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Question Paper Code : 51225

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Fifth/Sixth/Seventh Semester

Mechanical Engineering

PR 8592 – WELDING TECHNOLOGY

(Common to : Mechanical Engineering (Sandwich)/Production Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the uses of plasma arc welding.
2. Write a short note on the role of welding in engineering field.
3. Enumerate the various types of resistance welding.
4. State the formula used for heat generation in resistance welding.
5. Write the various stages of mechanism of diffusion bonding.
6. Define roll bonding welding process.
7. Write the chemical reaction during in thermit welding process.
8. Mention the various welding methods used in aerospace industry.
9. Define 'polar moment of inertia' for long fillet weld.
10. Classify the various types of non destructive testing.

PART B — (5 × 13 = 65 marks)

11. (a) Explain in detail the carbon welding technique with a neat sketch. Also mention its applications.

Or

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

12. (a) Elucidate the parameters used in resistance spot welding process. Mention the industrial applications of spot welding process.

Or

- (b) Describe in detail the construction and working of High Frequency Resistance Welding with a neat sketch.

13. (a) Write the advantages, disadvantages, applications and explain the working of explosive welding with a neat layout.

Or

- (b) Write the process parameters involved in Hot Pressure Welding and explain them in detail.

14. (a) Explain the principle of operation and write the advantages and disadvantages of Electron Beam Welding with a neat sketch.

Or

- (b) Explain Wet Underwater Welding with a neat sketch. Write its advantages and disadvantages.

15. (a) Explain in detail the different welding process as used for copper and copper alloys.

Or

- (b) Describe the working of 'ultrasonic testing' and 'radio graphic testing' with suitable sketches.

PART C — (1 × 15 = 15 marks)

16. (a) Write primary and secondary combustion equations in oxy-acetylene gas welding process and explain the process. Is it an endothermic process or exothermic process?

Or

- (b) Sketch and explain the welding symbols and sectional representation and various forms of welds.