

**GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)**

M.Tech. (First Semester) Regular Examinations, February – 2025

Subject code – Casting and Welding Technology
(Manufacturing Technology)



Time: 3 hrs

Maximum: 60 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

| | CO # | Blooms Level |
|---|------|--------------|
| a. Write the function of a riser | CO1 | K1 |
| b. Mention advantages of continuous casting. | CO2 | K1 |
| c. Explain the features of a neutral flame. | CO3 | K2 |
| d. Define the merits of AC arc welding? | CO4 | K1 |
| e. Magnetic particle inspection cannot be used to detect internal defects. Why? | CO6 | K1 |

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

| | Marks | CO # | Blooms Level |
|--|-------|------|--------------|
| 2. a. With a neat sketch, explain shell mould process. | 5 | CO1 | K1 |
| b. Explain with neat sketch, centrifugal casting process. | 5 | CO1 | K2 |
| (OR) | | | |
| c. Estimate the clamping force for a die casting machine in which the casting is rectangular with projected dimensions of 125 mm X 175 mm. would your answer depends on whether it is a hot-chamber or cold – chamber process? Explain | 10 | CO1 | K3 |
| 3.a. Briefly explain the joining processes of soldering, brazing and braze welding. Clearly bring out the differences between them and give specific applications of each type. | 10 | CO2 | K4 |
| (OR) | | | |
| b. Name the various defects that occur in sand casting and state their probable causes and remedies. | 5 | CO2 | K3 |
| c. Write the various welding defects. Give their reasons and suggest the remedies. | 5 | CO4 | K3 |
| 4.a. Discuss the weldability of several metals and explain why some metals are easier to weld than others. Why is cast iron generally difficult to weld? | 10 | CO3 | K2 |
| (OR) | | | |
| b. Define the advantages and disadvantages of Aluminium casting. | 5 | CO2 | K1 |
| c. With a neat sketch explain about spot welding and LASER welding. | 5 | CO4 | K1 |
| 5.a. Explain the different zones which are formed during welding. | 5 | CO4 | K4 |
| b. Describe heat affected zone? Define its implications in arc welding process? | 5 | CO3 | K3 |
| (OR) | | | |
| c. Describe the principle of ultrasonic testing with suitable block diagram. | 5 | CO5 | K2 |
| d. List the advantage and disadvantage of ultrasonic testing. | 5 | CO5 | K1 |
| 6.a. Illustrate about non - destructive testing methods and applications of each technique. | 5 | CO6 | K3 |

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|---|---|-----|----|
| b. Explain various steps involved in magnetic particle testing (OR) | 5 | CO3 | K3 |
| c. Describe micro-hardness testing? Define the applications of this technique? | 5 | CO3 | K1 |
| d. Write a short note on Ultrasonic inspection. Discuss its advantages and disadvantages. | 5 | CO3 | K1 |

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