

B.E. PRODUCTION ENGINEERING
SECOND YEAR
SECOND SEMESTER EXAM 2025
PRIMARY PRODUCTION PROCESSES

Full Marks: 100

Time: 3 Hrs.

Answer any 5 Questions.

1. a) Describe:
 Pouring Basin, Cheek, Riser, Chaplet, Facing sand, Sprue, Gate. (7 X 2=)14
 b) Describe the different types of oxy-acetylene welding flames. What are their usage areas?
 6
2. a) Define the following welding terms:
 Heat Affected Zone (HAZ), Crater, Backing, Weld Bead, Weld Metal, Weld Penetration, Root, Fillet Weld. (8X2=) 16
 b) Describe the "Rolling" process. 4
3. a) Explain the following processes:
 Shearing, Forging, Extrusion. 4X3
 b) Briefly explain the "Green Sand Moulding" Process. 8
4. a) Briefly describe the "Gravity Die Casting" process. 8
 b) Write the expression of pouring time (taken to fill up the mould) for Vertical & Bottom Gating Sys. What is the optimum pouring time? 4+2
 c) What are the different types of gating? Explain each with figures. 6
5. a) Describe the Gas Metal Arc Welding (GMAW) & Resistance Seam Welding (RSEW) processes. 5+5
 b) What are the major advantages & disadvantages of each fabrication method? 6
 c) What are the different welding positions? Explain each with sketches. 4
6. a) For the Butt-jt., draw the different edges to be prepared before welding. 6
 b) Write a short note on shape of risers. 4
 c) Draw the sectional view representing (Electric) Arc Welding Set up. 5
 d) What are the properties of moulding sand, which determines the success of a casting process? State (& explain) each. 5
7. a) Shortly describe the "Dry Sand Moulding" Process. 6
 b) Draw the schematic diagram of an oxyacetylene welding outfit. 4
 c) Briefly describe the "Skin-dried Mould Casting" process. 6
 d) What are factors upon which suitability of casting operations depend? 4
8. a) What is gating ratio? Explain the 2 types of gating ratio (Stating their usage area). 2+2

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- b) In Electric Arc Welding (EAW) how is the weld penetration affected by the polarity of the welding arc? Briefly explain. 6
- c) What are the factors upon which the choice of a particular fabrication method depends? 4
- d) What is the composition of green sand (in Green Sand Mould Casting)? 2
- e) Top gating design for a mould of 50 cm X 25 cm X 15 cm is shown below. The cross sectional area of the gate is 5 sq. cm. Determine the filling time for the design. 4

