

BSC. PART - II EXAMINATION - 2012

PHYSICS SUB/ GEN

1. Select the correct answer from the following :

- (a) Electrical imags devised by :
(i) Lord Kelvin (ii) Coulomb (iii) Gauss (iv) None of them
- (b) The solid angle subtended by a magnetic shell at a point depends only :
(i) Internal point of the shell (ii) Boundary of the shell
(iii) both (i) and (ii) (iv) None of these
- (c) Thomson coefficient for lead is :
(i) Zero (ii) One (iii) More than one (iv) None of these
- (d) In Desauty's bridge a balance is obtained when non-inductive resistance R_1 fixed R_2 is varried till :
(i) The sound in phones is maximum (ii) The sound in phones is minimum
(iii) Both (i) and (ii) (iv) None of these
- (e) Wavelength increase in the crompton effect :
(i) Is independent of frequency of the incident radiation
(ii) Is dependent of frequency of the incident radiation
(iii) Both of these (iv) None of these
- (f) If the electron and proton were both at rest at an infinite distance apart :
(i) The energy would not be zero (ii) The energy would be zero
(iii) Both (i) and (ii) (iv) None of these
- (g) The physical existence of the electromagnetic waves was first demonstrated experimentally by :
(i) Maxwell (ii) Faraday (iii) Hertz (iv) None of these
- (h) When the maxima of one wave coincide with the minima of the other wave :
(i).constructive interference is formed (ii) Destructive interference is formed
(iii) Both (i) and (ii) (iv) None of these
- (i) According to Bohr's theory of hydrogen spectra, if we want to separate the electron from the nucleus the energy of the magnitude given by the relation must be supplied from :
(i) Inside (ii) Outside (iii) Both (i) and (ii) (iv) None of these
- (j) In laser the emission accompanys the spontaneous species to the ground state and occurs randomly i.e. :
(i) The radiation is not coherent (ii) The radiation is coherent
(iii) Both (i) and (ii) (iv) None of these

GROUP - B

2. Give the Weiss theory of ferromagnetism. What is Curie temperature ?
3. Explain the working of a Cathode-oscilloscope. Draw a neat diagram and explain its uses as amplitude and frequency measurement.
4. What is a difference between charge and specific charge? Discuss the Thomson method of measurement of specific charge of a electron.
5. What is Seebeck's effect? Define Peltier and thomson coefficients. Obtain relationship between them.

GROUP - C

6. Describe the construction of the Michelson interferometer. How it is used to determine the wavelength of a monochromatic light?
7. What is polarised light? How would you produce and detect plane, circularly and electrically polarised light?
8. Explain production of laser by Ruby.

Write notes on any two of the following :

- (a) Newton's ring (b) Diffraction due to single slit (c) Resolving power of a telescope (d) Bohr's theory of hydrogen spectra.

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