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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]