D **292B4** **Total pages: 2**

Register No: …… Name: .....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B.TECH. DEGREE EXAMINATION(R,S), MAY 2024

Mechanical Engineering

(2020 SCHEME)

Course Code : 20MET372

Course Name : Advanced Metal Joining Techniques

Max. Marks : 100 **Duration:3 Hours**

PART A

(Answer all questions. Each question carries 3 marks)

1. Enumerate the effect of travel speed on heat input in EBW.
2. Write short note on Laser Beam Welding process.
3. What are the applications of cold pressure welding?
4. How pressure influences cold pressure welding? Mention the pressure range used.
5. List the advantages of frictional welding.
6. Write short note on explosive welding.
7. Mention the four basic requirements of brazing.
8. How amplitude affect ultrasonic welding?
9. Enumerate the limitations of dry under water welding.
10. What are the limitations of plasma arc welding?

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. Describe the working of Laser beam welding using a neat sketch. 14

OR

12. Explain the working of Electron beam welding using a neat sketch. Explain the different components used in EBW. 14

MODULE II

13. Explain adhesive bonding in material joining. Explain the different structural adhesives and its applications. 14

OR

14. Explain the different diffusion welding techniques. What are the various benefits and applications of diffusion welding? 14

MODULE III

15. Explain the component terminology in explosive welding. Provide the details of explosive materials used. 14

OR

16. (a) Explain the friction stir processing technique. Mention the various applications. 10
(b) Compare friction stir welding with friction stir processing. 4

MODULE IV

17. Explain the working principle of ultrasonic welding using schematic diagram. Draw the different joint forms possible with ultrasonic welding. 14

OR

18. With the help of a neat sketch, explain furnace brazing. Explain the advantages, limitations and applications of vacuum brazing. 14

MODULE V

19. Using neat figures explain the working procedure of Magnetically impelled arc butt (MIAB) welding.List the various advantages and limitations. 14

OR

20. Describe plasma arc welding process.Compare transferred and non-transferred plasma arc welding. 14

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