

17327

11819

4 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Attempt All questions including Question No. 1 which is compulsory.
 - (3) Answer each next main Question on a new page.
 - (4) Illustrate your answers with neat sketches wherever necessary.
 - (5) Figures to the right indicate full marks.
 - (6) Assume suitable data, if necessary.
 - (7) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (8) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (9) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Answer the following (ANY TEN) :

20

- (a) Name any two plastic products manufactured by hand injection mold.
- (b) Define compression mold. Write components of compression mold.
- (c) Define parting line. Name type of parting line.
- (d) List the components of two plate injection mold.
- (e) Define : (i) core (ii) cavity
- (f) Why clamping is necessary for injection molding ?
- (g) Define gate. List type of gate.
- (h) Define ejection. Why ejection is necessary for plastic product.

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P.T.O.

- (i) Name any two plastic products for which air ejection is used.
- (j) Suggest suitable ejection system for following plastic product :
 - (i) Deep drawn article
 - (ii) Thin wall product
- (k) Why cooling is necessary for plastic product ? List type of cooling.
- (l) What do you mean by venting ? Write the purpose of venting in an injection mold.
- (m) Write the principle of lathe machine. Name operation carry out on lathe machine.
- (n) List any two mold part fabricated by milling machine.

2. Answer the following (ANY FOUR) :

16

- (a) Draw neat sketch of any one register ring. Write function of it. List the type of register ring.
- (b) Draw neat sketch of guide pillar & guide bush assembly & write function of it.
- (c) Write the function of sprue bush. List the type of sprue bush. Draw neat sketch of sprue bush.
- (d) What do you mean by bolster ? Write the function of bolster. List the type of bolster.
- (e) Why metal insert are used in injection mold ? List the type of inserts. Name any two plastic products for which insert is used.
- (f) Draw neat sketch of two plate injection mold & write function of each compound.

3. Answer the following (ANY FOUR) :**16**

- (a) Discuss in brief with example criteria for runner layout in multicavity mold.
- (b) What do you mean by runner balancing ? Why it is necessary ? How it achieved in injection mold ?
- (c) Explain with neat sketch gate balancing compare gate balancing with runner balancing.
- (d) Describe the effect of gate position on quality of plastic product with example.
- (e) Draw neat sketch of sprue gate. Explain its design & name any two plastic product manufacture using sprue gate.
- (f) Name any plastic product for which pin gate is used. Draw neat sketch of pin gate & explain it in brief.

4. Answer the following (ANY FOUR) :**16**

- (a) Draw neat sketch of ejection assembly. Write the function of each component of ejection assembly.
- (b) List the type of ejection. Explain with neat sketch pin ejection.
- (c) What do you mean by sleeve ejection & explain it in brief with sketch.
- (d) Define sprue puller. List the type of sprue puller. Write function of sprue puller.
- (e) Describe the stripper plate ejection system with neat sketch.
- (f) Why ejection grid is used ? List the type of ejection grid.

P.T.O.

5. Answer the following (ANY FOUR) :**16**

- (a) Describe with neat sketch integer core cooling.
- (b) Differentiate between U-type cooling & Z-type cooling system.
- (c) How cooling is achieved for metal insert used in injection mold. Explain it in brief.
- (d) What do you mean by dowel ? Why dowel is used in hand injection mold ? List down type of bolt.
- (e) Draw neat sketch of hand injection mold & write the function of each part of it.
- (f) Compare parallel cooling circuit with counter current cooling circuit used in injection mold.

6. Answer the following (ANY FOUR) :**16**

- (a) State & explain the stages of manufacturing of plastic mold using bench fitting techniques.
 - (b) Define runner. List the type of runner. Draw neat sketch of runner.
 - (c) Describe cold hobbing process with neat sketch.
 - (d) Explain with neat sketch pressure casting process.
 - (e) Discuss the electroplating process used to manufacture plastic mold.
 - (f) Write the principle & working of cylindrical grinding machine. Name any two plastic mold component for which it used.
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