Exam No: _____

GANPAT UNIVERSITY

M. TECH. [ME-CAD/CAM] SEM-II CBCS REGULAR EXAMINATIONAPRIL-JUNE2016

3ME212 ADVANCED CASTING & WELDING PROCESSES

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:** **[10]**

[A] How investment casting process is differ with shell molding process. Discuss advantages, limitations and applications of both processes. (5)

[B] What is 'core' and 'core print'? How does core sand differs from molding sand? Explain collapsibility in case of mould and core. (3)

[C] Explain core boxes. (2)

OR

Q.1 **Answer the following:** **[10]**

[A] What is riser? Enlist functions of riser. List comparative advantages and limitations of open and blind riser. (4)

[B] Differentiate between hot chamber die casting and cold chamber die casting process. (3)

[C] Enlist advantages and limitations of die casting process. (3)

Q.2 **Answer the following:** **[10]**

[A] What is continuous casting process? Explain process variables of continuous casting process. (4)

[B] Explain pattern allowances in detail. Also enlist and explain selection of pattern materials. (4)

[C] Discuss additives to molding and core making. (2)

OR

Q.2 **Answer the following:** **[10]**

[A] Explain causes and remedies of any two continuous casting defects. (2)

[B] What is gating ratio? Differentiate between pressurized and unpressurized gating system. (4)

[C] Explain top, bottom and parting line gating system along with advantages, limitations and applications. (4)

Q.3 **Answer the following:** **[10]**

[A] Explain importance of grain refinement and modification of Al-Si alloy. (4)

[B] Explain hydrogen solubility in Aluminum alloys. Also explain degassing of Al-Si alloy melting. (3)

[C] Briefly explain T 6 heat treatment of aluminum alloys. (3)

SECTION-II

Q.4 **Answer the following:** [10]

[A] Explain the basic principle of arc welding? Explain how potential drop occurs during arc? (4)

[B] Describe principle, working and application of Tungsten Inert Gas Welding. What are the possible difficulties in it and how it can be dealt? (4)

[C] Differentiate between oxidizing flame, reducing flame and neutral flame with respect to their area of applications. (2)

OR

Q.4 **Answer the following:** [10]

[A] Describe the function and characteristics of electrode? Also explain role of coating? How are electrode classified? (4)

[B] Discuss the general defects observed during welding with neat sketch. Also suggest remedies to avoid it. (3)

[C] What is resistance welding? Discuss resistance seam welding. (3)

Q.5 **Answer the following:** [10]

[A] Enlist the various method used for destructive and nondestructive testing of weldments. Explain any of two processes in detail. (4)

[B] What do you mean by weldability? (2)

[C] Explain soldering and brazing process. (4)

OR

Q.5 **Answer the following:** [10]

[A] Describe principle, working and application of Metal Inert Gas Welding. What are the possible difficulties in it and how it can be dealt? (4)

[B] Explain friction stir welding process along with neat sketch. (4)

[C] Explain importance of welding fixture. (2)

Q.6 **Answer the following:(any two)** [10]

[A] Discuss heat affected zone in welded joint in detail along with neat sketch. (5)

[B] Describe the important design considerations for welded joints. (5)

[C] Describe principle, working and application of Laser Beam Welding. What are the possible difficulties in it and how it can be dealt? (5)

End of Paper