Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 41357

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018
Fourth/Seventh Semester
Mechanical Engineering
ME 6008 – WELDING TECHNOLOGY
(Common to Production Engineering)
(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. List some of the tools used in arc welding process.
2. What are the special features of friction welding ?
3. Define resistance welding process.
4. How can slag inclusions in welding be avoided ?
5. Define solid state welding.
6. List out the applications of ultrasonic welding.
7. Define Friction Stir Welding.
8. Give chemical reaction in Thermit welding.
9. Classify the butt joint.
10. List out the various types of hardness testing.

PART – B **(5×13=65 Marks)**

11. a) Write short notes on the following :
    i) Shielded metal arc welding ii) Gas tungsten arc welding
    iii) Gas metal arc welding iv) Flux-cored arc welding **(3.25×4=13)**

    (OR)

    b) Draw a neat sketch and explain the working of Electro slag and Electro gas welding. **(13)**

12. a) Briefly explain the four main types of Resistance Welding process with neat sketches. Write the applications of resistance welding process. **(13)**

(OR)

b) Describe the construction and working of Flash Butt Welding with a neat sketch. **(13)**

13. a) Explain with sketch the principle, types and the process parameters of explosure welding. **(13)**

(OR)

b) i) Explain the principle of diffusion bonding process. **(8)**

ii) Discuss the limitations of forge welding. **(5)**

14. a) Explain Atomic Hydrogen Welding with a neat sketch. Write its advantages. **(13)**

(OR)

b) Discuss the principle and characteristics of Friction Stir Welding (FSW) process with diagram. **(13)**

15. a) Draw neat sketches and explain the welding symbols and sectional representation and form of weld. **(13)**

(OR)

b) i) A plate 50 mm wide and 12.5 mm thick is to be welded to another plate by means of parallel fillet welds. The plates are subjected to a load of 50 kN. Find the length of the weld. Assume allowable shear strength to be 56 MPa. **(7)**

ii) What are the factors considered for welding design ? Explain. **(6)**

PART – C **(1×15=15 Marks)**

16. a) Discuss the typical design of test specimens and flows for the following NDT methods.

i) Radiographic testing. **(7)**

ii) Ultrasonic testing. **(8)**

(OR)

b) Explain the working principle and application for the following welding process :

i) USW. **(8)**

ii) EBW. **(7)**