

Time : 2-30 Hours]

[Max. Marks : 70

QUESTION – 1 Write the following

(i) Write short note on (i) Biodegradable & Compostable polymers (ii) Hydroxylation (ring opening) of vegetable oil. **7 MARKS**

(ii) Explain origin, chemical structure, properties and applications of Collagen and Elastin. **7 MARKS**

OR

(i) Explain origin, chemical structure, properties and applications of Keratin. **7 MARKS**

(ii) Differentiate between Polypeptides and Polynucleotides. Give minimum five differences **7 MARKS**

QUESTION – 2 Write the following

(i) Write down the preparation, properties and applications of regenerated Cellulose. **7 MARKS**

(ii) Write the origin source, structure, properties and applications of Chitin & Chitosan. **7 MARKS**

OR

(i) Write the origin source, structure, properties and applications of Hemicelluloses. **7 MARKS**

(ii) Define Wood and its components. Discuss the dissolution and isolation of Cellulose. **7 MARKS**

QUESTION – 3 Write the following

(i) Describe the production methods for Polylactides. **7 MARKS**

(ii) List three PLA Blends. Write down the properties & applications of PLA blends. **7 MARKS**

OR

(i) Write down the properties & applications of polyhydroxyalkanoates blends.

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(ii) Describe the Bacterial biosynthesis and Chemical synthesis of Polyhydroxyalkanoates.

7 MARKS

7 MARKS

QUESTION – 4 Write the following

(i) List biopolymers used as natural fibres. Describe natural fibres reinforced thermoplastics.

7 MARKS

(ii) Write short note on (a) Food packaging applications of Biobased films. (b) edible films & coatings.

7 MARKS

OR

(i) Write short note on (a) Creep and dynamic mechanical properties (b) accelerated environment tests.

7 MARKS

(ii) Write short note on (a) Extrusion and compounding of biopolymers (b) Biomedical applications of biopolymers.

7 MARKS

QUESTION – 5 Attempt any seven out of twelve.

14 MARKS

1. Give two examples of natural fibres?
2. What is the difference between monosaccharide's and disaccharides with example?
3. Give any two examples of semi-synthetic polymers.
4. What is the molecular formula of sucrose?
5. Write short notes on Lignin.
6. Write down the chemical structure of RNA.
7. Which polymer of glucose is stored in animals?
8. Biodegradable polymers do not need to be land-filled, they will re-enter normal geo-chemical cycles over time. (True/False)
9. Silk is a natural polymer. (True/False)
10. Nucleic acids, proteins and starch are step growth polymers. (True/False)
11. PHA stands for.....
12. Polycaprolactam is a (polyamide/polyester).
