



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY

Question Paper

B.Sc. Honours Examinations 2022

(Under CBCS Pattern)

Semester - IV

Subject : PHYSICS

Paper : C 9 - P

Elements of Modern Physics

Full Marks : 20

Time : 3 Hours

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer any *one* question :

5×1=5

1. Describe with proper circuit diagram, the theoretical basis of the Planck constant measurement using a filament bulb.

(a) Theory – 2

(b) Data – 2

(c) Calculation – 1

2. Describe the theoretical basis of the Planck constant measurement using LEDs of different colours. Draw its circuit diagram.

(a) Theory with circuit – 2

P.T.O.

(b) Data - 2

(c) Calculation - 1

3. How can we draw $I - V$ characteristics curve of a Tunnel diode? Draw circuit diagram. Also draw ideal $I - V$ curve indicating its peak and valley points.

(a) Theory with circuit - 2

(b) Data - 2

(c) Calculation - 1

Answer any *one* question :

10×1=10

4. How can you determine work function of the material of filament of directly heated vacuum diode?

(a) Theory with circuit - 2 + 2

(b) Data - 2

(c) Graph and Calculation - 3 + 2

5. How can you measure (e / m) of the electron using Helmholtz double coil?

(a) Theory with circuit - 2 + 2

(b) Data - 2

(c) Graph and Calculation - 3 + 2

LNB - 2, Viva - 3
