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BCA104

B.C.A. Ist Year Examination, 2022

BASIC PHYSICS

Paper-IV

Time Allowed : 1½ Hours

Maximum Marks : 100

Part–A **[Marks : 30]**

Note :– Answer all questions (**50** words each). All questions carry equal marks.

Part–B **[Marks : 70]**

Note :– Answer any *two* questions (**250** words each). All questions carry equal marks.

Part–A

1. (i) Define Torque. Write its unit.

   (ii) Write the formula relating wavelength and frequency of electromagnetic wave.

   (iii) Write the formula for capacitance of a parallel plate capacitor.

(iv) Write the Kirchhoff's laws.

(v) What is piezo electric effect ?

(vi) What is use of multimeter ?

(vii) What is electric fuse ?

(viii) What is use of Zener diode ?

(ix) Why transformers are used ?

(x) Write the range of wavelength in the visible part of electromagnetic spectrum.

Part–B

2. (i) Describe how vernier caliper is used to measure length. Draw necessary diagram.

   (ii) What is use of a telescope ? Describe its working with schematic diagram.

3. (i) Differentiate between vectors and scalars. Explain scalar and vector product of two vectors.

   (ii) Write lens formula. Explain the process of formation of image by convex lens.

4. Write the formula to find field due to an electric charge. State Guass's law and describe one of its application with suitable diagram.

5. How analysis of an electrical circuit is done ? State and prove Thevenin theorem with suitable diagram.

6. (i) What is thermoelectric effect, how it can be measured ?

   (ii) Differentiate between primary and secondary cells and batteries.

7. Describe construction and working of a moving coil galvanometer with suitable diagrams.

8. Describe, how *n* type and *p* type semiconductors are formed ? Describe working of a *p-n* junction diode.

9. Describe L-R, C-R and L-C-R circuits with their phase diagrams.