

Mechanical/Automobile

QP Code : 14924

(3 Hours)

[Total Marks : 80

- N.B : (1) Question No.1 is compulsory.
(2) Attempt any three questions from remaining six questions.
(3) Assume suitable data if required.
(4) Figures to the right indicate full marks.

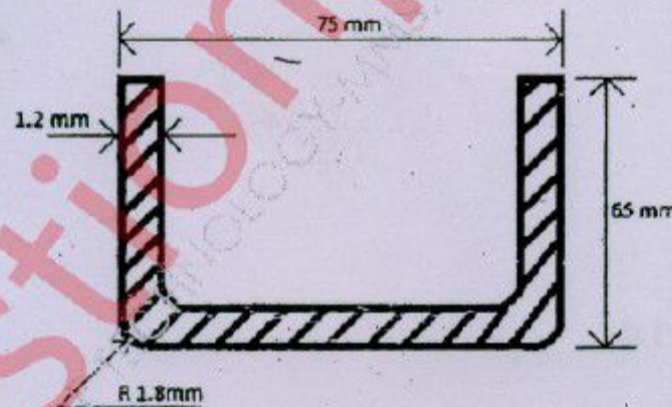
1. Write about any five :—

20

- Working of Screw Type Injection Molding.
- Principle and basic process parameters of Water Jet Machining.
- Applications of various types of Bushes used in jigs.
- Flexible Manufacturing Systems.
- Compound Die construction with sketch.
- Types of Automats.

2. (a) A symmetrical cup work-piece is shown in the figure. It is to be made from cold rolled steel, 1.2 mm thick. Make necessary calculations for designing the drawing die for this component. Determine the size of blank, percentage reduction, number of draws required, radius of punch and die, Drawing pressure if $\sigma_{yt} = 430 \text{ N/mm}^2$. Take $C = 0.67$.

10



- (b) What is Laser Beam Machining? Show its construction, working and applications with the help of diagram.

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3. (a) Write about the different types of Runners and Gates used in Plastic Injection Molds with the help of diagrams.

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- (b) What are jigs used for? Show with the help of diagrams, the working of Pot jig, Box jig, Plate jig and Turnover jig.

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[TURN OVER

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4. (a) How is the 3-2-1 Location principle used for designing of Jigs and Fixtures? 5
(b) How are Transfer lines used in mass manufacturing? Also give its classification. 5
(c) What is agile manufacturing? Show its need in the manufacturing industry. 10
5. (a) What is EDM? Write about its applications, advantages and limitations. 5
(b) Why is ejection system used in plastic injection molds? Write about Pin ejection method using a neat sketch. 5
(c) Write about the construction and working of progressive die and combination die with the help of neat sketches. 10
6. (a) Write in detail about clamping and locating devices used in jigs and fixtures. 10
(b) How is Indexing mechanism used in fixtures? Show working of a sliding indexing fixture with the help of a diagram. 5
(c) How is classification of Non-traditional Machining done? Show the classification using a chart. 5
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