

Total No. of Questions : 12]

SEAT No. :

P1133

[4659]-360

[Total No. of Pages :2

B.E. (Biotechnology)

b - BIOMATERIALS

(2008 Pattern) (Elective - II) (Semester -I) (415462)

Time : 3Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) *Answers three questions from each section.*
- 2) *Answers to the two sections should be written in separate answer books.*
- 3) *Figures to the right indicate full marks.*
- 4) *Neat diagrams must be drawn whenever necessary.*

SECTION-I

Q1) Enlist the different mechanical properties of materials and describe their importance for the application in biomaterials. **[18]**

OR

Q2) Explain in detail the curing methods in silicone elastomer. Add a note on oxidative addition and reductive elimination of Pt in silicone elastomers. **[18]**

Q3) Write short notes on the following: **[16]**

- a) Smart polymers.
- b) Nanobiomateria.

OR

Q4) Explain the preparation, properties and biomedical applications of Xanthan and Pullalan. **[16]**

Q5) Explain the properties and functions: (8 marks each) **[16]**

- a) Polydioxanone
- b) Polycaprolactone

OR

Q6) Answer the following in details: **[16]**

- a) Different types of degradable implants.
- b) Factors influencing the rate of Bioerosion.

P.T.O.

SECTION-II

Q7) Write short notes on: **[16]**

- a) Properties of PHA
- b) Application of biocatalysts.

OR

Q8) Describe in detail the production and purification of L-Homophenylalanine. Add a note on membrane bioreactor. **[16]**

Q9) Write short notes on (4 marks each): **[16]**

- a) Artificial organs
- b) PTFE
- c) PVC
- d) PMMA

OR

Q10) Answer the following (8 marks each): **[16]**

- a) Discuss any two biodegradable polymers.
- b) Define biocompatibility and host response with examples.

Q11) Explain in details the following applications of hydrogels in detail: **[18]**

- a) Tissue scaffolding
- b) Drug delivery system
- c) Contact lenses

OR

Q12) Enlist the different type of biomaterials which can be used in the cardiac implants. Explain any two in details. **[18]**

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