Section-B
(Short Answer)

Note: Answer any TEN of the following questions.

Q.2 A wooden bar vibrating into the water surface in a ripple tank has a frequency of 12 Hz. The resulting wave has a wavelength of 3 cm. What is the speed of the wave?

Q.3 Does increasing the frequency of a wave also increase its wavelength?

Q.4: Why must the volume of a stereo in a room with wall-to-wall carpet be tuned higher than in a room with a wooden floor?

Q.5: Define refraction of light.

Q.6 What is meant by the term total internal reflection?

Q.7: How can you show by simple experiments that there are two types of electric charges?

Q.8 What do we mean by the term e.m.f? Is it really a force? Explain.

Q.9: What is an electric motor?

Q.10: What are hazards of static electricity?

Q.11 A transformer is needed to convert a mains 240 V supply into a 12 V supply. If there are 2000 turns on the primary coil, then find the number of turns on the secondary

Q.12 Write the Note any one of the following:

(i) The Electro Gun (ii) Nuclear Fusion (iii) Simple Pendulum

Section-C
(Descriptive Answer)

Note: Answer any THREE of the following questions. marks.

Q.13 Waves are the means of energy transfer without transfer of matter. Justify this statement with the help of a simple experiment.

Q.14: (a) What nuclear reaction would release more energy, the fission reaction or the fusion reaction? Explain.

(b) Half-life of a radioactive element is 10 minutes. If the initial count rate is 368 counts per minute, find the time for which count rates reaches 23 counts per minute.

Q.15 (a) Explain Coulomb's law of electrostatics and write its mathematical form.

(b) If a high-voltage power line fell across your car while you were in the car, why should you not come out of the car?

Q.16 What is difference between D.C and A.C?

Q.17 Which device is used for converting electrical energy into mechanical energy?