

Total No. of Questions—8]

[Total No. of Printed Pages—3

Seat No.	
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S.E. (Mechanical/Auto Engineering) (I Sem.) EXAMINATION, 2019

MANUFACTURING PROCESS—I

(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

- N.B. :—** (i) All the questions are compulsory i.e. solve Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4, Q. No. 5 or Q. No. 6, Q. No. 7 or Q. No. 8.
- (ii) Figures to the right indicate full marks.
- (iii) Assume suitable data, if necessary.
- (iv) Neat diagrams must be drawn wherever necessary.

1. (a) Discuss with neat sketch Gating system used in sand casting. [6]
- (b) Describe with neat sketch the operation of wire drawing. [6]

Or

2. (a) Explain Drop Forging process with neat sketch. State its advantages, limitations and applications. [6]
- (b) Cylindrical riser must be designed for sand casting mold. The size of steel casting is 60 mm × 120 mm × 20 mm. The previous observation have indicated that the total

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solidification time for casting is 90 sec. The cylindrical riser has $(d/h) = 1$. Find the size of riser so that its total solidification time is 130 sec. [6]

3. (a) Describe injection molding process with neat sketch. Also state its advantages, limitations and applications. [6]
(b) Explain plasma arc welding with a neat sketch. [6]

Or

4. (a) State any *three* welding defects with their causes and remedies. [6]
(b) Explain blow moulding with suitable sketch. Discuss some applications of it. [6]
5. (a) What is compound die ? Explain with neat sketch. [6]
(b) Explain any *three* steel metal working operations with sketch. [7]

Or

6. (a) A cup of 60 mm diameter and 60 mm depth is to be drawn from 1.0 mm thick cold rolled steel with tensile strength of 410 MPa. The corner radius is 2 mm. Calculate the following : [6]
(i) Size of the blank

- (ii) Percentage reduction
- (iii) No. of draws
- (iv) Punch and die radius
- (v) Die clearance
- (vi) Drawing pressure.
- (b) What is centre of pressure ? How is it calculated ? Explain with suitable example. [7]
7. (a) Describe with neat sketch : Apron mechanism of lathe machine. [6]
- (b) Explain thread cutting operations performed on lathe machine with suitable sketch. [7]

Or

8. (a) Calculate machining time for a work piece of 90 mm diameter and 130 mm length turned in 2 passes, if the approach length is 12 mm and over travel is 5 mm. Given cutting speed = 30 m/min and feed 0.3 mm/rev. [6]
- (b) Explain taper turning attachment with neat sketch. [7]