Total No. of Questions— 8] [Total No. of Printed Pages— 3

Seat No.	

[5668]-112

S.E. (Mechanical/Auto Engineering) (I Sem.)

EXAMINATION, 2019

MANUFACTURING PROCESS–I

(2015 PATTERN)

Time : Two Hours Maximum Marks : 50

N.B. :— (i) All questions are compulsory i.e. solve Q. Nos. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q. 7 or Q. 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) State the importance of allowances for pattern making. Explain characteristics of good molding sand. [6]

(b) A 250 mm wide strip of 27 mm thickness is reduced to 24 mm in a single pass through a rolling process. The radius of each roller is 250 mm and its speed is 150 rpm. The strength coefficient for the work material is 275 N/mm^2 and $n = 0.15$. The coefficient of friction between the workpiece and roll is 0.15. Find the roll force, torque and power required per roll. [6]

P.T.O.

Or

2. (a) What do you understand by recrystallization and recrystallization temperature ? Differentiate between hot working and cold working process. [6]

(b) A cylindrical riser must be designed for a sand casting mold. The size of steel casting is 75 mm × 125 mm × 20 mm. The observation done earlier have indicated that the total solidification time for casting is 90 sec. The cylindrical riser has (d/h) = 1. Find the size of riser so that its solidification time is 120 sec. [6]

3. (a) Explain injection molding process with suitable sketch. Also state the applications of it. [6]

(b) Explain principle of resistance welding. State it advantages and limitations. [6]

Or

4. (a) Compare the thermosetting plastics and thermoplastic. State any two general properties and application. [6]

(b) Write a short note on edge preparation in welding. List down different weld defects. [6]

5. (a) State the necessity of reducing cutting forces in sheet metal works. Explain with neat sketch any two methods. [7]

(b) What is center of pressure ? List down the procedure to calculate the center of pressure. [6]

Or

6. (a) Differentiate between compound die and progressive die. State the different sheet metal working operations. [7]

(b) Calculate blank size required for drawing a cylinder cup of internal diameter 50 mm, height of cup 85 mm, blank thickness 2 mm. Draw ratio restricted 45% in one draw, how many draws will be required if ultimate tensile strength is 427 N/mm^2. Calculate drawing force required. [6]

7. (a) Write the different operations performed on lathe machine. Explain it with a neat sketch. [7]

(b) Calculate the machining time required for 3 passes while reducing 60 mm diameter shaft to 50 mm diameter for a length of 1200 mm with depth of cut of 2 mm for rough cut and 1 mm for finish cut. Given cutting speed = 25 m/min, feed 0.5 mm/rev, approach length = 5 mm and overrun length = 5 mm (take approach length value-10 mm). [6]

Or

8. (a) What are different taper turning methods ? Explain tailstock offset method with proper sketch. [7]

(b) Explain any three lathe operations with sketch. [6]