

# 22453

**11920**

**3 Hours / 70 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (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**
- Define stock pollutant and fund pollutant.
  - Define biodegradation.
  - Enlist the types of sorting for waste plastics.
  - Define primary recycling with suitable example.
  - State the full form of PET, PVC, ABS and HDPE.
  - State any two renewable and two non-renewable energy sources.
  - Define air pollution and marine pollution.
- 2. Attempt any THREE of the following: 12**
- State any four hazards to environment due to accumulation of plastic waste.
  - Explain physical and chemical recycling with suitable example.
  - Suggest any four additives with their functions for improvement of properties of waste plastics.
  - Explain the shredding of waste plastics by impact and shearing.

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- 3. Attempt any THREE of the following:** **12**
- a) State any four applications of recycled PET.
  - b) State any four functions of eco-system.
  - c) Describe the mechanism of biodegradation for waste plastics.
  - d) State the recycling code for identification of waste plastics.
- 4. Attempt any THREE of the following:** **12**
- a) Explain glycolysis of waste plastic with neat flow diagram.
  - b) State any four applications of recycled HDPE.
  - c) State four properties and four applications of PHA.
  - d) Explain gasification of waste plastics with neat sketch.
  - e) State any four applications of recycled ABS.
- 5. Attempt any TWO of the following:** **12**
- a) Explain the different sources of plastic waste.
  - b) Describe primary, secondary and tertiary recycling.
  - c) Explain float-sink method with neat sketch for separation of waste plastics.
- 6. Attempt any TWO of the following:** **12**
- a) Explain with neat sketch the fixed hearth incineration of waste plastics.
  - b) State any two applications of recycled PU, PP and PVC.
  - c) Explain the causes, effects and control measures of water pollution.
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