

17449

21314

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. Attempt any TEN of the following: 20
- a) Define extrusion Die. List the type of extrusion Die.
- b) Name any four extrusion product and material used for it.
- c) What is twin screw extruder? List the type of twin screw extruder.
- d) Define sheet. List the type of sheet Die.
- e) What is “day light opening” in injection molding machine?  
What is its importances?

P.T.O.

- f) What is gas assist injection molding? How it differ from conventional injection molding machine?
- g) What is parison? Name any two blow molded product and material used for it.
- h) Compare thermoforming with injection molding process.
- i) List the materials used in thermoforming process. Why crystalline material are different to thermoform.?
- j) Write two advantages and disadvantages of thermoforming process.
- k) What are blowing agent. Name any two blowing agent?
- l) Differentiate between rigid and flexible foam.
- m) Write properties and application of DS foam.
- n) Why parison programming is necessary in extrusion blow molding?

**2. Attempt any FOUR of the following:**

**16**

- a) Define extruder screw and discuss the following term:
  - i) L/D ratio
  - ii) Compression ratio
  - iii) Helixangle
- b) Draw neat sketch of breaker plate and screen. Write the function of breaker plate and screen pack assembly.
- c) Explain extrusion line diagram for pipe manufacturing with neat sketch.
- d) Write the troubleshooting guide for film.
- e) List the parameter to be consider while design extrusion die. Explain any two in detail.
- f) Differentiate between single screw and twin screw extruder.

**3. Attempt any FOUR of the following: 16**

- a) Name the type of die used in wire and cable coating and explain any one die with neat sketch.
- b) Draw extrusion line diagram for pelletization unit and explain each component of it.
- c) How driving mechanism of twin screw extruder is different from single screw extruder? Explain it in brief.
- d) Draw extrusion line diagram for blown film process and explain its each component.
- e) What is injection molding cycle? Explain it with example.
- f) Differentiate between Toggle and Hydraulic clamping.

**4. Attempt any FOUR of the following: 16**

- a) Enlist any four process parameter for injection moulding and explain effect of it on quality of injection molded product.
- b) Describe principle and process of reaction injection molding.
- c) Explain the injection molding of thermosetting resin.
- d) Explain any four defect, cause and remedies for injectors molding product.
- e) Explain the following term related with injectors molding with example.
  - i) Shot capacity
  - ii) Plasticisation capacity
- f) How injection molding machine are classified and discuss selection criteria of injection molding machine?

**5. Attempt any FOUR of the following: 16**

- a) Explain the stretch blow molding process with neat sketch.
- b) Write trouble shooting guide for blow molding.
- c) List the type of extrusion blow molding and explain any one with neat sketch.
- d) Explain plug assist thermoforming process with neat sketch.
- e) Enlist the process variable in thermoforming process and explain any two in brief.
- f) Describe the match mold forming process with neat sketch.

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

- a) Describe the slab stock process for flexible PU foam.
  - b) List the method of manufacturing of PVC foam and explain any one process in brief.
  - c) What is selection criteria for chemical blowing agent in manufacturing of foam?
  - d) Explain the injection molding process with neat sketch.
  - e) Write any four advantage and disadvantage of injection molding process.
  - f) Explain the driving mechanism of single screw extruder.
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