

17654

11819

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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (7) Abbreviations used convey usual meaning.

Marks

1. Attempt any TEN :

20

- (a) Define :
 - (i) Package
 - (ii) Packaging
- (b) Why plastic packaging is necessary ?
- (c) State four properties of HDPE related to packaging.
- (d) State chemical structure & name of Nylon as packaging material.
- (e) Enlist general characteristics of flexible packaging. (any 4)
- (f) List down various style of pouches used for packaging.
- (g) State four advantages of blister packaging over other packaging.
- (h) State the role of drum & container in packaging.

- (i) How plastic resource depletion as environmental issue is seen ?
- (j) State various sources of collection of plastic packaging materials for recycling.
- (k) State the role of plastic in packaging.
- (l) State various advantages of in-mould labelling over other processes.
- (m) How seals in flexible packaging are evaluated ?
- (n) Define
 - (i) Coating
 - (ii) Lamination

2. Attempt any FOUR :

16

- (a) State four medical packaging regulations in relation with Drug packaging.
- (b) Compare the properties of LLDPE & HMW-HDPE in relation with packaging.
- (c) State the material used for following :
 - (i) Skin packaging
 - (ii) Blister packaging
 - (iii) Cushioning
 - (iv) Drums
- (d) Explain foam blow moulding in detail.
- (e) Describe feedstock recycling in detail.
- (f) Explain vibration test with neat sketch.

3. Attempt any FOUR :**16**

- (a) Differentiate single layer food packaging with multilayer food packaging.
- (b) State four properties of following materials related to packaging :
 - (i) PS
 - (ii) PC
- (c) Explain the role of following in packaging :
 - (i) Bulk & heavy duty bags
 - (ii) Bag in box
- (d) Explain recycling of HDPE film with neat sketch.
- (e) Compare friction clousers with threaded clousers with neat sketch.
- (f) Describe thermal lamination process.

4. Attempt any FOUR :**16**

- (a) State the applications of following materials in packaging :
 - (i) PET
 - (ii) EVA
- (b) Compare Pillow pouches with four side seal pouches.
- (c) Explain thermoforming fill-seal technique.
- (d) Define with two examples of each.
 - (i) Energy efficiency
 - (ii) Pollution

P.T.O.

- (e) Explain :
 - (i) Snap fit clousers.
 - (ii) Speciality clousers.
- (f) Describe Hot melt lamination in detail.

5. Attempt any FOUR :

16

- (a) State food packaging regulation. (Any 8)
- (b) Enlist properties of two different fluoropolymers (2 each)
- (c) Explain the terms :
 - (i) Shrink wrap
 - (ii) Stand up pouch
- (d) Explain Blister packaging in detail.
- (e) Describe pallet wrapping with neat sketch.
- (f) Explain stack load test with neat sketch.

6. Attempt any TWO :

16

- (a) Explain the following terms :
 - (i) Distribution hazards
 - (ii) Use of recycled plastics for food packaging
 - (b) Explain the evaluation of seals in flexible packaging.
 - (c) Describe coinjection blow moulding for bottles in detail.
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