

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0494

Roll No.

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B. Tech.

(SEM. VIII) THEORY EXAMINATION 2010-11

ADVANCED WELDING PROCESSES

Time : 3 Hours

Total Marks : 100

- Note :** (i) Attempt **all** questions.
(ii) All questions carry equal marks.

1. Write notes on any **four** parts of the following : **(4×5=20)**
- Selection of Welding Process.
 - Uses and importance of Maurer/Schacfflar diagram.
 - Spot welding and its application.
 - Comparison of AC and DC welding.
 - Soldering and Brazing.
 - Welding of Aluminium.
2. Attempt any **two** parts of the following : **(2×10=20)**
- Explain the method of Electron Beam Welding. Compare it with Laser Beam Welding.

- (b) Explain the working of Plasma arc Welding and compare it with TIG welding.
- (c) Giving suitable sketch and explain the working of Ultrasonic welding process giving suitable sketches. Compare its advantages with other welding methods.

3. Attempt any **two** parts of the following : (2×10=20)

- (a) Explain Explosive welding method giving suitable sketch. Also give its advantages and its applications.
- (b) What do you understand by Spray welding ? Explain the process giving its applications and advantages.
- (c) Explain the process of Wet Underwater welding giving its applications.

4. Attempt any **two** parts of the following : (2×10=20)

- (a) Explain the following Weld defects :
 - (i) Incomplete penetration
 - (ii) Inclusion
 - (iii) Porosity and blow holes
 - (iv) Spatter
- (b) List various destructive and non-destructive methods of testing welded joints. Explain the working of Dye penetrant testing methods.
- (c) Explain the procedure of estimation of life of Welded joint. What are the major stresses that affect the life of weld ?

5. Attempt any **two** parts of the following : (2×10=20)

- (a) Explain the effect of the following on a welded joint :
 - (i) Absorption of gases by weld
 - (ii) Slag Inclusion
 - (iii) Cooling rate
 - (iv) Alloying elements.
- (b) What is the effect of residual stress in a welded joint ? How can this be taken care of ?
- (c) Describe the stages of solidification of weld. How does it affect the property/structure of the adjoining material ?