

22388

23124

3 Hours / 70 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.

Marks

1. Attempt any FIVE of the following : 10
- a) List any four thermoplastics processed in injection moulding.
 - b) Define daylight opening.
 - c) Define injection pressure.
 - d) State the basic working principle of compression moulding.
 - e) State the importance of preheating the moulding compound in compression moulding.
 - f) Name any four moulding compounds used in compression moulding.
 - g) List any four applications of thermoforming.

P.T.O.

- 2. Attempt any FOUR of the following :** **12**
- a) Explain construction and working of hand operated injection moulding machine.
 - b) Describe toggle type clamping system with neat diagram.
 - c) State any three advantages and three disadvantages of injection moulding.
 - d) Describe the importance of preheating in injection moulding.
 - e) State the working principle of transfer moulding. List any three applications of transfer moulding.
- 3. Attempt any FOUR of the following :** **12**
- a) State any three advantages and only three disadvantages of compression moulding.
 - b) Explain the concept of breathing in compression moulding.
 - c) Describe pot type transfer moulding with neat diagram.
 - d) State trouble shooting guide for any three defects in transfer moulded product.
 - e) State the working principle of rotational moulding. List any four applications of rotational moulding.
- 4. Attempt any THREE of the following :** **12**
- a) Compare pot type transfer moulding with plunger type transfer moulding with at least four points.
 - b) State any four advantages and any four limitations of rotational moulding.
 - c) Explain batch type rotational moulding process with neat diagram.
 - d) Suggest the thermoforming technique where male mould is used and sheet drap over it. Explain it with diagram.
 - e) Describe plug assist vacuum forming technique with neat diagram.

- 5. Attempt any THREE of the following :** **12**
- a) “L/D ratio and compression ratio of injection screw plays a important role in injection moulding technique”. Justify the statement.
 - b) “Automatic injection moulding machine is advantageous than hand operated injection moulding machine.” Justify with comparison of two machine with atleast four points.
 - c) Suggest the material for manufacturing electric switches with compression moulding. State the four important properties of that material.
 - d) State how infrared preheating is more advantageous than oven preheating in compression moulding.
 - e) Compare compression mould with transfer moulding considering following aspects.
 - i) loading the mould
 - ii) material temperature before moulding
 - iii) pressure in the cavity.
 - iv) breathing.
- 6. Attempt any TWO of the following :** **12**
- a) While injection moulding of plastic product, following defects occur most of the time. Trouble should the given problems by mentioning their causes and remedies.
 - i) Flash
 - ii) Voids
 - iii) Warpage
 - iv) Sink mark
 - v) Black spots
 - vi) Short shot

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Marks

- b) Suggest the process where mould on three or more arms indenes independently. Describe its working with neat diagram.
 - c) “Plast material has the memory and it is utilize for decoration and rectification of the thermoformed product.” Justify the statement with suitable example.
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