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FACULTY OF SCIENCE

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

OCTOBER/NOVEMBER, 2019

PHYSICS

Paper XIII 'A' (DSEP-I)

(Solid State Physics)

(Tuesday, 3-12-2019)   **Time : 10.00 a.m. to 12.00 noon**

Time—2 Hours   *Maximum Marks—40*

N.B. :—   *All* questions are compulsory.

1.   Obtain an equation for Einstein's specific heat of solids. Discuss its variations at low and high temperature.   15

Or

(*a*)   Explain Bravai's Lattices in two dimensions with neat digram.   8

(*b*)   Explain Body center cubic (BCC) crystal structure with its coordination number and packing fraction.   7

2.   Explain Drude Lorentz theory and derive an expession for electrical and thermal conductivity.   15

Or

(*a*)   What are the types of bonding. Discuss formation of covalent bond. 8

(*b*)   Explain formation of ionic bonding in solids.   7

3.   Write short notes on any *two* of the following (each of **5** marks)   10

(*a*)   Point groups and space groups

(*b*)   Hydrogen bond

(*c*)   Dulong and Petit's law (classical theory of specific heat of solids)

(*d*)   Outstanding properties of metals.