+2 Physics Year: 2013-2014

Time : 3 hours One Mark Revision Test Marks : 200

1. The unit of electric flux is ……

   a) $N\ m^2\ C^{-1}$ b) $N\ m^{-2}\ C^{-1}$ c) $N\ m^2\ C$ d) $N\ m^{-2}\ C$

2. Which one of the following is scalar ?

   a) dipole moment b) electric force c) electric field d) electric potential

3. In a parallel plate capacitor, the potential difference across the plates is 100 V. Electric field is $10^4\ Vm^{-1}$ is produced between plates. The distance between the plates is ……

   a) 1 mm b) 1 m c) 10 cm d) 1 cm

4. The distance between two protons in the helium nucleus is 9×10^{-15} m. The potential energy between them is ……

   a) 9×10^{-14} J b) 1.44×10^{-15} J c) 2.56×10^{-14} J d) 1.6×10^{-5} J

5. When an electron and proton are separated by a distance 10 A^0, The dipole moment is ……

   a) 9×10^{-29} C m b) 16×10^{-29} C m c) 8×10^{-29} C m d) 2×10^{-29} C m

6. Electric field at any point between two oppositely charged parallel plates is ……

   a) $E = \sigma / \varepsilon_0$ b) $E = \sigma / 2\varepsilon_0$ c) $E = \varepsilon_0 / \sigma$ d) E = 0

7. The energy stored in a capacitor is ……

   a) ½ X CV b) $q^2 / 2C$ c) both(a) and (b) d) none of the above

8. The force experienced by a 10 C charge in an electric field of 5 NC^{-1} is ……

   a) 10 N b) 50 N c) 5 N d) 2 N

9. When two charged particles are placed in a medium of relative permittivity ε_r ,then, the force between them in the medium is ……

   a) $F\ \varepsilon_r$ b) ε_r / F c) F / ε_r d) 0

10. If the capacitance of a parallel plate capacitor increases from 10 µF to 50 µF when filled with a dielectric medium between the plates, then, the relative permittivity ε_r is ……

    a) 50 b) 40 c) 10 d) 5

11. The number of electric lines of force originating from a charge 1 µC is ……

    a) 1.129×10^{-5} b) 1.129×10^{-11} c) 1.129×10^{11} d) 1.129×10^{5}

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12. A Gaussian surface consists of one proton and one electron. The number of electric lines of force crossing the surface is …….

a) $q / 2\varepsilon_0$ b) q / ε_0 c) $2q / \varepsilon_0$ d) 0

13. The value of $(1 / 4\pi\varepsilon_0)$ is …….

a) $9 \times 10^{9} N m^2 C^{-2}$ b) $1.129 \times 10^{11} N m^2 C^{-2}$ c) $9 \times 10^{-9} N m^2 C^{-2}$ d) $1.6 \times 10^{-19} N m^2 C^{-2}$

14. When an electric dipole is placed in a direction parallel to an electric field, it experiences …….

a) force b) torque c) dipole moment d) none of the above

15. The unit of capacitance is …….

a) volt b) ampere c) farad d) coulomb

16. The energy required to move a charge +20 C through a distance 2 cm is 200 J. The Potential difference between the two points is …….

a) 0.1 V b) 10 V c) 400 V d) 4000 V

17. A dielectric medium is placed in an electric field of E_0. The electric field inside the medium …….

a) acts in the direction opposite to E_0 b) acts parallel to E_0

c) acts perpendicular to E_0 d) is zero

18. The electric potential energy of two charges q_1 and q_2 is …….

a) $q_1q_2 / 4\pi\varepsilon_0 r^2$ b) $q_1q_2 / 4\pi\varepsilon_0 r^3$ c) $q_1q_2 / 4\pi\varepsilon_0 r^4$ d) $q_1q_2 / 4\pi\varepsilon_0 r$

19. Three capacitors each of 9 pF are connected in series. The effective capacitance is …….

a) 9 pF b) 27 pF c) 3 pF d) 6 pF

20. The work done in moving 500 C from one point to another on an equipotential surface is …….

a) zero b) 500 J c) finite negative d) finite positive

21. The vector quantity is …….

a) potential b) charge c) current density d) energy

22. The unit of mobility is …….

a) $m^2 V^{-1} s^{-1}$ b) $N m^2 C^{-1}$ c) $m^{-2} V^{-1} s^{1}$ d) $N m^{-2} C^{-1}$

23. Ohm's law is valid …….

a) at constant pressure b) at constant volume

c) at constant density d) at constant temperature

24. The formula for conductivity is ……

a) RA / ℓ b) ℓ^2 / RA c) R ℓ / A d) ℓ / RA

25. At the transition temperature the electrical resistivity drops to ……

a) zero b) maximum c) minimum d) infinity

26. The transition temperature is 4.2 K for ……

a) Cu b) Fe c) Hg d) Al

27. The core of carbon resistor consists of ……

a) carbon b) silver c) gold d) ceramic

28. The tolerance of carbon resistor with a gold ring is ……

a) 5% b) 10% c) 2% d) 1%

29. The unit of resistivity is ……

a) Ω m^{-1} b) Ω m c) Ω d) Ω^{-1} m^{-1}

30. Thermistors have …… temperature coefficient of resistance.

a) positive b) negative c) low d) infinite

31. One kilowatt hour is equal to ……

a) 3.6 X 10^5 J b) 360 X 10^5 J c) 36 X 10^5 J d) 0.36 X 10^5 J

32. An electrical device of resistance 24 Ω is operated at 240 V. The power is ……

a) 240 W b) 10 W c) 5760 W d) 2400 W

33. The unit of electro chemical equivalent is ……

a) kg C^{-1} b) kg C c) kg^{-1} C^{-1} d) kg^2 C^{-1}

34. If the length of a copper wire of resistance R is doubled in length, then, its specific resistance ……

a) will be doubled b) will become (1/ 4)th

c) will become four times d) will remain the same

35. When two 4 Ω resistors are in parallel, then, the effective resistance is ……

a) 16 Ω b) 4 Ω c) 2 Ω d) 8 Ω

36. The length of two wires of same material are 2 m and 8 m. If they are having same resistance, then, the ratio of the diameter of the two wires is ……

a) 2 : 1 b) 2 : 8 c) 1 : 4 d) 1 : 2

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37. The unit of temperature coefficient of resistance is ……

a) per ^0C b) mho m -1 c) ohm d) ohm meter

38. When n resistors of equal resistances (R) are connected in series, the effective resistance is ……

a) n / R b) nR c) R / n d) 1 / nR

39. The resistance R is equal to ……

a) $m / nAe^2\tau$ b) $mL\ n/ Ae^2\tau$ c) $mLnAe^2\tau$ d) $mL / nAe^2\tau$

40. The emf of the voltaic cell is ……

a) 1.08 volt b) 2.2 volt c) 1.5 volt d) 2 volt

41. According to Joule's law of heating, the amount of heat produced is ……

a) I^2Rt b) IRt c) V^2It d) none of the above

42. In a fuse wire, the percentage of tin and lead are ……

a) 37% and 63% b) 53% and 47% c) 63% and 37% d) 47% and 53%

43. The material which exhibits negative Thomson effect is ……

a) Pb b) Pt c) Zn d) Cu

44. The unit of reduction factor of tangent galvanometer is ……

a) $V\ \Omega^{-1}$ b) A m -1 c) radian d) A / radian

45. When the magnetic field is parallel to the plane of the coil, then, torque is ……

a) maximum b) minimum c) zero d) infinity

46. In any circuit, voltmeter must be connected in ……

a) series b) parallel c) both (a) and (b) d) none of the above

47. The value of gyro magnetic ratio is ……

a) $8.8 \times 10^8\ C\ kg^{-1}$ b) $8.8 \times 10^{10}\ C\ kg^{-1}$ c) $8.8 \times 10^{12}\ C\ kg^{-1}$ d) $8.8 \times 10^{14}\ C\ kg^{-1}$

48. The value of thermo emf beyond the temperature of inversion ……

a) is maximum b) is minimum c) zero d) changes sign and then increases

49. The value of Bohr magneton is is ……

a) $9.27 \times 10^{-24}\ A\ m^2$ b) $9.27 \times 10^{24}\ A\ m^2$ c) $9.27 \times 10^{-27}\ A\ m^2$ d) $9.27 \times 10^{27}\ A\ m^2$

50. The magnetic dipole moment is ……

a) $M = I^2A$ b) M = I A c) I / A d) A / I

51. The value of neutral temperature in a thermocouple is 250^0C and cold junction temperature is 10^0C. The temperature of inversion is …….

a) 490^0 C b) 240^0 C c) 260^0 C d) 250^0 C

52. In a magnetic field of 0.5 tesla, an electron is moving perpendicular to the field with a velocity 3×10^6 m s^{-1}. Force acting on it is …….

a) 1.5×10^{-11} N b) 2.4×10^{-13} N c) 1.5×10^6 N d) 2.4×10^{-11} N

53. In a tangent galvanometer, when a current flows the deflection is 30^0. When the plane of the coil is rotated through 90^0, the deflection produced in the TG is …….

a) 0^0 b) 90^0 c) 60^0 d) 30^0

54. Lorentz force is …….

a) zero when $\theta = 45^0$ b) zero when $\theta = 90^0$ c) always zero d) maximum when $\theta = 90^0$

55. When the currents are flowing in the same direction, the force between two parallel wires is …….

a) repulsive b) attractive c) zero d) maximum

56. The magnetic polarity can be given by …….

a) ampere circuital law b) right hand palm rule

c) end rule d) Biot - Savart law

57. Cyclotron can not accelerate electrons, because of …….

a) its charge b) its size c) its volume d) mass varies at high velocities

58. Two wires of equal length are first connected in series and the in parallel with a voltage source. The ratio of heat energies developed in the above two cases is …….

a) 1 : 2 b) 2 : 1 c) 4 : 1 d) 1 : 4

59. Phosphor -bronze wire is used for suspension in a moving coil galvanometer because it has …….

a) high conductivity b) high resistivity

c) large couple per unit twist d) small couple per unit twist

60. An ideal voltmeter has …….

a) zero resistance b) high resistance c) low resistance d) infinite resistance

61. The unit of magnetic flux is …….

a) tesla b) ampere c) weber d) farad

62. Energy is stored in an induction coil in the form of ……

a) electrostatic energy b) electrodynamic energy

c) electromagnetic energy d) kinetic energy

63. Mutual induction is used in ……

a) AC dynamo b) Dc dynamo c) nuclear reactor d) transformer

64. In a transformer, ……. can not be increased.

a) input voltage b) input current c) input power d) all the above

65. In a step up transformer, the output current is ……

a) > input current b) < input current c) = input current d) none of the above

66. For reducing copper loss, we use ……

a) a thin wire b) a thick wire c) silicon steel d) stelloy

67. The value of E_{rms} is ……

a) 0.707 E_o b) 1.414 I_o c) 1.414 E_o d) 0.707 I_o

68. Capacitor allows ……

a) AC only b) DC only c) both AC and DC d) none of the above

69. Resonance frequency is

a) $1 / \sqrt{(LC)}$ b) $2\pi / \sqrt{(LC)}$ c) $2\pi \sqrt{(LC)}$ d) $1 / 2\pi \sqrt{(LC)}$

70. Choke coil is used to control ……

a) AC only b) DC only c) both AC and DC d) none of the above

71. The average power consumed in an inductive circuit is ……

a) $E_{rms} I_{rms}$ b) $E_o I_o$ c) zero d) infinite

72. The effective resistance of the circuit that contain a capacitor and resistor is ……

a) $\sqrt{\{R^2 + (\omega L - 1/\omega C)^2\}}$ b) $\{R^2 + (\omega L - 1/\omega C)^2\}$

c) $\{R^2 + \omega^2 L^2 + \omega^2 C^2\}$ d) $\sqrt{\{R^2 + 1/\omega^2 C^2\}}$

73. The frequency of AC used for domestic purpose is ……

a) 100 Hz b) 100 KHz c) 50 Hz d) 50 kHz

74. The rms value of the AC flowing through a resistor is 5A. It's peak value is ……

a) 1.732 A b) 70.7 A c) 7.07 A d) 0.707 A

75. A coil of area of cross section 0.5 m^2 with 10 turns is in a plane which is parallel to a uniform magnetic field of 0.5 tesla. The flux passing through the coil is ……

a) 100 Wb b) 10 Wb c) 1 Wb d) zero

76. 11000 W power at 220 V is transmitted through a wire of resistance 2 Ω. The power loss is ……

a) 2500 W b) 0.25 W c) 250 W d) 5000 W

77. The unit of self inductance is ……

a) henry b) V s A^{-1} c) Wb m^{-1} d) all of these

78. In a three phase AC generator, each coil is inclined at an angle of ……

a) 45^o b) 90^o c) 120^o d) 180^o

79. The unit of capacitive reactance is ……

a) farad b) henry c) ohm d) mho

80. Lenz law is in accordance with the law of conservation of ……

a) charge b) momentum c) mass d) energy

81. The velocity of light in free space ……

a) $\sqrt{(\mu_o / \varepsilon_0)}$ b) $\sqrt{(2\mu_o / \varepsilon_0)}$ c) $\sqrt{(\mu_o \varepsilon_0)}$ d) $1 / \sqrt{(\mu_o \varepsilon_0)}$

82. The frequency of electromagnetic waves produced in Hertz experiment is ……

a) 5 X 10^7 Hz b) 7 X 10^5 Hz c) 5 X 10^{-7} Hz d) 7 X 10^{-5} Hz

83. According to wave theory of light, the velocity of is maximum in ……

a) rarer medium b) denser medium c) everywhere d) none of these

84. Sky appears blue due to ……

a) Tyndal effect b) Raman effect c) scattering d) interference

85. The velocity of light in a medium of refractive index 1.5 is ……

a) 2 X 10^8 m s^{-1} b) 3 X 10^{-8} m s^{-1} c) 2 X 10^8 m s^{-1} d) 1.5 X 10^8 m s^{-1}

86. If the path difference is (3 / 2) λ , then, the interference type is ……

a) constructive b) destructive c) both d) none of the above

87. Different colours are formed in a soap bubble due to ……

a) polarization b) interference c) diffraction d) reflection

88. The condition for producing X-ray diffraction is that the width of the obstacle is ……

a) greater than λ b) less than λ c) comparable with λ d) zero

89. The angle between the incident ray and the reflected ray when the angle of incidence is equal to the polarizing angle is ……

a) 57.5^o b) 115^o c) 137^o d) 18^o

90. Example for a uniaxial crystal is ……

a) Calcite b) Quartz c) Tourmaline d) all these

91. Specific rotation depends on ……

a) Thickness and density b) temperature and wavelength

c) both (a) and (b) d) only on temperature

92. The substance which shows more specific rotation is ……

a) sodium chloride b) calcium c) phosphorus d) sugar

93. The ratio of radius of 1^{st} and 9^{th} Newton's rings are ……

a) 4 : 9 b) 1 : 3 c) 1 : 9 d) 1 : 81

94. Raman shift is positive for ……

a) Stoke's line b) anti Stoke's line c) Raman line d) Rayleigh line

95. The polarizing angle for a medium having refractive index 1.732 is ……

a) 45^o b) 90^o c) 60^o d) 30^o

96. In Newton's ring experiment, the radius of the m^{th} and $(m+4)^{th}$ dark rings are √5 mm and √7 mm. The value of m is ……

a) 2 b) 4 c) 8 d) 10

97. The phase difference between the electric and the magnetic field vectors in an EM wave is ……

a) 0^o b) 90^o c) 60^o d) 30^o

98. The grating element of a grating is 2×10^{-6} m. The number of lines per unit length of the grating is ……

a) 5000 b) 6000 c) 5×10^5 d) 5×10^6

99. Molecules give ……. spectrum.

a) line b) band c) continuous d) Raman

100. In Fraunhofer diffraction, the incident wavefront is ……

a) spherical b) cylindrical c) elliptical d) plane

101. In a discharge tube, positive column is produced at a pressure of ……. of Hg pressure.

a) 100 mm b) less than 10 mm c) 10 mm d) 0.01 mm

102. Specific charge of an electron can be measured by ……. method.

a) Millikan b) Rutherford c) Thomson d) Prout

103. The size of the nucleus is ……. times smaller than the size of the atom.

a) 10000 b) 100 c) 10 d) 1000

104. The radius of the first excited state in hydrogen atom is …….

a) 0.53 A^o b) 2.12 A^o c) $\sqrt{2}$ X 0.53 A^o d) 1.06 A^o

105. The energy of the second orbit of hydrogen atom is …….

a) 1.51 MeV b) -3.4 eV c) -1.51 eV d) -13.6 eV

106. The unit of wave number is …….

a) m^{-1} b) m c) C d) m^2

107. The ionization potential of hydrogen atom is …….

a) 13.6 eV b) 13.6 V c) 10.2 eV d) 1.51 V

108. The splitting of spectral line in the presence of electric field is …….

a) Raman effect b) Tyndal effect c) Zeeman effect d) Stark effect

109. Continuous X-ray spectra is due to …….

a) acceleration of electron b) dislocation of electron

c) jumping electron d) de acceleration of electron

110. Intensity of X-ray produced in a Coolidge tube depends on …….

a) voltage between anode and cathode b) target material

c) filament current d) pressure

111. The voltage between the anode and the cathode is 124 volt. The wavelength of X-ray produced will be …….

a) 10^{-10} m b) 10^{-8} m c) 10^{8} m d) 12400 A^o

112. When an electron jumps from L shell to K shell, the emitted X-ray line is …….

a) K_α b) K_β c) L_β d) L_α

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113. The wavelength of x-ray is equal to the lattice distance of a crystal. For the first order, the glancing angle will be ……

a) 0^o b) 90^o c) 30^o d) 60^o

114. In Hydrogen atom, of the following transition, the frequency of radiation is maximum for ……

a) $4 \rightarrow 3$ b) $6 \rightarrow 2$ c) $2 \rightarrow 1$ d) $5 \rightarrow 2$

115. The charge on a oil drop is 8×10^{-18} C, then, the number of elementary charges on it is ……

a) 500 b) 5000 c) 50 d) 0.5

116. The ratio of the specific charge of a α- particle to that of a proton is ……

a) 1 : 2 b) 1 : 1 c) 2 : 1 d) 1 : 4

117. For the principle quantum number 3, the possible l values are ……

a) 3,2,1 b) 2,1,0 c) 1,0,-1 d) 0,-1,-2

118. In Millikan's oil drop method, the potential difference between the two plates separated by a distance 5 cm in air is 5000 V. The electric field is ……

a) 10^3 V m^{-1} b) 10^4 V m^{-1} c) 10^5 V m^{-1} d) b) 10^2 V m^{-1}

119. The ratio of the radii of the first three Bohr orbit is ……

a) 1 : 2 : 3 b) 1 : 3 : 5 c) 1 : 8 : 27 d) 1 : 4 : 9

120. The life time of atoms in the meta stable state in laser is ……

a) 10^{-8} s b) 10^{-3} s c) 10^{8} s d) 10^{3} s

121. The velocity of the photoelectron depends upon ……

a) frequency of the incident photon b) intensity of the incident

c) voltage between the anode and cathode d) none of the above

122. The de Broglie wavelength is directly proportional to ……

a) E b) $E^{½}$ c) $E^{-½}$ d) E^{2}

123. The de Broglie wavelength of an electron which is accelerated by a potential of 4 V is ……

a) 12.27 A^o b) 1.67 A^o c) 6.135 A^o d) infinity

124. The condition for stable orbit is that the circumference is equal to ……

a) $n\lambda$ b) $n^2\lambda$ c) $(n+1)\lambda$ d) n / λ

125. When an electron is accelerated by a potential V, then the work done by the battery is ……

a) charge / potential b) charge X potential

c) charge^2 / potential d) none of the above

126. According to Newtonian mechanics, mass, length and time ……

a) are independent of one another b) increase with increase of velocity

c) decrease with increase of velocity d) are interdependent

127. According to time dilation ……. is correct

a) $t < t_o$ b) $t = t_o$ c) $t > t_o$ d) t = infinity

128. Einstein's mass - energy relation is …….

a) E = mc b) $E = mc^2$ c) $E = mc^3$ d) $E = mc^2 / 2$

129. When an electron of rest mass m_o is moving with a velocity equal to the velocity of a photon, then, the mass of the electron becomes …….

a) $2 m_o$ b) m_o c) $m_o / 2$ d) infinity

130. When 3 kg mass is converted into energy, the amount of energy released is …….

a) $9 X 10^{16}$ J b) $27 X 10^{16}$ J c) $3 X 10^8$ J d) $18 X 10^{16}$ J

131. When an electron is moving with a velocity 0.8c, then, the kinetic energy is …….

a) $½mv^2$ b) $p^2 / 2m$ c) mc^2 d) $(m - m_o)c^2$

132. Newton's laws are valid in …….

a) non-inertial frames b) inertial frames c) all frames d) reference frame

133. Velocity of light is constant in …….

a) non-inertial frames b) inertial frames c) all frames d) none of the above

134. The energy required to bring the fastest electron to rest is equal to …….

a) eV b) eV_o c) $½mv^2$ d) mv^2

135. An α-particle and a proton are accelerated through the same potential. The ratio of their de Broglie wavelengths is …….

a) 1 : 1 b) 1 : 2 c) 1 : 3 d) 1 : 2√2

136. Electron microscope is operated in …….

a) high pressure b) high vacuum c) normal pressure d) none of the above

137. The clock in moving space will appear to ……

a) go slower than the clocks on the earth b) go faster than the clocks on the earth

c) be the same as on earth d) none of the above

138. The potential difference to produce the de Broglie wavelength of 5×10^{-12} m of an electron beam is ……

a) 6000 V b) 60000 V c) 5000 V d) 50000 V

139. de Broglie wavelengths of an electron having momentum 3.3×10^{-24} kg m s^{-1} is ……

a) 10 A^o b) 2 A^o c) 20 A^o d) 1 A^o

140. The Kinetic energy of a particle is ……

a) pv / 2 b) $p^2 v$ c) $p v^2$ d) mv

141. ${}_8O^{16}$ and ${}_6C^{14}$ nuclei are ……

a) isotopes b) isobars c) isotones d) none of the above

142. Nuclear density is ……

a) 13600 kg m^{-3} b) 13.6 kg m^{-3} c) 1.816×10^{17} kg m^{-3} d) 1.816×10^{-17} kg m^{-3}

143. The charge of Carbon nucleus is ……

a) 9.6×10^{-19} C b) 1.6×10^{-19} C c) 11.2×10^{-19} C d) $1.6 \times 10^{+19}$ C

144. The energy equivalent of 1amu is ……

a) 93.1 eV b) 931 eV c) 93.1 MeV d) 931 MeV

145. The nuclear forces are produced due to the exchange of …… between the nucleons.

a) protons b) electrons c) mesons d) neutrons

146. When a radioactive sample emits 3 α-particles, 3 β-particles and 3γ -particles, then, the atomic number ……

a) increases by 3 b) decreases by 3 c) increases by 6 d) decreases by 6

147. In the given equation, ${}_0n^1 \rightarrow {}_1H^1 + {}_{-1}e^0 + X$, X represents ……

a) neutron b) proton c) electron d) anti neutrino

148. The half life period of Uranium is 4000 years. Time taken to disintegrate all the atoms is ……

a) $5T_{½}$ b) $10\ T_{½}$ c) $100\ T_{½}$ d) infinity

149. The energy produced in a cyclotron is in the order ……

a) GeV b) MeV c) eV d) meV

150. The energy released per nucleon in the fission of Uranium is ……

a) 200 MeV b) 0.85 MeV c) 7.6 MeV d) 8.8 MeV

151. The principle involved in a nuclear reactor is ……

a) uncontrolled fission chain reaction b) controlled fission chain reaction

c) fusion reaction d) none of the above

152. Nuclear fusion is involved in ……

a) atom bomb b) hydrogen bomb c) nuclear reactor d) both (a) and (b)

153. Neutrino belongs to …… group.

a) photon b) lepton c) meson d) baryon

154. Moderator converts energy of the neutron from 2 MeV to ……

a) 0 eV b) 1000 eV c) 0.025 eV d) 10 eV

155. Ionization power is maximum for ……

a) α - particle b) β - particle c) γ - particle d) photon

156. The half life period of a radioactive material is 5 minutes. The amount of substance decayed in 20 minutes is ……

a) 6.25% b) 25% c) 93.75% d) 75%

157. The average number of neutrons released per fission of Uranium is ……

a) 3 b) 2 c) 2.5 d) 3.5

158. The ratio of radii of two nuclei is 1 : 2. The ratio of their mass numbers is ……

a) 8 : 1 b) 1 : 4 c) 4 : 1 d) 1 : 8

159. Isotopes used to locate the brain tumors is ……

a) Na^{24} b) I^{131} c) Fe^{59} d) P^{32}

160. The time taken by the radioactive element to reduce to (1 / e) times is ……

a) half life b) mean life c) total life d) ½ X half life

161. The forbidden energy gap for silicon is ……

a) 0.7 V b) 0.3 V c) 1.1 eV d) 0.7 eV

162. The number of free electrons and holes are same in ……

a) extrinsic semi conductor b) P - type semi conductor

c) N - type semi conductor d) intrinsic semi conductor

163. The potential barrier for germanium PN - junction is ……

a) 0.7 V b) 0.3 V c) 1.1 eV d) 0.7 eV

164. The reverse current in PN junction diode is mainly due to ……

a) majority carriers b) reverse voltage c) minority carriers d) forward voltage

165. The part which is used to convert AC to DC is ……

a) diode b) transistor c) IC d) OP-AMP

166. The component which is used in a regulator circuit is ……

a) diodes b) ICs c) Zener diodes d) both (a) and (b)

167. The relation between α and β is ……

a) $\beta = (1 - \alpha) / \alpha$ b) $(1/\alpha) = 1 + (1/\beta)$ c) $(1/\alpha) + (1/\beta) = 1$ d) $1/(\alpha + \beta) = 1$

168. For a positive feedback, the input signal and feed back fraction must be ……

a) in phase b) out of phase c) both (a) and (b) d) none of the above

169. When both the inputs are HIGH in a Ex-OR gate, the output will be ……

a) 0.3 volt b) 6.4 volt c) 8.5 volt d) 4.5 volt

170. The input resistance of an ideal operational amplifier is ……

a) infinity b) zero c) high d) low

171. $(A + B)(\bar{A} + C)$ is equal to ……

a) AB b) $\bar{A}$ B c) AC + $\bar{A}$B d) AB + $\bar{A}$C

172. Colpitt oscillator produces ……

a) square wave b) rectangular wave c) triangular wave d) sinusoidal wave

173. The colour of light emitted by a LED depends on ……

a) its reverse bias b) forward bias c) both (a) and (b) d) semiconductor material

174. The logic gate for which there is an output, only when both the inputs are zero is ……

a) OR b) NOR c) Ex-OR d) AND

175. In a transistor with $\beta = 40$, the base current is 25 µA. The collector current I_c is ……

a) 100 µA b) 1000 mA c) 1 mA d) 0.1 mA

176. Avalanche break down primarily depends on ……

a) collision b) ionization c) doping d) recombination

177. In a single stage CE amplifier, the phase difference between input signal and the output signal is always …….

a) 0^o b) 90^o c) 180^o d) 270^o

178. The electronic component which can be used as a switch is …….

a) diode b) transistor c) vacuum tubes d) none of the above

179. In an inverting amplifier of op-amp, the circuit which behaves as negative when R_f is equal to R_{in} is called …….

a) scale changer b) adder c) sign changer d) none of the above

180. An oscillator is …….

a) an amplifier with positive feedback b) a convertor of AC into DC

c) an amplifier without feedback d) an amplifier with negative feedback

181. The process of mixing audio signal with a carrier wave is called …….

a) transmission b) reception c) demodulation d) modulation

182. For communication purpose ……. are used.

a) radio waves b) microwaves c) both (a) and (b) d) gamma rays

183. Carrier waves are …….

a) high frequency radio waves b) low frequency radio waves

c) higher amplitude wave d) audio waves

184. The frequency of audio signal is …….

a) 20 Hz b) 200 Hz c) 200 Hz to 2000 Hz d) 20 Hz to 20 kHz

185. Microphone converts …….

a) video signal to electrical signal b) sound signal to electrical signal

c) sound signal to video signal d) electrical signal to video signal

186. The part which converts electrical signal into sound signal is …….

a) microphone b) camera c) loud speaker d) picture tube

187. Distortion is produced in the modulated wave when the modulation factor …….

a) m = 1 b) m > 1 c) m < 1 d) m = 0

188. In amplitude modulation, the bandwidth is …….

a) equal to signal frequency b) twice the signal frequency

c) thrice the signal frequency d) four times the signal frequency

189. Transmitting antenna converts electrical signal into …….

a) magnetic energy b) electrical energy

c) electromagnetic energy d) potential energy

190. In transmitter, the RF section produces …….

a) carrier wave b) audio signal c) modulated wave d) electromagnetic energy

191. Which is the following component are used for demodulation purpose …….

a) Diode b) transistor c) microphone d) loud speaker

192. The intermediate frequency of FM receiver is …….

a) 455 kHz b) 10.7 MHz c) 1055 kHz d) 455 MHz

193. In TV transmission sound signals are …….

a) amplitude modulated b) frequency modulated

c) phase modulated d) none of the above

194. Blanking pulse is given to …….

a) horizontal plate of electron gun b) vertical plate of electron gun

c) filament of electron gun d) control grid of electron gun

195. To avoid scanning in the retrace path, the pulse used is …….

a) horizontal pulse b) vertical synchronizing pulse

c) Blanking pulse d) none of these

196. The time taken to scan a single horizontal line is …….

a) 15625 Hz b) 64 μ s c) 20 ms d) 25 ms

197. A modem is used for …….

a) Modulation only b) demodulation only

c) both modulation and demodulation d) printing the information

198. Optical fiber works on the principle of …….

a) total internal reflection b) refraction

c) reflection d) polarization

199. Geo stationary satellite is launched at a height above the surface of earth is …….

a) 36,000 km b) 63,000 km c) 36,000 m d) 3,600 km

200. Interlaced scanning removes …….

a) distortion b) unwanted signal c) flicker d)noise

Hard working never fails

BEst wishes

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