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SB—13—2022

FACULTY OF SCIENCE

B.Sc. (Sixth Semester) EXAMINATION

JUNE/JULY, 2022

(CBCS/Old Pattern)

PHYSICS

Paper – XIV

(Atomic Molecular and Nuclear Physics)

(Tuesday, 7-6-2022)

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) Symbols have their usual meanings.

1. Explain Normal Zeeman effect and derive an expression for Zeeman shift. 15

Or

(a) Explain P-P chain reaction as a source of energy in sun like stars. 8

(b) Explain the neutron cycle. 7

2. Explain theory of rotation-vibration spectra of diatomic molecule. 15

Or

(a) Explain any *four* conservation laws in nuclear reaction. 8

(b) Explain energy release in nuclear fission. 7

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

(i) Vector atom model

(ii) Experimental study of Raman effect

(iii) The fission products

(iv) Uncontrolled thermonuclear reaction.

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