

Total No. of Questions : 12]

SEAT No. :

P2129

[Total No. of Pages : 2

[4659] - 296

B.E. (Chemical) (Semester - I)

B : ADVANCED MATERIALS

(2008 Pattern) (Elective - II)

Time : 3 Hours]

[Max. Marks : 100

Instructions :-

- 1) *Answer any 3 questions from Section - I and 3 questions from Section - II.*
- 2) *Answers to the two sections should be written in separate books.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Your answers will be valued as a whole.*
- 6) *Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*

SECTION - I

Q1) What is advanced materials? Explain with proper example and compare with the normal materials. **[16]**

OR

Q2) Discuss the types of steels in detail also explain their particular usages in chemical process industries. **[16]**

Q3) Define polymeric materials - List out advanced polymeric material with uses in industries. **[18]**

OR

Q4) How to prepare new polymeric material? Discuss it with flow chart and explain what are the engineering problems encountered during manufacturing. **[18]**

Q5) What is powder synthesis technique? Explain in detail. **[16]**

OR

Q6) Discuss on. **[16]**

- a) Ceramic materials
- b) Microstructural design.

P.T.O.

SECTION - II

Q7) What do you mean by composite materials? Discuss the factors affecting the properties of composite materials. **[16]**

OR

Q8) What is reinforcing mechanism? Discuss it with proper example. **[16]**

Q9) How to prepare ceramic composite? Explain in detail with figure. **[18]**

OR

Q10) Discuss : **[18]**

- a) Crack propagation
- b) Mechanical behaviour of ceramics.

Q11) What is carbon composite? Discuss their properties and explain fabrication method of it. **[16]**

OR

Q12) Write short notes on : **[16]**

- a) Nanomaterials with example.
- b) Applications of nanomaterial in Chemical Engineering.

