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

Question Paper Code : 10875

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

First Semester

Manufacturing Engineering

MF 4102 – ADVANCES IN CASTING AND WELDING

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are factors to be considering in casting design?
2. What are the principles to be followed in design gate?
3. Distinguish between progressive and directional solidification.
4. What are degasification of the melt?
5. List out the advantages of precision investment casting.
6. Why sand reclamation is required?
7. What are the characteristics of heat affected zone?
8. How to control distortion in welding?
9. List out the applications of friction welding.
10. Distinguish between modern brazing and soldering techniques.

PART B — (5 × 13 = 65 marks)

11. (a) Discuss the directional solidification and minimum stresses in detail.

Or

(b) Discuss in detail the melting and casting quality used in manufacturing process.

12. (a) Describe the property shrinkage in cast metals with an example.

Or

(b) List out any five casting defects with neat sketch and also list out the causes and remedies.

13. (a) Discuss the material handling and pollution control in foundry.

Or

(b) Distinguish between hot chamber and cold chamber die casting.

14. (a) Discuss the weldability of steels and stainless steel.

Or

(b) Discuss the pre and post welding heat treatments.

15. (a) Discuss with neat sketch of Friction Stir Welding and list out their advantages, limitations and applications.

Or

(b) Distinguish between Election Beam Welding and Plasma Arc Welding processes.

PART C — (1 × 15 = 15 marks)

16. (a) Discuss the overview of automation of welding in aerospace.

Or

(b) Discuss the recent trends in surface transport vehicle welding and underwater welding.

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