

# 17655

**21415**

**3 Hours / 100 Marks**

Seat No.

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

**Marks**

- 1. Attempt any FIVE of the following:** **20**
- a) Explain need of plastic waste management.
  - b) Define:
    - (i) pollutant
    - (ii) pollution
    - (iii) environment
    - (iv) domestic waste
  - c) Describe with an example, 'melt processing'.
  - d) Describe method of 'gasification'.
  - e) Why is sorting of plastic waste, done?
  - f) Define 'biodegradable waste'. State their merits.
  - g) Describe with an example, 'enzymatic biodegradation'. Name types of enzymes used.

P.T.O.

	Marks
<b>2. Attempt any <u>TWO</u> of the following:</b>	<b>16</b>
a) (i) Describe with examples, 'Solvolysis of PET'.	6
(ii) State advantages of the process.	2
b) Describe with a labelled diagram an equipment used for separation of plastic waste.	
c) (i) Define an 'elastomer'. Name types of elastomeric waste.	2
(ii) Describe a method of recycling elastomeric waste.	6
<b>3. Attempt any <u>TWO</u> of the following:</b>	<b>16</b>
a) Explain with examples, difference between: industrial waste and commercial waste.	
b) (i) Define:	2
1) fungi	
2) bacteria	
(ii) Describe a method of test bacterial resistance of plastics.	6
c) Describe recycling of PVC waste with neat figure.	
<b>4. Attempt any <u>TWO</u> of the following:</b>	<b>16</b>
a) Describe the following:	
(i) 'incineration' process,	
(ii) 'pyrolysis' process	
b) Describe a method of:	
(i) sorting	
(ii) recovery	
of plastic waste.	
c) Explain use of any four processing aids to improve properties of plastics waste.	

- 5. Attempt any TWO of the following:** **16**
- a) Describe secondary type of recycling.
  - b) (i) Explain advantages and disadvantages of recycled materials. 6  
(ii) State areas of application of biodegradable materials. 2
  - c) (i) Describe mechanism of biodegradation. 6  
(ii) Explain meaning of 'degree of biodegradability'. 2
- 6. Attempt any FOUR of the following:** **16**
- a) (i) Name types of medical waste.  
(ii) State hazards associated with them.
  - b) Describe process of 'land - filling'. Why is it done?
  - c) Explain tertiary - recycling of nylon.
  - d) Describe role of 'rag - pickers' in collection of plastic waste.
  - e) Explain with examples, use of 'impact - modifiers'.
  - f) Define commodity plastics. Give examples. Are they thermoplastic or thermoset?
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