

17449

21819

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 any TEN :

20

- (a) List the type of drive systems used for extrusion machine. Suggest suitable drive system for single screw extruder.
- (b) In injection moulding, describe constructional features of a copper.
- (c) What is screw cooling ? Why is it necessary in extrusion ?
- (d) Draw a labelled diagram of breaker plate and screen pack.
- (e) Define :
 - (i) day light opening
 - (ii) shot capacity

- (f) List the type of injection moulding machines.
- (g) Why is clamping necessary in injection moulding ? Name the types of clamping used in injection moulding.
- (h) What is function of nozzle ? Name types of nozzle in injection moulding.
- (i) Define injection moulding cycle.
- (j) What is difference between injection screw and extrusion screw ?
- (k) Define 'blow moulding'. Name type of blow moulding.
- (l) Define 'thermoforming'. Why are thermoset materials not used in thermoforming ?
- (m) List two types of materials used for thermoforming and two thermoformed products.
- (n) What are blowing agents ? Name any two blowing agents.

2. Answer any FOUR :

4 × 4 = 16

- (a) List the factors to be considered while die design. Explain any one.
- (b)
 - (i) Define twin screw extruder.
 - (ii) Compare twin screw extruder with single screw extruder.
- (c)
 - (i) Write the principle of gas assist moulding.
 - (ii) Name any two products manufactured by gas assist injection moulding and materials used for them.
- (d) Explain Parison's programming. Why is it necessary in extrusion blow moulding ?
- (e) Explain the trouble shooting guide for thermoforming process.
- (f) Explain slab stock process for manufacturing flexible PU foam.

3. Attempt any FOUR of the following :**4 × 4 = 16**

- (a) Explain the troubleshooting guide for film extrusion process.
- (b) List types of dies used for sheet. Explain any one type of die with a diagram.
- (c) Differentiate between hydraulic and mechanical clamping.
- (d) Explain with a labelled diagram thermoforming process.
- (e) Describe the process of manufacturing PVC foam.
- (f) Name the types of continuous extrusion blow moulding process. Explain any one.

4. Attempt any FOUR :**4 × 4 = 16**

- (a) Describe the wire manufacturing process with a labelled line diagram.
- (b) Define following terminology related with single screw :
 - (i) L/D ratio
 - (ii) Compression ratio
 - (iii) Flight
 - (iv) Helix angle
- (c) Differentiate between thermoplastic and thermoset processing in injection moulding process.
- (d) List the different process parameters of blow moulding process. Explain any one.
- (e) What do you mean by dual sheet forming ? How does it differ from thermoforming ? Name any one product for which it is used.
- (f) Explain use of AIBN in foam manufacturing.

P.T.O.

5. Attempt any FOUR :**4 × 4 = 16**

- (a) List the types of dies used for blown film. Draw labelled diagram of any one type of film die.
- (b) Describe typical sheet stacker.
- (c) Explain the troubleshooting guide for injection moulding process.
- (d) Explain reaction injection moulding with a diagram.
- (e) Differentiate between thermoforming and injection moulding process.
- (f) Write properties and applications of polystyrene foam.

6. Answer any FOUR :**4 × 4 = 16**

- (a) Describe co-extrusion process.
 - (b) Explain with a diagram Pelleting process, by extrusion.
 - (c) Draw a labelled diagram of single screw and name the different part of screw.
 - (d) Explain criteria for selection of injection moulding machine.
 - (e) Write the advantages and disadvantages of injection moulding.
 - (f) List any four materials used in injection moulding. Write processing range of these materials and any one product of each material.
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