**Code No: 183CA** **R22**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech II Year I Semester Examinations, February - 2024**
**PRODUCTION TECHNOLOGY**
**(Mechanical Engineering)**

**Time: 3 Hours** **Max. Marks: 60**

**Note:** This question paper contains two parts A and B.
i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.
- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

## PART- A

**(10 Marks)**

| | | |
|---|---|---|
| 1.a) | What is the function of a riser in casting? | [1] |
| b) | What are the two primary methods of melting in casting? | [1] |
| c) | Name one characteristic of gas welding. | [1] |
| d) | What is shielded metal arc welding also known as? | [1] |
| e) | What does TIG stand for in TIG welding? | [1] |
| f) | Differentiate between soldering and brazing. | [1] |
| g) | What is the primary characteristic of hot working? | [1] |
| h) | Define stamping in sheet metal operations. | [1] |
| i) | What is the equipment used in extrusion processes called? | [1] |
| j) | What are the tools used in forging processes called? | [1] |

## PART - B

**(50 Marks)**

2. Compare and contrast crucible melting and cupola operation as methods of melting in casting. [10]

**OR**

3.a) Explain the steps involved in making a casting.
b) What are the principles of gating in casting? [5+5]

4. Explain the principle behind resistance welding, discussing its advantages, limitations, and applications. [10]

**OR**

5. Discuss oxy-fuel gas cutting, covering its principles, equipment required, and standard time and cost calculations involved. [10]

6. Describe non-destructive testing methods for welds, such as ultrasonic testing and radiographic testing, including their principles, equipment used, and applications. [10]

**OR**

7. Discuss the process of Friction Stir Welding, including its advantages, limitations, and applications in various industries. [10]

8. Explain the concept of strain hardening in metal forming, discussing its effects on material properties and deformation behavior. [10]

**OR**

9. Evaluate the factors influencing the forces and power requirements in metal forming operations, including material properties, process parameters, and tooling design. [10]

10. Describe the principles of hydrostatic extrusion, including its advantages, limitations, and applications. [10]

**OR**

11. Explain rotary forging, including its process, advantages, and applications in manufacturing. [10]

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