

# 17449

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) 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 extrusion process. List any four product manufactured by extrusion process.
- (b) What is extrusion die ? List type of die.
- (c) Write the function of breaker plate & screen pack assembly.
- (d) Draw neat sketch of single screw & label the different part of it.
- (e) Define :
  - (i) Shot capacity
  - (ii) Plasticization capacity
- (f) What do you mean by injection moulding cycle ?
- (g) Write any two product manufactured by reaction injection moulding and two material used in reaction injection moulding.
- (h) Name any two product manufactured by & two material used in gas assist injection moulding.

**P.T.O.**

- (i) What are significances of size of mould platen with respect to injection moulding?
- (j) List the parameters to be consider while purchasing injection moulding machine.
- (k) Differentiate between injection & extrusion blow moulding process.
- (l) Write the principle of blow moulding process and any two product and material used for it.
- (m) List any four materials used in thermoforming.
- (n) Why crystallize materials are difficult to process in thermoforming process ?

**2. Answer the following (Any FOUR) :**

**16**

- (a) Draw line diagram to manufacture PVC rigid pipe and write function of each component.
- (b) Define blow film. Describe blown film manufacturing process with neat sketch.
- (c) Draw neat sketch and explain injection moulding process.
- (d) Describe trouble shooting guide for blow moulding process.
- (e) List the type of thermoforming process and draw neat sketch of plug assist thermoforming process.
- (f) Write the four properties and four applications of PVC foam.

**3. Answer the following (Any FOUR) :**

**16**

- (a) Name the types of die used for extrusion sheet and compare any two types of sheet die.
- (b) What is film winder ? List type of winders. Write the principle of winder.
- (c) Write the principle of reaction injection moulding. Differentiate it with conventional injection moulding.
- (d) List the different type of continuous extrusion blow moulding process and compare it with intermittent blow extrusion.
- (e) Name the different process parameters of thermoforming process and explain any two.
- (f) Discuss the selection criteria for chemical blowing agents.

- 4. Answer the following (Any FOUR) : 16**
- (a) What do you mean by co-extrusion ? List any two product manufactured by co-extrusion and material used for it.
  - (b) Discuss trouble-shooting guide for injection moulding.
  - (c) Explain stretch blow moulding with neat sketch.
  - (d) Differentiate between twin screw and single screw extruder.
  - (e) Explain drape forming process with neat sketch.
  - (f) Describe the manufacturing of polystyrene foam.
- 5. Answer the following (Any FOUR) : 16**
- (a) Draw neat sketch of T-type sheet die and label it.
  - (b) Discuss the pelletising unit with line diagram.
  - (c) Explain with neat sketch gas assist injection moulding process.
  - (d) What is toggle clamping ? Why it called as positive clamping ? List the type of toggle clamping.
  - (e) List the different type of materials used for blow moulding. Write advantages and disadvantages of blow moulding process.
  - (f) Explain thermoforming process with neat sketch.
- 6. Answer the following (Any FOUR) : 16**
- (a) List the factor affecting extrusion die and explain any two factors in brief.
  - (b) Draw neat & labelled sketch of pipe die.
  - (c) List the types of heating system used for extruder and explain any one heating system.
  - (d) List the different type of process parameters for injection moulding and explain any two in brief.
  - (e) Differentiate between toggle and hydraulic clamping.
  - (f) What factor should consider while processing thermoset material on injection moulding ?
  - (g) Write the properties and application of PU foam.
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