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**NA—35—2023**

**FACULTY OF SCIENCE**

**B.Sc. (Third Year) (Fifth Semester) EXAMINATION**

**NOVEMBER/DECEMBER, 2023**

**(CBCS/New Pattern)**

**PHYSICS**

**Paper-XIII**

**(solid state Physics)**

**(Saturday, 9-12-2023)**

**Time : 10.00 a.m. to 12.00 noon.**

*Time—2 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) Describe covalent bond and metallic bond. 8

(b) Explain in detail interatomic forces in solid. 7

2. Describe the classical theory of lattice heat capacity along with its limitations. 15

*Or*

(a) Explain in detail Sommerfeld model 8

(b) Discuss in detail electrical conductivity and Ohm's law. 7

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3. Attempt any two :

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- (a) Obtain the packing fraction of FCC lattice.
- (b) Write a short note on Bragg's law.
- (c) Discuss on specific heat of solids.
- (d) Deduce Widemann-Franz relation.

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