Total No. of Questions : 8]

SEAT No. :

PD-4166

[Total No. of Pages : 2

[64021-127

S.E. (Automobile & Mechanical/Automation & Robotics)

MANUFACTURING PROCESSES

(2019 Pattern) (Semester - IV) (202050)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***All questions are compulsory i.e. Solve Q1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q. 7 or Q.8***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume Suitable data jf necessary and mention it clearly.***

Q1) a) Explain Punching and Blanking operations with neat sketch. Name any 2 components manufactured using each operation. **[6]**

b) A cup without flanges and height 190 mm and diameter 90mm is to be drawn from sheet metal 1mm thickness with ultimate tensile strength 300 MPa. The corner radius is 1.6mm. Assume percentage reduction of 45%, 35%, 25% etc. for each draw without annealing. (consider trimming allowance 3.2 mm for 25mm diameter). C = 0.6 for drawing pressure. Find i) Blank size. ii) Percentage reduction, iii) Numbers of draws. iv) Drawing pressure. **[12]**

OR

Q2) a) Explain strip layout with suitable example? **[6]**

b) Find centre of pressure for a MS part as shown in fig. 1. with 1 mm thickness. Take ultimate shear strength of MS as 200 MPa **[12]**

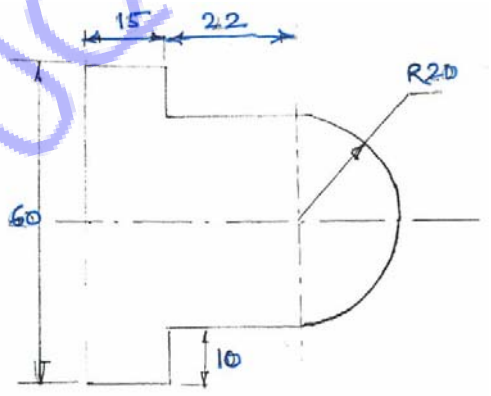

Fig. 1

P.T.O.

Q3) a) Explain Submerged Arc Welding process with neat sketch? **[6]**

b) Classify welding process. Explain Arc welding process. **[6]**

c) List defects in welding joints and discuss its remedies. **[5]**

OR

Q4) a) Differentiate between soldering and brazing **[6]**

b) Explain spot and projection resistance welding. **[6]**

c) Explain working principal of Tungsten inert Gas welding with neat sketch. **[5]**

Q5) a) Discriminate between thermoplastic and thermosetting. **[6]**

b) Explain transfer molding process with neat sketch. **[6]**

c) Explain Injection molding process with neat sketch. Name any 3 application of it. **[6]**

OR

Q6) a) Discriminate Pressure forming and Vacuum forming process. **[6]**

b) Explain Rotational molding process. Name any 4 application of it. **[6]**

c) Explain plastic extrusion process with neat sketch. Name any 3 application of it. **[6]**

Q7) a) Describe metal matrix composites. **[6]**

b) Describe ceramic matrix composites. **[6]**

c) Explain spray lay-up composite manufacturing process. **[5]**

OR

Q8) a) Explain Hand lay-up composite manufacturing process. **[6]**

b) Explain Resin transfer molding process. **[6]**

c) Explain vacuum bag molding composite manufacturing process. **[5]**