Total Time: 2:40 Hours

Physics (Part-II)

(New Course)

Total Marks: 67

"Section-B"

Marks: 40

Q.2. Write short answers to any ten (10) of the following parts. All parts carry equal marks.

(i) Can different equipotential lines cross each other?

(ii) How are units of volts and electron volts related?

(iii) What is difference between an e.m.f and a P.D?

(iv) How can neutrons be accelerated in a cyclotron?

(v) How electromagnetic induction is used in cook tops in electric ranges?

(vi) What is the principle of ECG?

(vii) What determines the gradient of a graph of inductive reactance against frequency?

(viii) Distinguish between soft and hard substance by drawing its curves.

(ix) Why the base current is weak as compared to collector current?

(x) Why must the rest mass of a photon be zero?

(xi) Why it was necessary to quantize angular momentum in Bohr's model of the atom?

(xii) Write a note on nuclear fission.

(xiii) Why ultraviolet radiation is harmful to skin while visible light is not?

"Section-C"

Marks: 27

Note: - Answer any three (3) questions. All questions carry equal marks.

Q.3. (a) Explain the concept of electric field and hence define electric field intensity. (5)

(b) Two light bulbs designed for 120 V use are rated at 40 W and 60 W. Which light bulb has the greater filament resistance? (4)

Q.4. (a) How charged to mass ratio for electron is determined using magnetic field? (5)

(b) What factors limit the size of the back e.m.f ? (4)

Q.5. (a) Describe the principle of metal detectors with suitable diagram. (5)

(b) A force of 500 N is applied to one end of a cylindrical steel rod of diameter 50 cm. What is the tensile stress? (4)

Q.6. (a) Explain interaction of radiation with matter. (5)

(b) What is Soft Magnetic Materials? (4)