

# VP & RPTP Science College-Vallabh Vidyanagar

Internal Test: 2016

S Y BSc [Semester-IV]

Subject-Physics US04CPHY02

Date: 15/03/2016 Tuesday

Time: 03.00 pm to 04.30 pm

Total Marks-25

Q-1 Multiple Choice Questions: [Attempt all]

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(i) The number of atoms present in unit cell of HCP structure is

- (a) 1 (b) 2  
(c) 4 (d) 6

(ii) \_\_\_\_\_ has a covalent bond.

- (a) Na (b) Mg  
(c) Cu (d) Si

(iii) If all the hydrogen atoms in polyethylene are replaced by fluorine, the resulting polymer is called

- (a) Polyvinyl chloride (b) Polypropylene  
(c) Polytetrafluoroethylene (d) Polycarbonate



Q-2 Answer the following questions in short [Attempt any two].

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- (a) Define primitive cell and non-primitive cell.  
(b) Which forces are neglected in cohesion? Why?  
(c) Give two differences between thermoplastic and thermosetting polymers.

Q-3 Define atomic packing factor (APF). Calculate APF for BCC structure.

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OR

Q-3 Describe the scheme to determine the Miller indices of a plane and draw planes having Miller indices (1 1 0) and (1 1 1).

6

Q-4 Calculate the lattice energy of ionic crystals.

6

OR

Q-4 Derive the Madelung constant of ionic crystals.

6

Q-5 Give classification of polymers based on molecular characteristics also discuss stereo-isomerism in detail.

6

OR

Q-5 Write a note on: (1) Elastomers (2) Fibers

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