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SB—12—2022

FACULTY OF SCIENCE

B.Sc. (Third Year) (Sixth Semester) EXAMINATION

MAY/JUNE, 2022

(CBCS/New Pattern)

PHYSICS

Paper-XIV

(Atomic Molecular and Nuclear Physics)

(Tuesday, 07-06-2022)

Time : 10.00 a.m. to 12.30 p.m.

Time— 2½ Hours

Maximum Marks—40

N.B. :— (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) All symbols have their usual meaning.

1. Describe the vector model of the atom and explain the different quantum numbers associated with it. 15

Or

(a) Explain the theory of pure rotational spectra. 8

(b) Give the experimental study of Raman effect. 7

2. With schematic representation of a chain reaction, explain the neutron cycle in detail. 15

Or

(a) With a neat labelled diagram, describe the construction and action of Van de Graaff generator. 8

(b) Describe giving necessary theory the working of betatron. 7

P.T.O.

3. Write short notes on any *two* of the following : 10

- (a) The Pauli's exclusion principle
- (b) Theory of rotation-vibration spectra
- (c) Cyclotron
- (d) Conservation laws.