

314346

24225

3 Hours / 70 Marks

Seat No. 

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- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answer with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. Attempt any FIVE of the following: 10
- a) Draw the chemical structure of Polyvinylidene Chloride (PVDC)
  - b) Name any four key properties of Polyvinyl Fluoride (PVF).
  - c) Enlist four different properties of polyimide.
  - d) Define Nano composite with an example.
  - e) Name any two examples of Polymer Membrane.
  - f) Enlist four key properties of styrene based Elastomer.
  - g) Define Thermoplastic Elastomer (TPE).

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain primary structural characteristics of polyimides that gives them high thermal stability.
  - b) Enlist four different characteristic property and applications of liquid crystal polymers.
  - c) Differentiate between PHA and PHB on the basis of degradation rate and mechanical properties. (Four points)
  - d) Enlist four characteristics of Polymer blend. State its any four examples.
- 3. Attempt any THREE of the following:** **12**
- a) State the four applications of PEEK with respect to its properties.
  - b) Compare cross link Polyethylene with traditional Polyethylene with respect to its structure and properties. (Four points)
  - c) Describe four factors affect the biodegradability of natural polymers.
  - d) Classify thermoplastic elastomer and explain any one of them in short.
- 4. Attempt any THREE of the following:** **12**
- a) Enlist four applications of Polymer concrete with its four example.
  - b) Justify the statement “Biodegradable polymers are used in sutures and drug delivery system”.
  - c) Write four Polymers of self healing polymer with its application.
  - d) Explain four different properties of thermoplastic elastomer.
  - e) Differentiate between thermoplastic elastomer and convection thermoset plastic. (Four points)

**5. Attempt any TWO of the following: 12**

- a) Write structure four properties and four applications each of Polyphenylene oxide (PPO).
- b) Differentiate between conventional polymer and speciality polymers on the basis of characteristics, applications and example. (Six points)
- c) Explain the properties of olefin based thermoplastic elastomer in automobile application with suitable justification.

**6. Attempt any TWO of the following: 12**

- a) Give three examples of light sensitive polymers and explain their practical applications.
  - b) A company wants to develop eco-friendly packaging material. Suggest suitable biodegradable polymer (PHA, PHB or PLA) with reason.
  - c) Define polymer blends and explain how they differ from polymer alloys. (Six points)
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