

22488

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 answers 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) Define waste & enlist its 2 types.
- (b) State the need of polymer waste management.
- (c) Define dry separation & wet separation method.
- (d) State the significance of sorting by size, shape, colour with respect to separation by properties.
- (e) State the causes of air and water pollution.
- (f) Enlist four different causes of Acid rain.
- (g) State the importance of environmental studies.

2. Attempt any THREE of the following :

12

- (a) Enlist and explain 4 different hazards to environment due to accumulation of polymer waste.



- (b) Explain 4R terminologies of polymer waste management.
- (c) Explain Granulation with the help of neat sketch.
- (d) Enlist four characteristics and functions of ecosystem.

3. Attempt any THREE of the following :

12

- (a) Define with suitable example :
 - (i) Pollution
 - (ii) Pollutant
- (b) Explain Trench land filling method with its significance.
- (c) Explain float and sink method with neat labelled diagram.
- (d) Enlist various applications of recycled PP. Justify your answer.

4. Attempt any THREE of the following :

12

- (a) Differentiate secondary recycling from quaternary recycling.
- (b) State the recycling codes of the following :
 - (i) HDPE
 - (ii) PVC
 - (iii) PP
 - (iv) ABS, Nylon
- (c) Describe the Hydrolysis of PET in recycling.
- (d) Explain 4 automobile applications of ABS with its reason.
- (e) Describe In-situ and Ex-situ conservation of biodiversity by suitable example.

5. Attempt any TWO of the following :

12

- (a) Enlist six different additives used to improve properties of polymer waste. Also state function of each.
- (b) Explain construction and working of fixed hearth incinerator.

- (c) Explain packaging application of following recycled polymer :
- (i) PET
 - (ii) HDPE
 - (iii) PVC

6. Attempt any TWO of the following :

12

- (a) Define Degradation. Explain the mechanism of biodegradation of polymer.
 - (b) Explain Pyrolysis for fuel recovery from polymer.
 - (c) Explain the applications of following recycled polymer in different sector :
 - (i) Recycled PU Foam
 - (ii) Recycled Nylon
 - (iii) Recycled PS
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