

Total No. of printed pages = 4

ME 1317 E 012

Roll No. of candidate

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2018

B.Tech. 7th Semester End-Term Examination

**ADVANCE WELDING TECHNOLOGY
(ELECTIVE – I)**

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Answer Question No. 1 and any *Six* from the rest.

1. Answer the following (MCQ/Fill in the blanks)
(10 × 1 = 10)
- (i) Which of the following types is not fillet weld.
- (a) Butt joint
 - (b) Lap joint
 - (c) T-joint
 - (d) Corner joint
- (ii) A gap of _____ is maintained for producing sound weld.
- (a) 1 mm
 - (b) 3 mm
 - (c) 5 mm
 - (d) 7 mm

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- (iii) Arc welding is also known as
- Pressure welding
 - Plastic welding
 - Non-pressure welding
 - None of these
- (iv) Maximum flame temperature occurs
- At the outer cone
 - At the inner cone
 - Between the outer and inner cone
 - At the torch tip
- (v) In arc welding, the electric arc is produced between the work and the electrode by
- Voltage
 - Flow of current
 - Contact resistance
 - All of these
- (vi) For under water welding which of the following process is not used?
- Electroslag welding
 - SMAW
 - GTAW
 - MIG
- (vii) Which of the following is not a solid-state welding process
- Cold welding
 - Forge welding
 - MIG
 - Explosive welding

- (viii) TIG welding is suited for
- Mild steel
 - Stainless steel
 - Carbon steel
 - Aluminum
- (ix) Which of the following is not a resistance welding
- Spot welding
 - Stud welding
 - Seam welding
 - Projection welding
- (x) What is the function of torch?
- It controls fuel rate
 - It mixes fuel and oxygen and controls delivery
 - It controls oxygen rate
 - None of the mentioned
- (a) What is TIG welding? Write the advantages, disadvantages and limitations of TIG welding. (1+5=6)
- (b) Explain the principles of operation of TIG welding with suitable diagram. (9)
- (a) What is stud welding? Write the advantages, limitations and applications of stud welding. (1+5=6)
- (b) Explain the principles of operation of non-conductor ferrule method and semiconductor cartridge method with neat sketch. (5+4=9)

4. (a) What is diffusion welding? Discuss the processes involved in diffusion welding? (1+8=9)
- (b) Explain the common methods of diffusion welding. (6)
5. (a) What makes welding significantly different from other manufacturing techniques? (5)
- (b) Illustrate different types of weld joints with suitable sketch. What are the factors for the selection of a suitable welding joint? (5+5=10)
6. (a) Define plasma arc welding. Write the advantages, disadvantages and applications of plasma arc welding. (1+4=5)
- (b) Explain the processes of plasma arc welding with neat sketch. (10)
7. (a) Discuss the weldability of stainless steel. (10)
- (b) Write a short notes on welding fixtures. (5)
8. (a) What are the factors responsible for the significance of individual welding defects? (5)
- (b) Name the different types of weld defects and give reasons for their occurrences and remedial actions to avoid them. (10)
9. Write short notes on (any THREE) (3 × 5 = 15)
- (a) Ultrasonic Welding (USM)
- (b) Laser Beam Welding (LBW)
- (c) Underwater welding.
- (d) Robotic applications in welding.
- (e) Friction stir welding.