

B.TECH.**THEORY EXAMINATION (SEM–VI) 2016-17****ADVANCE WELDING TECHNOLOGY****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION – A****1. Explain the following:****10 x 2 = 20**

- (a) Brazing
- (b) Arc blow
- (c) Spray welding
- (d) Importance of Schaeffler diagram
- (e) Electroslag welding
- (f) Importance of welding
- (g) Life prediction of welded structures
- (h) Modes of Metal transfer
- (i) TIG and MIG.
- (j) What is hard facing

SECTION – B**2. Attempt any five of the following questions:****5 x 10 = 50**

- (a) Explain the principle behind generation of LASER and also write its various applications. Describe Laser beam welding?
- (b) Describe principle, working and applications of Electron Beam Welding. What are the possible problems / difficulties in it and how it can be dealt with?
- (c) What are ultrasonic waves / vibrations and how it is generated, and what are its various applications? Describe ultrasonic welding.
- (d) Describe with sketches, the mechanism of explosive welding. Also briefly write about weld –interface and welding parameters. What are the applications of explosive welding?
- (e) What is meant by hardfacing? How hardfacing with electric arc is theoretically consideration as simultaneous alloy steel making in electric arc furnace and heat treatment? What welding process may be used for hardfacing? Enumerate the advantages and applications of hardfacing.
- (f) Explain the terms ‘Transferred’ modes and non transferred modes used in Plasma Arc welding. What ‘Plasma’? Describe plasma arc welding and mention its advantages.
- (g) Briefly describe the various defects and distortion in welding and its causes and remedies?
- (h) What are the advantages and limitation of friction welding process? Explain the effect of various process parameters on friction welding?

SECTION – C**Attempt any two of the following questions:****2 x 15 = 30**

3. Draw symbols and sketches and write the design considerations for Lap-joint and butt –joint. How life prediction estimation can possibly be done?
4. Draw characteristics (current-voltage) curve of Arc and of power-resources. Explain how stability could be achieved?
5. Draw temperature distribution on plate around the arc weld at an instant. Explain what do you mean by heating-rate and cooling rate and that how it affects the properties of weld?