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# Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
## (GIET University)

M.Tech. (First Semester – Regular/Supplementary) Examinations, January– 2026

## 25MMTPC11002 – Casting and Welding Technology
## (Manufacturing Technology)

Time: 3 hrs | Maximum: 60 Marks

**PART – A** **(2 x 5 = 10 Marks)**

| Q.1. Answer ***ALL*** questions | CO # | Blooms Level |
|---|---|---|
| a. Differentiate the terms 'mould' and 'core' in casting process. | CO1 | K1 |
| b. Mention advantages of continuous casting. | CO2 | K2 |
| c. Differentiate between brazing and braze welding. | CO3 | K2 |
| d. List down any four functions performed by the coating of welding electrode. | CO4 | K1 |
| e. Narrate the importance of using NDT. | CO5 | K2 |

**PART – B** **(10 x 5 = 50 Marks)**

| Answer ***ALL*** the questions | Marks | CO # | Blooms Level |
|---|---|---|---|
| 2. a. Define the different allowances given to the pattern. Explain briefly. | 5 | CO1 | K3 |
| b. With a neat sketch, explain shell mould process. | 5 | CO1 | K3 |
| (OR) | | | |
| c. Explain the various steps involved in an investment casting process with a neat sketch. Define the main materials used for making the investment pattern. | 10 | CO1 | K4 |
| 3.a. Define the advantages and disadvantages of Aluminium casting. | 5 | CO2 | K3 |
| b. Describe "directional solidification" of casting? Explain it with the help of a diagram. | 5 | CO2 | K3 |
| (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 | CO2 | K4 |
| 4.a. Explain various types of welding methods. | 5 | CO4 | K2 |
| b. Describe heat affected zone. Define its implications in arc welding process. | 5 | CO4 | K3 |
| (OR) | | | |
| c. Describe welding. Classify the welding processes. Explain the Electric Arc welding process with neat sketch and state its applications. | 10 | CO4 | K4 |
| 5.a. With neat sketch explain percussion welding process | 5 | CO4 | K3 |
| b. Differentiate between electro-slag welding and Electro gas welding | 5 | CO5 | K3 |
| (OR) | | | |
| c. Different between friction welding and friction stir welding. | 5 | CO5 | K2 |
| d. Explain working of thermit welding and how its difference from conventional welding process. | 5 | CO5 | K3 |
| 6.a. Explain the various scope and application of NDET. | 5 | CO6 | K3 |
| b. Short notes on principal requirements of penetrants. | 5 | CO5 | K3 |
| (OR) | | | |
| c. Short note on Ultrasonic inspection. Discuss its advantages and disadvantages. | 5 | CO6 | K4 |
| d. Explain various steps involved in magnetic particle testing | 5 | CO6 | K3 |

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