17655

16172

3 Hours / 100 Marks Seat No. | | | | | | | | |

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.*

Marks

1. Answer **any five** : **(5×4=20)**

a) What are various hazards to environment ? Which are caused by waste accumulation ?

b) Explain types of plastic waste from medical source and special attention recommended by you, in its handling.

c) Explain various types of pollutants from residential sources.

d) i) Define (1) pollutant (2) pollution.
ii) Name ways to control pollution.

e) Justify need for a separate plastic waste management.

f) Compare primary and secondary recycling process.

g) Explain method used for 'land filling'.

2. Answer **any four** : **(4×4=16)**

a) Describe the importance of controlled land filling technique of harmful solid waste.

b) Describe the role of incineration method used in waste management.

c) Define recycling and classify types of recycling in view of waste management.

d) Describe solvolysis of Nylon and PET.

e) Describe the method of pyrolysis as used in waste management.

f) Explain method of gasification as used in waste management.

3. Answer **any four** : **(4×4=16)**

a) Describe collection process of plastic waste.

b) Explain role of recovery process in plastic waste.

c) What is sorting and separation in plastic waste ?

d) Describe method of melt processing.

e) Name equipments used in sorting of plastic waste. Explain working principle of any one.

f) Describe tertiary-recycling process.

P.T.O.

Marks

4. Answer **any four**: **(4×4=16)**

a) Explain with examples, role of processing aids in plastic waste management.

b) What are antioxidants for plastic recycling ? How do they function ?

c) What are UV absorber and light stabilizers for recycled plastics ?

d) Explain with examples, role of impact modifiers in plastic recycling.

e) State advantages, disadvantages and applications of recycled plastics.

f) Describe working of any one equipment used for separation of plastic waste.

5. Answer **any four**: **(4×4=16)**

a) Define bio degradation. Explain the mechanism of biodegradation in polymers and plastics.

b) Why in general, are plastics resistant to biodegradation ? Name additives used to assist biodegradation.

c) Explain the role of bacteria and fungus (microorganisms) in the process of biodegradation, of plastics.

d) What are enzymes ? Describe the role of enzymes in polymer and plastic biodegradation.

e) Define degree of biodegradability and explain 'half life' concept.

6. Answer **any four**: **(4×4=16)**

a) Discuss the concept of recycling of plastics waste with its commercial importance.

b) Describe chemical recycling of plastic waste.

c) What are the technical weaknesses in recycled plastics ?

d) Why is it better to recycle than to incinerate or control dump of plastic waste ?

e) Explain the details of elastomer waste recycling process.

f) Name commodity plastics. Write the field of applications of any two recycled commodity plastics.
