This question paper contains **2** printed pages]

GA—48—2023

FACULTY OF SCIENCE

B.Sc. (Third Year) (Fifth Semester) EXAMINATION
APRIL/MAY, 2023

(CBCS/New Pattern)

PHYSICS

Paper–XIII

(Solid State Physics)

(Saturday, 29-4-2023) **Time : 10.00 a.m. to 12.00 noon**

Time— Two Hours *Maximum Marks*—40

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

(*ii*) Figures to the right indicate full marks.

1. What are Bravais Lattices ? Explain Bravais Lattices in three dimensions. 15

Or

(*a*) Explain rotating crystal method in X-ray diffraction. 8

(*b*) Explain in detail metallic bond. Give its physical properties. 7

2. Derive an expression for Einstein's specific heat formula and explain its variations at low and high temperatures. 15

Or

(*a*) Derive an expression for electrical conductivity of metals. 8

(*b*) Explain in detail the Drude-Lorentz theory. 7

P.T.O.

3. Attempt any *two* of the following : 10

(*a*) Deduce Widemann-Franz relation.

(*b*) Define specific heat of gases and explain it.

(*c*) Write a note on Bragg's law.

(*d*) Describe simple cubic crystal structure.