

Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Advances in Materials Science

Subject Code: 5SC04AMS1

Branch: M.Sc. (Physics)

Semester: 4

Date: 01/05/2018

Time: 10:30 To 01:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

SECTION – I

- Q-1 Attempt the Following questions (07)**
- a. Write the Gibbs Phase Rule expression
 - b. Define Sintering
 - c. Write two properties shown by Glass Ceramics
 - d. What are the Ceramics?
 - e. Give two importance of Phase Diagrams
 - f. State Tie Line
 - g. Define Phase of a system
- Q-2 Attempt all questions (14)**
- a Explain in detail the Eutectic Phase Diagram **07**
 - b Give an account on Polymer Composite fabrication methods **07**
- OR**
- Q-2 Attempt all questions (14)**
- a Describe the tape casting method used for Ceramic Material fabrications **07**
 - b Write a note on Phase diagram and its importance **07**
- Q-3 Attempt all questions (14)**
- a Compare between thermoplastic and thermosetting polymers **06**
 - b Enumerate on Quasi Crystals **08**
- OR**
- Q-3 a Explain in detail Polymers and its types **07****
- b Describe injection molding method used for ceramic shaping. **07****



SECTION – II

- Q-4** **Attempt the Following questions** **(07)**
- a. Give the classification of polymers based on structure
 - b. What are the Quasi crystals?
 - c. Define Golden Ratio
 - d. What do you mean by Domain Walls in magnetism?
 - e. Give the main difference between Soft and Hard magnets?
 - f. Explain Spintronics
 - g. What do you mean by Magnetoresistance?
- Q-5** **Attempt all questions** **(14)**
- a Describe the importance of Ferromagnetism and Ferrimagnetism in material science. **07**
 - b Explain in detail Ceramic Magnets or Magnetic Ferrites **07**
- OR**
- Q-5** a State the importance of Spintronics in shaping the modern world **07**
- b Explain the working and principle of LEDs **07**
- Q-6** **Attempt all questions** **(14)**
- a Explain in detail Giant Magneto Resistance in detail **07**
 - b Elucidate the shape memory alloys and also state its applications **07**
- OR**
- Q-6** **Attempt all Questions**
- a Write an account on Nanostructured Materials **08**
 - b Give the significance of Flip-Chip Technology in device fabrication **06**

