

GANPAT UNIVERSITY**M. TECH SEM- II (AMT) REGULAR EXAMINATION APRIL-JUNE 2016**
3ME202 : ADVANCED METAL CASTING & WELDING TECHNOLOGY**MAX. TIME: 3 HRS****MAX. MARKS: 60**

- Instructions:** (1) This Question paper has two sections. Attempt each section in separate answer book.
(2) Figures on right indicate marks.
(3) Be precise and to the point in answering the descriptive questions.

Section: I**Q.1 Answer the following:**

- [A] Explain procedural steps of Investment casting process. Enlist advantages, limitations and applications of process. [10] (5)
[B] What is continuous casting process? Discuss process variables of continuous casting process. (5)

OR**Q.1 Answer the following:**

- [A] Discuss the following terms: [10] (5)
1. Directional solidification 2. Grain refinement
3. Amorphous solidification
[B] Explain the influence of following variables on properties of parts produced by centrifugal casting process: (5)
1. Speed of mould rotation 2. Pouring temperature
3. Mould coat thickness

Q.2 Answer the following:

- [A] What is riser? Enlist functions of riser. List comparative advantages and limitations of open and blind riser. [10] (5)
[B] Differentiate between shell molding & CO₂ molding with respect to mechanical properties of casting, dimensional tolerances, quality of casting, easy of manufacturing & its fields of application (5)

OR**Q.2 Answer the following:**

- [A] Differentiate between gray and nodular cast iron with respect to its microstructure, properties and applications. [10] (5)
[B] Explain melting practice of stainless steel. (5)

Q.3 Answer the following: (Any Two)

- [A] Enlist and explain causes and remedies of casting defects. [10] (5)
[B] What is gating ratio? Differentiate between pressurized and unpressurized gating system. (5)
[C] What is 'core' and 'core print'? How does core sand differs from molding sand? Explain collapsibility in core along with its advantages. (5)

Section: II

- Q.4 Answer the following:** [10]
- [A] Discuss the importance of polarity and static characteristics of power source in welding processes. (5)
- [B] What do you mean by flux? Explain in detail the classification of flux used in Shielded Metal Arc Welding? (5)

OR

- Q.4 Answer the following:** [10]
- [A] Discuss the parameters which affect the weld quality in gas metal arc welding process. (5)
- [B] Describe principle, working and application of Plasma Arc Welding. What are the possible difficulties in it and how it can be dealt? (5)

- Q.5 Answer the following:** [10]
- [A] Discuss the term preheating, dilution and post weld heat treatment for welding. (5)
- [B] With neat sketch describe the defects observed in welding and suggest remedies for it. (5)

OR

- Q.5 Answer the following:** [10]
- [A] Discuss the distortion in detail with neat sketch and also suggest how to avoid it. (5)
- [B] What do you mean by Weldability? Explain weldability of carbon steel. (5)

- Q.6 Answer the following: (any two)** [10]
- [A] Describe principle, working and application of Electron Beam Welding. What are the possible difficulties in it and how it can be dealt? (5)
- [B] Enlist the various methods of applying welding? Explain the need of work and arc motion devices. (5)
- [C] Describe principle, working and application of Submerged Arc Welding. What are the possible difficulties in it and how it can be dealt? (5)

End of Paper