

Ref. No. : Ex/PROD/PC/B/T/223/2022

B.E. PRODUCTION ENGINEERING SECOND YEAR SECOND SEMESTER - 2022

SUBJECT : PRIMARY PRODUCTION PROCESSES

Time: 3 Hours

Full Marks : 100

Answer any 5 Q-s.

1. a) Draw the sectional view representing (Electric) Arc Welding Set up. 5
b) Briefly describe the shell-mould casting process. 5
c) Draw five different types of welded jts. 5
d) What are the major limitations of casting processes? 5

2. a) 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
b) Describe the Shearing Process of machining. 4
c) Draw the cross-section of a typical (two-part) sand mould, briefly labeling each part. 8
d) Write the Chvorinov's rule, describing each term. 2

3. a) Why are allowances given on patterns? 3
b) What are the factors involved in the design of risers? 5
c) Describe:
Parting line, Facing sand, Runner, Chaplet, Gate, Moulding flask. (6 X 2=)12

4. a) What are the main disadvantages of dry sand moulds, compared with green sand moulds? 3
b) Classify the various fabrication processes. 3
c) Classify the principal manufacturing processes giving short description & example of each. 14

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5. a) Describe the Submerged Arc Welding (SAW) process. 6
 b) Draw the Fore hand & Back hand Welding techniques. 4
 c) Describe:
 Investment Casting & Die Casting Processes. 5+5
6. a) What are the different types of gating? Explain each with figures. 6
 b) What are the different welding positions? Explain each with sketches. 4
 c) Describe the different types of oxy-acetylene welding flames. What are their usage areas? 6
 d) Describe the Extrusion Method with figures. 4
7. a) Define the following welding terms:
 Puddle, Weld Metal, Penetration, Deposition Rate, Fillet Weld. (5 X 2 =) 10
 b) What are the major advantages of casting over other processes? 6
 c) Describe the Forging process. 4
8. a) Draw the schematic diagram of an oxyacetylene welding outfit. 5
 b) Describe the Gas Tungsten Arc Welding (GTAW) & Resistance Seam Welding (RSEW) processes. 5+5
 c) Discuss a little bit about (i) use of Chills, (ii) Insulating & Exothermic sleeves. 2+3