# BSEB CAREER.

Guess Question Pdf

Class: 12th   Bihar Board पर आधारित सवाल   Subject: Physics

Short Question

1. What is electrostatic Shielding? Give its practical application.

2. Give two factors which affect capacitance of a capacitor.

3. Define current density $(\vec{J})$ and write expression for current density in terms of drift velocity.

4. A wire of 12Ω resistance is stretched to double its length. Find out the new resistance of the wire.

5. Explain Ampere's circuital law.

6. What is Shunt? Explain its uses.

7. Lenz's law is the law of conservation of energy. Explain.

8. State two differences between the magnetic properties of soft iron and steel.

9. Explain Wattless current.

10. State two main characteristics of electromagnetic waves.

11. Two thin convex lenses of power 4D and 6D are placed co-axially at a distance of 20 cm apart. Find the focal length and power of the combination of lenses.

12. Write necessary conditions for interference?

13. Write truth table and boolean algebraic expression of OR gate and AND gate.

14. Write the de Broglie wavelength of an electron of Kinetic energy E.

15. What is amplitude modulation? Explain

16. What will be the value of flux of electric field on a closed surface ABC placed near charges $+q_1, +q_2$ and $-q_3$?
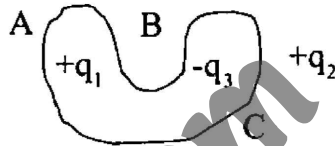
17. In going from water to glass will speed of light increase or decrease? Explain.

18. A particle of mass m and charge q is projected with velocity $\vec{V}$ perpendicular to a uniform magnetic field $\vec{B}$. The particle is set in circular motion. What will be the radius of this circular path.

19. Write down two properties of equipotential surface.

20. What will be work-done in charging $20\mu F$ capacitor to 500 volt?

21. Write S.I. unit and dimension of magnetic moment.

22. Find out the energy of photon of light of wavelength 6000^.

23. The power of two lenses are +12D and -2D. They are placed in contact on the same axes. What will be the focal length of the combination?

24. Write lenz's law of electromagnetic induction.

25. Write down two main features of LASER rays.

26. What is action of a transformer? What do you mean by its efficiency.

27. Define modulation. Write its types.
28. What is photoelectric effect?
29. Write down two differences between diamagnetic and paramagnetic materials.
30. Discuss short comings of Bohr model of atom.
31. On which condition, force acting on a moving charge in uniform magnetic field will be minimum?
32. The root mean square value of potential difference of an alternating current in a circuit is $100\sqrt{2}$ volt. Find out peak value of potential difference and average value of potential difference over a full cycle.
33. What will be the wavelength for transmission of 500 MHz wave from a television centre?
34. Define linearly polarised light.
35. Write down two applications of Photo diode.
36. What do you mean by equipotential surface?
37. Write Gauss-theorem of electrostatics.
38. Write Joule's laws of heating effect of current.
39. Explain average value of an alternating current.
40. Write two properties of beta (β) rays.
41. Explain p - type of semiconductor.
42. What do you mean by conduction band?
43. Explain polarisation of light.
44. Explain amplitude modulation.
45. Explain electrical resonance.
46. What do you mean by electric field lines ?
47. Explain series combination of capacitors.
48. Explain AND-gate.
49. Explain Permeability of a medium.
50. Explain Primary rainbow.
51. Write two short comings of Bohr-Principle.
52. What do you mean by angle of dip ?
53. What do you mean by Short sightedness ?
54. What do you mean by FAX ?
55. What do you mean by Lorentz force ?
56. Write the definition of electric dipole.
57. Explain the capacity of a capacitor with S.I. unit.
58. What do you mean by resistivity.
59. Explain electromotive force with S.I. unit.
60. What do you mean by colour code of carbon resistance.
61. What do you mean by mutual induction?
62. Explain choke-coil.
63. Write two standard positions in magnetic field of a magnet.
64. Explain magnetic elements of the earth.
65. What do you mean by refractive index ?
66. Explain power of lenses in contact.
67. What do you mean by Rainbow ?
68. Explain wave fronts.
69. Explain Nuclear binding energy.
70. Explain Semi-conductor.
71. Write down the relationship between potential gradient and intensity of electric field. What is the S.I. unit of potential gradient?
72. Calculate the increase in energy of a 6μ F condenser by changing its potential difference from 10 volt to 20 volt.
73. What is the relationship between drift velocity of free electrons and electric current density?
74. Differentiate between electromotive force (e.m.f.) and terminal potential difference of a cell.
75. Write down Fleming's left hand rule.
76. Name the energy losses in a transformer.
77. What is Curie Law?
78. What is the relation between path difference and phase difference?
79. Define stopping potential.
80. Write down two uses of microwaves.
81. Calculate the energy of a photon of wavelength 250 A°.
82. Write any two uses of capacitor.
83. State two main properties of electromagnetic wave.
84. Write down relation between critical angle and polarizing angle.
85. Write down definition and S.I. unit of magnetic dipole.
86. Write down faraday's law of electromagnetic induction.
87. Write down formula of inductive reactance of any coil in a.c. circuit. Does it depend upon the magnitude of the current?
88. Differentiate between constructive and destructive interference.

89. Write down two hypothesis given by Bohr for hydrogen atom.

90. The surface charge density of any uniformly charged spherical conductor is $80.0 \mu c/m^2$. Find the charge on the sphere.

91. What is unit of potential-gradient ? Write the relationship between potential gradient and intensity of electric field.

92. A charge of $1.6 \times 10^{-7} c$ is uniformely distributed on the surface of a spherical conductor of radius 12 cm . What will be electric field of any point outside the sphere ?

93. Write down maximum and minimum values of magnifying power of a simple microscope.

94. Establish the relationship between mean value and peak value of alternating current.

95. What are reactance and impedance in alternating circuit?

96. Differentiate between primary and secondary rainbow.

97. Describe the two shortcomings of Bohr model of atom.

98. Write truth table and Boolean expression of OR and AND gate.

99. The decay constant of a radioactive substance is 5.2×10^{-3} per year. What is its half-life ?

100. Find an expression for the energy of a charged conductor.

101. What is the relationship between size of a nucleus and its mass number?

102. Why the aperture of objective of compound microscope is small? What is Malus law of polarization?

103. Define threshold frequency and work function.

104. Find the expression for work done in deflecting a dipole in an uniform electric field.

105. Write S.I. unit and dimension of magnetic moment.

106. There is a charge of $31.41 \mu C$ on a conducting sphere of radius 5 cm. Calculate the surface density of charge.

107. What is current density ? Discuss it.

108. On which two factors does the capacity of a condenser depend?

109. Write down two necessary conditions for interference of light.

110. Write maximum and minimum values of magnifying power of a simple microscope.

111. 2A current flowing through any conductor for 10 second produces 80 joule heat. Calculate the resistance of the conductor.

112. Explain carbon dating in brief.

113. Calculate equivalent resistance between the points A and B.

114. Name the energy losses in a transformer.

115. What do you mean by hole in a semiconductor?

116. The horizontal component B_H of earth's magnetic field at any place is $\sqrt{3}$ times its vertical component B_V · What will be the value of angle of dip at that place ?

117. A convex lens of refractive index 1.5 is kept in a liquid medium of same refractive index. What is the focal length of the lens in this medium ?

118. Write down truth table and Boolean expression of NAND gate.

119. What are α and β parameters of a transistor? What is the relation between the two ?

120. Establish the relationship between electric field intensity and electric potential.

121. What are reactance and impedance in alternating current circuit?

122. Explain frequency modulation.

123. Explain electrical resonance.

124. What do you mean by Paschen series?

125. Define volume density of charge. Write its S.I. unit.

126. Explain Solar cell.

127. Find the expression of de Broglie wavelength.

128. What do you understand by polarization of light?

129. Explain copper loss in transformer.

130. What do you understand by emission spectrum ?

131. Write vector form of Biot-Savarat-Laplace's law.

132. Explain the effect of temperature on resistivity.

133. What do you understand by accommodation power of eye ?

134. What are magnetic field lines ? Mention any two properties of magnetic field lines.

135. Write down the expression for angular frequency and frequency of an oscillatory (L-C) circuit.

136. What do you mean by drift velocity ?

137. Write two uses of potentiometer.

138. Write the definition of ampere.

139. Write two uses of shunt.

140. What do you mean by capacitive reactance?

141. Write two definitions of refractive index.

142. Write the definition of dispersive power.

143. What do you mean by Balmer series ?

144. Write two properties of alpha-rays.

145. What do you mean by nuclear fusion ?

146. What do you mean by forbidden region in semiconductor ?

147. What do you mean by ground waves ?

148. What do you mean by www ?

149. What is electrostatic shielding?

150. What are the conditions for total internal reflection ? Write any one of its practical applications.

151. What are eddy currents ?

Long Question

1. Establish the formula for a lens $\frac{1}{f} = (\mu - 1)\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$

2. State Kirchoff's laws. Applying these laws obtain the condition for balanced Wheatstone bridge.

3. State Biot-Savart law. Applying this law obtain expression of magnetic field at a point on the axis of a circular coil carrying electric current.

4. What is Zener diode? Explain its use in a Voltage regulator.

5. Derive an expression for capacitance of a parallel plate capacitor when a dielectric is completely filled between the plates.

6. Write postulates of Bohr's theory. Explain hydrogen spectrum on the basis of Bohr's theory.

7. The height of a TV tower is 235 m. If the average population density around TV tower is $1000(KM)^{-2}$ then up to how many people can the transmission reach? (Radius of the earth $= 6.37 \times 10^6$ m)

8. Find out the expression for capacitance of a parallel plate capacitor.

9. Explain the construction and working of a moving coil galvanometer.

10. Explain diamagnetic substance, paramagnetic substance and ferromagnetic substance.

11. Explain OR- gate, AND-gate and NOT-gate.

12. Find out an expression for electric Intensity at any point due to an electric dipole.

13. Establish the given formula for a concave surface. $\frac{\mu_2 - \mu_1}{R} = \frac{\mu_2}{v} - \frac{\mu_1}{u}$.

14. Establish the laws of reflection of light on the basis of wave theory.

15. Explain OR gate and NOR gate.

16. Find out the expression for magnetic field due to a bar magnet in broad-side on position.

17. What is a biprism? Explain the measurement of wavelength of a monochromatic light using biprism.

18. What is equivalent lens? Establish the formula for equivalent focal length of two thin lenses separated by a distance 'd'.

19. Define self-inductance and mutual inductance. Find an expression for mutual inductance of two co-axial solenoid.

20. Explain the principle and working of cyclotron with the help of a neat diagram. Write the expression for cyclotron frequency.

21. Explain the constitution of atomic nucleus. Write difference between nuclear fission and nuclear fusion.

22. Derive the expression for the capacity of a cylindrical capacitor.

23. State and prove Gauss's theorem. Calculate the electric field at a point near a charged metallic conductor.

24. What is dispersive power? Find the necessary conditions for obtaining deviation without dispersion by two thin prisms.

25. Explain with the help of labelled diagram the working of a transistor as an oscillator.

26. Derive Einstein photoelectric equation.

27. Derive an expression for the capacitance of a parallel plate capacitor filled with dielectric (k) between the plates.

28. Find out the expression for magnifying power of an Astronomical telescope.

29. Find out the expression for magnetic field due to a bar magnet at its end-on position.

30. Explain light emitting diode (LED).

31. Explain Faraday's law of electromagnetic induction.

32. Show for a prism that the refractive index μ is given by $\mu = \dfrac{\sin\left(\frac{A+\delta m}{2}\right)}{\sin\left(\frac{A}{2}\right)}$, where symbols have their usual meaning.

33. State Lenz's law. Show that Lenz's law is a direct consequence of law of conservation of energy.

All The Best