

17655

11920

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) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Answer the following (Any TEN) :

20

- (a) Define waste and waste management.
- (b) Write the principle of pyrolysis.
- (c) Suggest method of recycling for PP & PET.
- (d) Define primary recycling method of plastic waste management.
- (e) Distinguish between primary and secondary recycling.
- (f) List the name of equipments used for sorting.
- (g) State any two method of separation of plastic waste.

- (h) Define additive. Why additives are added during recycling of plastic waste ?
- (i) Write any two advantages of recycled plastic waste.
- (j) Are plastics bio-degradable ? Why ?
- (k) Which additives are added to plastic material to make it bio-degradable ?
- (l) Define commercial plastic waste. Write name of any two commercial plastic waste.
- (m) Why PVC material is difficult to recycle ?
- (n) List the sources of waste.

2. Answer the following (Any FOUR) :

16

- (a) Explain any one method to control pollution.
- (b) Describe source of medical waste.
- (c) Explain the need of plastic waste management.
- (d) Explain the hazard arising due to plastic waste accumulation.
- (e) Describe the landfill method of plastic management.
- (f) Describe the process of recycling of polyethylene.

3. Answer the following (Any FOUR) :

16

- (a) Explain with neat sketch incineration process of plastic waste management.
- (b) Describe gasification process of waste management.
- (c) Explain process of recycling used for Nylon material.
- (d) Compare between chemical and physical recycling.
- (e) Explain tertiary recycling of plastic waste.
- (f) Write four advantages and four limitations of landfill method of plastic waste management.

- 4. Answer the following : (Any FOUR) 16**
- (a) Explain stages of recycling of plastic waste.
 - (b) Explain with neat sketch any one sorting method used for plastic waste.
 - (c) Explain technique used to separate metal from plastic waste.
 - (d) Differentiate between sorting and separation technique used for plastic waste.
 - (e) Describe the recycling of elastomer waste method.
 - (f) Explain recycling of commodity plastics waste.
- 5. Answer the following (Any FOUR) : 16**
- (a) Write function of processing aids and name any two processing aid used for plastic waste.
 - (b) Explain the changes that take place in properties of plastics after impact modification by rubber.
 - (c) List any four product manufacturing from recycled plastic. Write any four limitation of recycled plastic.
 - (d) Write function and example of heat stabilizer and UV stabilizer.
 - (e) Write advantages and application of bio-degradable plastic.
 - (f) Explain hazards to environment due to waste accumulation.
- 6. Answer the following (Any FOUR) : 16**
- (a) Describe the mechanism of bio-degradation in brief.
 - (b) Name enzymes used for bio-degradation & write the function of enzymes in degradation.
 - (c) Explain the test to measure fungi resistance of plastic.
 - (d) Describe the degree of bio-degradation with example.
 - (e) Explain with neat sketch extruder-pelletizer.
 - (f) Name the equipment used for separation of plastic waste. Explain any one.
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