{S}{2Y}$ (d) $2S^2Y$

40. We plot a graph having temperature in °C along X–axis and in °F along Y–axis. If the graph is a straight line, then it
(a) intercepts the positive X–axis
(b) intercepts the positive Y–axis
(c) passes through the origin
(d) intercepts negative axis of both X and Y

41. The dimension of Plank's constant is
(a) $[ML^2T^{-1}]$ (b) $[ML^3T^{-1}]$
(c) $[ML^{-2}T^{-1}]$ (d) $[M^0L^{-1}T^{-3}]$

42. A convex lens is placed in a medium in which it behaves like a glass plate. The refractive index of the medium, will be
(a) equal to refractive index of air
(b) more than the refractive index of glass
(c) equal to the refractive index of glass
(d) less than the refractive index of glass

43. In Bohr's model, the atomic radius of the first orbit is r_0. The radius of the third orbit, is
(a) $r_0/3$ (b) r_0
(c) $3\,r_0$ (d) $9\,r_0$

44. In the nuclear reactions, there is a conservation of
(a) mass only (b) energy only
(c) momentum only (d) all of these

45. A molecule of mass m of an ideal gas collides with the wall of a vessel with a velocity v and returns back with the same velocity. The change in the linear momentum of the molecule is
(a) $2\,mv$ (b) $4\,mv$
(c) $5\,mv$ (d) $10\,mv$

46. If there is a change of angular momentum from J to $4J$ in 4 sec, then the torque, is
(a) $0.75\,J$ (b) $3/4\,J$
(c) $5/4\,J$ (d) $4/3\,J$

47. If a point charge moves round in a circle about a charge q, then work done by the charge, is
(a) zero (b) $\frac{1}{4\pi\varepsilon_0}\times\frac{q}{r}$
(c) $\frac{1}{4\pi\varepsilon_0}\times\frac{q^2}{r}$ (d) $\frac{1}{4\pi\varepsilon_0}\times\frac{q^2}{r^2}$

48. If a spring extends by x on loading, then energy stored by the spring is (if T is the tension in the spring and k is the spring constant)
(a) $\frac{T^2}{2x}$ (b) $\frac{T^2}{2k}$

(c) $\frac{2k}{T^2}$ (d) $\frac{2T^2}{k}$

49. If the temperature of a black body increases from 7°C to 287°C, then rate of energy radiation is
(a) 16 times (b) 8 times
(c) 4 times (d) 2 times

50. The value of acceleration due to gravity 'g', at earth's surface is 10 m/s^2. Its value at the centre of the earth which is assumed to be sphere of radius 'R' and uniform mass density, is
(a) 2.5 R m/s^2 (b) 5 R m/s^2
(c) 10 R m/s^2 (d) 0

Directions: *These questions consist of two statements each, printed as Assertion and Reason. While answering these questions you are required to choose any one of the following four responses.*
(a) If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(b) If both Assertion and Reason are true but Reason is not a correct explanation of the Assertion.
(c) If Assertion is true but the Reason is false.
(d) If both Assertion and Reason are false.

51. *Assertion*: Insulators do not allow flow of current through themselves.
Reason: They have no free charge carriers.

52. *Assertion*: For the sensitivity of a camera, its aperture should be reduced.
Reason: Smaller the aperture, larger is its power.

53. *Assertion*: When a body is projected at an angle 45°, its range is maximum.
Reason: For maximum of range, the value of sin 2θ should be equal to one.

54. *Assertion*: Sound waves cannot propagate through vacuum but light waves can.
Reason: Sound waves cannot be polarised but light waves can be.

55. *Assertion*: Lead is more elastic than rubber.
Reason: If the same load is attached to lead and rubber wires of the same cross-sectional area, the strain of lead is very much less than that of rubber.

56. *Assertion*: A cyclist leans inwards while taking a turn, while a man sitting in a car leans outwards on a curve.
Reason: Centripetal acceleration is acting towards the centre of the curve.

57. *Assertion*: If an electron and proton enter an electric field with equal energy, then path of electron is more curved than that of proton.
Reason: Electron has a tendency to form curve.

58. *Assertion*: If ice cap of the pole melts, the day length will shorten.
Reason: Ice will flow towards the equator and decrease the moment of inertia of the earth. This increases the frequency of rotation of the earth.

59. *Assertion*: When the temperature of a semiconductor is increased, then its resistance decreases.
Reason: The energy gap between conduction band and valence band is very small.

60. *Assertion*: If a pendulum falls freely, then its time period becomes infinite.
Reason: Free falling body has acceleration, equal to g

CHEMISTRY

61. "It is impossible to determine simultaneously the position and velocity of small particles such as electron". It is a statement of
(a) Hund's rule
(b) Aufbau's principle
(c) Pauli's rule
(d) Heisenberg's uncertainty principle

62. In which of the following methane is formed?
(a) $CH_3COOH \xrightarrow{[H]}$
(b) $CH_3COOH \xrightarrow{NaOH/CaO}$
(c) $CH_3COOH \xrightarrow{[O]}$
(d) $CH_3CH_2COOH \xrightarrow{NaOH/CaO}$

63. Which of the following is an alloy of aluminium?
(a) magnalium (b) duralumin
(c) brass (d) both 'a' and 'b'

64. The total number of orbitals in a shell can be given in the form of n. The principal quantum number is
(a) $2n$ (b) n^2
(c) $2n^2$ (d) $(n + 1)$

65. A solution wiht pH = 2 is more acidic than one with a pH = 6, by a factor

(a) 4000 (b) 5000
(c) 8000 (d) 10 000

66. Vapour pressure of benzene at 30°C is 121.8 mm. when 15 g of a non-volatile solute is dissolved in 250 g of benzene, its vapour prssure is decreased to 120.2 mm. The molecular weight of the solute is
(a) 35.67 g (b) 356.7 g
(c) 432.8 g (d) 502.7 g

67. Which of the following compound, on reaction with NaOH and Na_2O_2, gives yellow colour?
(a) $Zn(OH)_2$ (b) $Al(OH)_3$
(c) $Cr(OH)_3$ (d) $CaCO_3$

68. A base, as defined by Bronsted theory, is a substance which can
(a) accept protons
(b) donate protons
(c) lose a pair of electrons
(d) gain a pair of electrons

69. In the compound Lithium tetra-hydroaluminate, the ligand is
(a) H (b) H^+
(c) H^- (d) F^-

70. Reduction of benzoyl chloride with $Pd/BaSO_4$ produces
(a) benzene (b) benzaldehyde
(c) benzoic acid (d) benzoyl cyanide

71. Which of the following, on reaction with H_2S, does not produce metallic sulphide?
(a) $CdCl_2$ (b) $ZnCl_2$
(c) $COCl_2$ (d) $CuCl_2$

72. The BCl_3 is a planar molecule where as NCl_3 is pyramidal, because
(a) B–Cl bond is more polar than N–Cl bond
(b) N–Cl bond is more covalent than B–Cl bond
(c) nitrogen atom is smaller than boron atoms
(d) BCl_3 has no lone pair but NCl_3 has a lone pair of electrons

73. The isomers, which can be converted into another form by rotation of the molecules around single bond, are
(a) conformers (b) enantiomers
(c) diastereomers (d) geometrical isomers

74. Nylon–66 is made by using
(a) succinic acid (b) benzylchloride
(c) benzaldehyde (d) adipic acid

75. For the reaction $H_2\ (g) + I_2\ (g) \rightarrow 2\ HI\ (g)$ the change in enthalpy (ΔH) will be
(a) $= \Delta E$ (b) $> \Delta E$
(c) $< \Delta E$ (d) either 'b' or 'c'

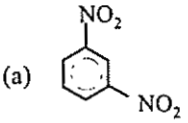
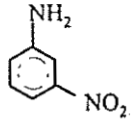
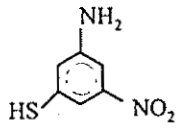
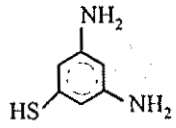
76. How many atoms of carbon are present in a diamond weighing 0.5 carat? (one carat weighs 200 mg and assume the diamond to be pure carbon)
(a) 5×10^{21} (b) 6×10^{22}
(c) 7×10^{19} (d) 8×10^{12}

77. Which of the following compound is not coloured?
(a) $Na_2[CuCl_4]$ (b) $Na_2[CdCl_4]$
(c) $K_4[Fe(CN)_6]$ (d) $K_3[Fe(CN)_6]$

78. Potash alum is used as
(a) catalyst (b) disinfectant
(c) mordant (d) coolant

79. Which of the following is not an aromatic compound?
(a) benzene (b) cyclohexane
(c) ortho xylene (d) picric acid

80. If 0.189 g of a chlorine containing organic compound gave 0.287 g of silver chloride, then the percentage of chlorine in the organic compound is
(a) 35.47 (b) 35.57
(c) 37.57 (d) 45.37

81. The main product (70% to 80%) of the reaction between m–dinitrobenzene with NH_4HS is
(a) 
(b) 
(c) 
(d) 

82. $R - CH_2 - CH_2OH$ can be converted into RCH_2CH_2COOH. The correct sequence of the reagents is
(a) KCN and H^+ (b) PBr, KCN and H_2
(c) PBr_3, KCN and H^+ (d) HCN, PBr_3 and H^+

83. Which of the following compound is glycerine?
(a) one primary – OH group is present
(b) two primary – OH groups are present
(c) one secondary – OH group is present
(d) two secondary – OH groups are present

84. How many electrons flow when a current of 5 amperes is passed through a conductor for 200 seconds?
(a) 6.241×10^{21} (b) 6.0241×10^{21}
(c) 6.241×10^{22} (d) 6.0241×10^{22}

85. Which of the following statements is not true about alcohols?
(a) lower alochols have fiery taste and strong smell
(b) as molecular mass increases the boiling point increases
(c) lower alcohols are water insoluble and their solubility increases with molecular weight
(d) lower alcohols are water soluble and their solubility decreases with molecular weight

86. The most suitable method of the separation of a 1 : 1 mixture of ortho – and para – nitrophenols is
(a) filtration (b) sublimation
(c) crystallisation (d) steam distillation

87. Which of the following is not emitted by radioactive substance?
(a) proton (b) positron
(c) α – rays (d) β – rays

88. Brass is an alloy of copper (Cu) and
(a) Al (b) Sn
(c) Zn (d) Ag

89. Formation of polyethylene, from calcium carbide, takes place as follows:
$CaC_2 + 2H_2O \longrightarrow Ca(OH)_2 + C_2H_2$;
$C_2H_2 + H_2 \longrightarrow C_2H_4$;
$n(C_2H_4) \longrightarrow (-CH_2 - CH_2 -)n$. The amount of polyethylene obtained from 64.1 kg of CaC_2 is
(a) 7 kg (b) 14 kg
(c) 21 kg (d) 28 kg

90. If a gas occupies a volume of 300 cc at 27°C and 620 mm pressure, then the volume of the gas at 47°C and 640 mm pressure, is
(a) 310 cc (b) 410 cc
(c) 500 cc (d) 600 cc

91. Which of the following can give iodometric titration?
(a) Fe^{+3} (b) Cu^{+2}
(c) Pb^{+2} (d) Ag^{+2}

92. In the reaction : $I_2 + I^- \rightarrow I_3^-$, the Lewis base is
(a) I^- (b) I_2
(c) I_3^- (d) none of these

93. The enthalphy change of a reaction does not depend upon
(a) state of reactants and products
(b) nature of reactants and products
(c) different intermediate reaction
(d) initial and final enthalpy change of a reaction

94. Ammonia, on reaction with excess of chlorine, gives
(a) NCl_3 and HCl (b) N_4 and NH_4Cl
(c) NCl_3 and NH_4Cl (d) N_2 and HCl

95. The extra amount of energy, which the molecules of the reactants have to absorb, so that their energy becomes equal to the threshold energy, is called
(a) kinetic energy (b) potential energy
(c) chemical energy (d) activation energy

96. Reaction of nitrous acid with aliphatic primary amine will give
(a) dye (b) alcohol
(c) nitrite (d) diazonium salt

97. The maximum amount of $BaSO_4$ precipitated on mixing $BaCl_2$ (0.5 M) with H_2SO_4 (1 M) will corrrespond to
(a) 0.5 M (b) 1.0 M
(c) 1.5 M (d) 2.0 M

98. If 1, 3 – dibromopropane reacts with Zinc and NaI, the product obtained is
(a) propene (b) propane
(c) cyclopropane (d) hexane

99. A current of 9.95 amperes flowing for 10 minutes, deposits 3 gm of a metal. Equivalent weight of the metal is
(a) 12.5 (b) 18.5
(c) 21.5 (d) 48.5

100. The oxidatioin state of chromium in potassium dichromate is
(a) + 2 (b) – 2
(c) – 5 (d) + 6

101. The compressibility factor of an ideal gas is
(a) 1 (b) 2
(c) 4 (d) 6

102. Which of the following is not affected by the temperature ?
(a) molarity (b) molality
(c) normality (d) formality

103. Which of the following does not react with AgCl?
(a) $NaNO_3$ (b) NH_4OH
(c) Na_2CO_3 (d) $Na_2S_2O_3$

104. In a reaction of C_6H_5Y, the major product (> 60%) is m-isomer. The group Y is
(a) – Cl (b) – OH
(c) $-NH_2$ (d) – COOH

105. Particle nature of the electron was experimentally demonstrated by
(a) de Broglie (b) Schrodinger
(c) Max Bon (d) J.J. Thomson

106. In the gas phase reaction $C_2H_2 + H_2 \rightleftharpoons C_2H_6$, the equilibrium constant can be expressed in
(a) mole litre^{-1} (b) mole litre^{-2}
(c) mole^{-1} litre^{-1} (d) litre mole^{-1}

107. 1 – butyne reacts with cold alkaline $KMnO_4$ to produce
(a) CH_3CH_2COOH
(b) $CH_3CH_2CH_2COOH$
(c) $CH_3CH_2COOH + CO_2$
(d) $CH_3 - CH_2 - COOH + HCOOH$

108. The electronic configuration $1s^2\ 2s^2\ 2p^5\ 3s^1$ shows
(a) ground state of fluorine atom
(b) excited state of fluorine atom
(c) excited state of neon atom
(d) excited state of ion O_2^-

109. Generally, the limit of visible spectrum is
(a) 1000 to 3000 Å (b) 4000 to 7000 Å
(c) 8000 to 10000 Å (d) 12000 to 15000Å

110. In the reaction : $S + 3/2\ O_2 \longrightarrow SO_3 + 2x$ kcal and $SO_2 + 1/2\ O_2 \longrightarrow SO_3 + y$ kcal, heat of formation of SO_2 is
(a) $(x + y)$ (b) $(x - y)$
(c) $(2x + y)$ (d) $(2x - y)$

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(d) If both Assertion and Reason are false.

111. *Assertion*: The bond angle of PBr_3 is greater than PH_3 but the bond angle of NBr_3 is less than NH_3.
Reason: Size of Br is less than hydrogen.

112. *Assertion*: Heat of neutralization for both HNO_3 and HCl with NaOH is 53 · 7 kJ/mole.
Reason: NaOH is a strong electrolyte/base.

113. *Assertion*: Decrease in free energy causes spontaneous reaction.
Reason: Spontaneous reactions are invariably exothermic reactions.

114. *Assertion*: Liquid ammonia is used for refrigeration.
Reason: It vapourises quickly.

115. *Assertion*: Tungsten has very high melting point.
Reason: Tungten is a covalent compound.

116. *Assertion*: Hydrogen has only one electron in its orbit. But it produces several spectral lines.
Reason: There are many excited energy levels available.

117. *Assertion*: Ionisation potential of Be (atomic no.4) is less than B (atomic no. 5).
Reason: The first electron released from Be is of *p*-orbital but that from B is of *s*-orbital.

118. *Assertion*: NO_3^- is planar while NH_3 is pyramidal.
Reason: N in NO_3^- is sp^2 and in NH_3 is sp^3 hybridized.

119. *Assertion*: N_2 and NO^+ both are diamagnetic substance.
Reason: NO^+ is isoelectronic with N_2.

120. *Assertion*: Na_2SO_4 is soluble in water while $BaSO_4$ is not.
Reason: Lattice energy of $BaSO_4$ exceeds its hydration energy.

BIOLOGY

121. The compound, which is soluble in water but does not impede the oxygen transportation, is
(a) NO (b) SO_2
(c) CO (d) SO_3.

122. The branch of biology dealing with the process of improvement of human race by selective breeding is called
(a) euphenics (b) euthenics
(c) obstetrics (d) eugenics.

123. Waste product of adenine and guanine metabolism are excreted by man as
(a) uric acid (b) urea
(c) allantoin (d) ammonia.

124. Scientists pin-pointed the location of colour-processing perception centres in human visual cortex by a method named
(a) CT scanning
(b) PET scanning
(c) ultra-sound imaging
(d) NMR imaging.

125. The disorders such as alkaptonuria and phenylketonuria are refered to as
(a) infectious disease
(b) acquired disease
(c) congenital disease (d) all of these.

126. There is an irregular mating population. If the frequency of an autosomal recessive lethal gene is 0.4, then the frequency of the carriers in a population of 200 individuals is
(a) 96 (b) 36
(c) 104 (d) 72.

127. If the rate of addition of new members increases with respect to the individual host of the same population, then the graph obtained has
(a) zero population growth
(b) declined growth
(c) exponential growth
(d) none of these.

128. To yield milk, cow is given
(a) stilbesterol (b) sorbitol
(c) gonadotropin (d) prolactin.

129. The disease, in which thick cough, stops the passage of throat and form a layer of mucous membrane, is called
(a) tuberculosis (b) tetanus
(c) diphtheria (d) pertussis.

130. Ora serrata is
(a) gland present in oral cavity of frog
(b) a part of third wall of retina of eye
(c) present in utriculus of ear
(d) oral cavity of protochordates

131. Which of the following is an example of sex-linked inheritance?
(a) night-blindness (b) anaemia
(c) colour-blindness (d) cretinism.

132. Chloragogen cells of earthworm are similar to the vertebrate organ
(a) kidney (b) liver
(c) spleen (d) lung.

133. The type of immunoglobulin present in the colostrum secreted from mammary gland is
(a) IgD (b) IgC
(c) IgM (d) IgE.

134. A pregnant woman, who has done amniocentesis test, finds an extra barr body in her embryo. The syndrome which is likely to be associated with embryo is
(a) Edward's syndrome
(b) Down's syndrome
(c) Klinfelter's syndrome
(d) Patau's syndrome.

135. The preparation of sperm before penetration of ovum is called
(a) insemination (b) coition
(c) spermiation (d) capacitation.

136. Which proteolytic enzyme induces lysis of fibrin during fibrinolysis?
(a) fibrin (b) plasmin
(c) thrombin (d) all of these.

137. The lining of bone marrow cavity is called
(a) endoneurium (b) endosteum
(c) endothelium (d) endomyosium.

138. The endocrine gland of insects, which secretes the juvenile hormone, is
(a) corpora albicans (b) corpora allata
(c) corpora myecaena (d) all of these.

139. Quill feathers at the base of quill wings are called
(a) coverts (b) remiges
(c) down feathers (d) barbules.

140. Structure which remains unchanged during metamorphosis of frog's tadpole is
(a) intestine (b) lung
(c) nervous system (d) heart.

141. How much amount of oxygen is present in one gram of haemoglobin?
(a) 20 ml (b) 1.34 ml
(c) 40 ml (d) 13.4 ml.

142. Otoconium is found in
(a) synovial fluid (b) perilymph
(c) otolithic membrane (d) haemolymph.

143. Exaggerated dread is a death disease which is known as
(a) haemotophobia (b) algophobia
(c) pathophobia (d) myophobia.

144. Antiserum contains
(a) leucocytes (b) antigens
(c) antibodies (d) all of these.

145. The branch, which is associated with diagnosis, prevention and cure of mental disorders is called
(a) neurology (b) psychiatry
(c) neuropsychiatry (d) psychology.

146. Translocation of organic materials is best explained by
(a) imbibition theory
(b) active transport
(c) mass flow hypothesis
(d) transpiration pull.

147. Which of the following is the largest and edible bud?
(a) cabbage (b) onion
(c) cauliflower (d) *Agave*.

148. When a tall and red flowered individual is crossed with a dwarf and white flowered individual, phenotype in the progeny is dwarf and white. What will be the genotype of tall and red flowered individual ?
(a) TtRr (b) TTRR
(c) TTRr (d) TtRR.

149. An insectivorous plant having glandular structures on its leaf secreting stickly fluid is
(a) sundew plant (b) aldrovanda
(c) venus fly trap (d) all of these.

150. Positive pollution of soil is due to
(a) excessive use of fertilizers
(b) reduction in soil productivity
(c) addition of wastes on soil
(d) all of these.

151. Perisperm is
(a) peripheral part of endosperm
(b) remnant of endosperm
(c) disintegrated secondary nucleus
(d) persistant of nucellus.

152. The biome, which is characterised by broad-leaved vegetation, life-resistant resinous plants and drought-evading plants, is known as
(a) steppes (b) chapparal
(c) deciduous forest (d) savannah.

153. Which of the following compound has very important role in prebiotic evolution?
(a) CH_4 (b) SO_2
(c) SO_3 (d) NO.

154. Genes present on Y-chromosome are called
(a) polygenic gene (b) basic gene
(c) pleiotropic gene (d) holandric gene.

155. The carnivorous fish, *Gambusia*, which is introduced in the lakes and ponds to control a deadly disease in India, feeds on the larva of
(a) dragon fly (b) *Nepenthes*
(c) *Anopheles* (d) all of these.

156. The C_4-plants differ from C_3-plants with reference to the
(a) substrate that accepts CO_2 in carbon assimilation
(b) type of end product
(c) type of pigment involved in photosynthesis
(d) number of ATP that are consumed in preparing sugar.

157. The plants in desert, in order to tolerate water stress, have
(a) stipular spines
(b) no stomata
(c) stems which are converted into leaf type
(d) long root system reach the water level.

158. The sphere of living matter together with water, air and soil on the surface of earth is called
(a) lithosphere (b) atmosphere
(c) biosphere (d) hydrosphere.

159. Which of the following prevents the photo-oxidation and destruction of pigments ?

(a) phycoerythrin (b) phytochrome
(c) phytohormone (d) phycocyanin.

160. Meiosis in *Dryopteris* takes place during
(a) gamete formation
(b) spore formation
(c) sex organ formation
(d) spore germination.

161. Recent reports of acid rains in big industrial cities are due to the effect of atmospheric pollution by excessive release of
(a) NH_3 by coal gas industries
(b) NO_2 and SO_2 by burning of fossil fuels
(c) CO_2 by incomplete combustion of carbon fuel
(d) CO_2 by burning of coal/wood, cutting of forests.

162. The process in which the amount of DNA, RNA and protein can be known at a time is called
(a) cellular fractioning
(b) autoradiography
(c) phase-contrast microscopy
(d) tissue culture.

163. The hexaploid wheat is obtained by
(a) chromosomes map (b) hybridomas
(c) hybridisation (d) both (b) and (c).

164. In sweet peas, genes C and P are necessary for colour in flowers. The flowers are white in the absence of either or both the genes. What will be the percentage of coloured flowers in the offspring of the cross Ccpp × ccPp?
(a) 75% (b) 25%
(c) 100% (d) 50%

165. Which plant species is on the verge of extinction due to over-exploitation?
(a) *Gloriosa* (b) *Podophyllum*
(c) *Ceritella* (d) all of these.

166. The asexual production of seed is called
(a) fragmentation (b) apomixis
(c) self-fertilization (d) both (a) & (b).

167. If mitotic division is restricted in G_1-phase of a cell cycle, then the condition is known as
(a) S-phase (b) G_2-phase
(c) M-phase (d) G_0-phase.

168. Epistatic effect, in which the dihybrid cross 9 : 3 : 3 : 1 between AaBb × AaBb is modified as
(a) interaction between two alleles of the same loci
(b) dominance of one allele on another allele of the same loci
(c) interaction between two alleles of different loci
(d) dominance of one allele on another allele of both loci.

169. Potato is included in solanaceae family because
(a) it is epipetallous
(b) it is pentamerous
(c) ovary is slightly diverted from its position
(d) all the above.

170. The chemical compounds which are produced by host plants due to infection as a defence reaction to pathogen, are called
(a) phytotron (b) phytotoxin
(c) phytoalexins (d) phytol.

Directions: *These questions consist of two statements each, printed as Assertion and Reason. While answering these questions you are required to choose any one of the following four responses.*
(a) If both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
(b) If both Assertion and Reason are true but Reason is not a correct explanation of the Assertion.
(c) If Assertion is true but the Reason is false.
(d) If both Assertion and Reason are false.

171. *Assertion*: In alcoholic drink, the alcohol is converted into glucose in the liver.
Reason: Liver cells are able to produce glucose from alcohol by back fermentation.

172. *Assertion*: After ovariectomy, menstrual cycle in woman may be stopped
Reason: Ovarian hormones induce menstrual cycle.

173. *Assertion*: Cold-blooded animals have no fat layer.
Reason: Cold-blooded animals use their fat for metabolic process during hibernation.

174. *Assertion*: In morula stage, the cells divide without any increase in size.
Reason: Zona pellucida remains undivided till cleavage is complete.

175. *Assertion*: In the descending limb of loops of Henle, the urine is hypertonic, while in ascending limb of loops of Henle, the urine is hypotonic.
Reason: Descending limb is impermeable to Na^+, while ascending limb is impermeable to H_2O.

176. *Assertion*: Submerged plants get CO_2 in the form of carbonates and bicarbonates.

Reason: Stomata are not present in submerged plants.

177. *Assertion*: Thick cuticle is mostly present in disease resistance plants.
Reason: Disease causing agents cannot grow on cuticle and cannot invade the cuticle.

178. *Assertion*: Amber codon is a termination codon.
Reason: If in *m*-RNA, a termination codon is present, the protein synthesis stops abruptly whether the protein synthesis is completed or not.

179. *Assertion*: Plasmids are single-stranded extra-chromosomal DNA.
Reason: Plasmids are possessed by eucaryotic cells.

180. *Assertion*: In apomixis, the plants of new genetic sequence are produced.
Reason: In apomixis, two individuals of same genetic sequence meet.

GENERAL KNOWLEDGE

181. The largest continent is the world, is
(a) North America (b) Asia
(c) South America (d) Europe.

182. The tomb of Quatab Shahi is situated, in
(a) Allahabad (b) Hyderbad
(c) Agra (d) Aligarh.

183. Hiroshima day is observed on
(a) August 1 (b) July 17
(c) August 6 (d) July 27.

184. Doctors before starting their service take oath in the name of a scientist to work honestly. The name of this scientist, is
(a) Hippocrates (b) Darwin
(c) Plato (d) Socrates.

185. The 'AIDS DAY' is observed on
(a) 1st Dec (b) 20th Dec.
(c) 1st June (d) 1st May.

186. The Halley's comet will be seen next in
(a) 2066 (b) 2058
(c) 2068 (d) 2062.

187. One who obtained the Nobel prize of 1993 for peace along with Nelson Mandela, was
(a) Yasser Arafat (b) F.W. deKlark
(c) Gorbachov (d) Desmond Tutu.

188. Deep Blue is a
(a) computer which plays chess
(b) blue whale
(c) computer which gives weather report
(d) computer operating system.

189. 'Confucianism' is famous in
(a) China (b) Malaysia
(c) Myanmar (d) Japan.

190. 'Dachigam Wild life Sanctuary' in Kashmir is associated with which of the following animal?
(a) Panther (b) Sagul
(c) Horned toed deer (d) Hangul.

191. The name of the sheep, which was cloned for the first time, is
(a) Molly (b) Dolly
(c) Holly (d) Polly.

192. The male cricketer, who scored maximum runs, in a one day cricket match is
(a) Saeed Anwar (b) Kapil Dev
(c) Azharuddin (d) Vivian Richards.

193. Issac Asimov is associated with
(a) movies awards (b) football
(c) writing of science novels
(d) antibiotics.

194. When the Olympic Games were not played?
(a) 1920 (b) 1912
(c) 1924 (d) 1916.

195. Which of the following state has the highest number of illiterates?
(a) Uttar Pradesh (b) Bihar
(c) Andhra Pradesh (d) Orissa.

196. Asian Games were held in India in
(a) 1956 and 1986 (b) 1951 and 1982
(c) 1962 and 1986 (d) 1962 and 1984.

197. The 'Royal Flying Doctor Service' is in
(a) Germany (b) Japan
(c) Australia (d) Canada.

198. The 'Principality of Liechtenstein' is situated in between Switzerland and
(a) Germany (b) Italy
(c) France (d) none of these.

199. The 'Statue of Liberty' was gifted to USA by
(a) Germany (b) Canada
(c) Greece (d) France.

200. Writer of 'Future Shock' is
(a) Bernard Shaw (b) Sewitzer
(c) Bertrond Russell
(d) Alwyn Toffler

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