TME033

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

PAPER ID : 0494 Roll No. | | | | | | | | | | |

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)**

   (a) Selection of Welding Process.

   (b) Uses and importance of Maurer/Schacfflar diagram.

   (c) Spot welding and its application.

   (d) Comparison of AC and DC welding.

   (e) Soldering and Brazing.

   (f) Welding of Aluminium.

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

   (a) 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 ?