

- 1-d. If gas is passed longer than required, the bond becomes _____ (CO2) 1
- (a) Impaired
 - (b) Stronger
 - (c) Weaker
 - (d) Does not affect much
- 1-e. Which of the following metal forming processes performs squeezing out of material through a hole? (CO3) 1
- (a) Forging
 - (b) Rolling
 - (c) Drawing
 - (d) Extrusion
- 1-f. Which of the following processes is not the type of bulk forming process in the metal forming? (CO3) 1
- (a) Bending
 - (b) Rolling
 - (c) Forging
 - (d) Extrusion
- 1 Generally, the thickness of sheet metal is indicated by (CO4) 1
- (a) Centimetre
 - (b) Gauge
 - (c) Standard size
 - (d) None of the above
- 1 Which machine do you require when you need to cut the sheet metal at 45 or 90 degrees? (CO4) 1
- (a) Bending
 - (b) Drilling
 - (c) Tapping
 - (d) Notching
- 1-i. Which kind of resistance is experienced in upset butt welding? (CO5) 1
- (a) Electric resistance
 - (b) Magnetic resistance
 - (c) Thermal resistance

(d) Air resistance

- 1-j. Electrodes used in spot welding are made up of which material? (CO5) 1
- (a) Only Copper
 - (b) Copper and tungsten
 - (c) Copper and chromium
 - (d) Copper and aluminium

2. Attempt all parts:-

- 2.a. What are the advantages of casting process? (CO1) 2
- 2.b. Define mould.(CO2) 2
- 2.c. What are the four major drawbacks of hot working? (CO3) 2
- 2.d. What is punching operation ? (CO4) 2
- 2.e. How do you classify welding process? (CO5) 2

SECTION B 30

3. Answer any five of the following:-

- 3-a. What are pattern allowances? Explain any two pattern allowances with a neat sketch. (CO1) 6
- 3-b. Explain the properties of moulding sand. (CO1) 6
- 3-c. Discuss some of the functions of a riser. (CO2) 6
- 3-d. What are the steps of sand preparation carried out before mold making.(CO2) 6
- 3.e. Draw a sketch of a die punch assembly. What is the function of the stripper plate.(CO3) 6
- 3.f. Explain the various properties of sheet metal. (CO4) 6
- 3.g. Explain different types of flames with neat sketches in gas welding process. Give applications for each type,(CO5) 6

SECTION C 50

4. Answer any one of the following:-

- 4-a. Explain the steps involved in sand moulding process with a neat sketch? (CO1) 10
- 4-b. Explain the working principles of investment casting process with a neat sketch? (CO1) 10

5. Answer any one of the following:-

- 5-a. Volume of a cube of side 'l' and volume of a sphere of radius 'r' are equal. Both the cube and the sphere are solid and of same material. They are big cast. The ratio of the solidification time of the cube to the same of the sphere is (CO2) 10
- 5-b. A cube shaped casting solidifies in 5 min. The solidification time in min for a cube of the 10

same material, which is 8 times heavier than the original casting, will be (CO2)

6. Answer any one of the following:-

6-a. How does a compound die differ from progressive die? Giving a neat sketch, describe construction features and working of compound die.(CO3) 10

6-b. Sketch and explain injection moulding process. List the products that can be produced from it. (CO3) 10

7. Answer any one of the following:-

7-a. A copper wire is drawn from an initial diameter 10 mm to 8 mm diameter at a speed of 2 m/sec. If the die angle is 14° and the coefficient of friction is 0.1 between copper wire and die and $k = 150$ MPa then calculate the drawing power. (CO4) 10

7-b. Describe the process of wire-drawing. What is the material of drawing die? Why is "in Process" annealing done? Give an idea of wire drawing speed. (CO4) 10

8. Answer any one of the following:-

8 Define MIG welding process with neat sketch what are its advantages and disadvantages. (CO5) 10

8 Classify the sold state welding process and explain friction welding with neat sketch. (CO5) 10