

# 17654

**15162**

**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. a) Answer any THREE of the following: 12
- (i) Give any four advantages of plastic packaging.
  - (ii) State the regulations of food packaging plastics.
  - (iii) State the properties of following plastics related to plastics packaging.
    - 1) PET
    - 2) PS
  - (iv) Explain the general characteristics of flexible packaging.
- b) Answer any ONE of the following: 6
- (i) Explain:
    - 1) Skin packaging,
    - 2) Blister packaging
  - (ii) What is not melt lamination? Give its advantages.
  - (iii) Explain medical packaging regulations.

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2. **Answer any FOUR of the following:** **16**
- a) Explain processing of collected plastics.
  - b) Describe friction closures. What basic property must a material have to be suitable for this application.
  - c) Describe the process of injection moulding.
  - d) Explain adhesive lamination process with a neat diagram.
  - e) Describe in-mould labeling. What are its major advantages and disadvantages?
3. **Answer any FOUR of the following:** **16**
- a) Write chemical name of nylon. Explain its use in packaging.
  - b) Explain the role of plastic drums and other containers in packaging.
  - c) Give properties and uses of PVDC in packaging.
  - d) Find examples of three-side seal and four-side seal pouches. Describe them.
  - e) Explain the technique of 'cushioning' in relation to packaging.
4. a) **Answer any THREE of the following:** **12**
- (i) What are the distribution hazards of plastic packaging? Explain.
  - (ii) Explain the role of plastics in packaging.
  - (iii) Explain the stack load test for plastics packaging.
  - (iv) Describe pallet wrapping method.
- b) **Answer any ONE of the following:** **6**
- (i) State properties and uses of
    - 1) HMW-HDPE and
    - 2) Fluoropolymers.
  - (ii) Explain the role of bulk and heavy-duty bags in packaging.

**5. Answer any TWO of the following:****16**

- a) Explain HDPE recycling and PET recycling.
- b) Explain the concepts of coinjection blow moulding and foam blow moulding.
- c) Describe evaluation of seals in flexible packages.

**6. Answer any FOUR of the following:****16**

- a) Compare properties of LDPE and HDPE in relation to packaging use.
  - b) Explain the concept of retort pouches.
  - c) What are the major advantages and disadvantages of the use of biodegradable plastics for packaging?
  - d) Describe feedstock recycling?
  - e) Describe 'Vibration test' for plastic packaging.
  - f) Explain thermal lamination process.
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