

# P P SAVANI UNIVERSITY

Third Semester of B. Tech. Examination

Nov-Dec 2021

SEME2030 Non-Cutting Manufacturing Processes

17.12.2021, Friday

Time: 09:00 a.m. To 11:30 a.m.

Maximum Marks: 60

**Instructions:**

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

**SECTION - I**

- Q - 1 What is pattern? Explain the following patterns with a schematic diagram. [05]  
(1) Gated Pattern (2) Follow board Pattern (3) Split Pattern
- Q - 2 (a) With the help of neat sketch explain various elements of a gating system. [05]
- Q - 2 (b) A casting company needs to produce large casting of circular sections and symmetrical shape component to achieve a Net Profit of Rs.25,000. Company runs at fixed cost of Rs.30,000 and contribution per component is Rs.10. Discuss suitable type of pattern and number of units to be produced to get net profit. [05]

**OR**

- Q - 2 (a) Sketch cross section of sand mould which is ready for pouring. [05]
- Q - 2 (b) Casting may have a slightly different shape than the pattern used to make the mould. Defend the statement. [05]
- Q - 3 (a) Explain with neat sketch different types of cores according to its position. [05]
- Q - 3 (b) Compare capabilities of sand casting and investment casting in context of weight (size), as cast dimensional accuracy, economic quantity. Hence bring out the applications of both processes. [05]

**OR**

- Q - 3 (a) Assume you have a method to measure the porosity of casting. How could you use this information to predict the strength of the casting? Explain. [05]
- Q - 3 (b) What is permanent mould casting? Describe Die casting with figure. [05]
- Q - 4 It is easy to withdraw the pattern having taper shape. Justify the statement with suitable sketch. [05]

**SECTION - II**

- Q - 1 Classify metal joining processes. Explain principle of gas welding process with neat sketch and write its advantages and disadvantages. [05]
- Q - 2 (a) State function of flux. What is the role of electrode coatings in the shielded metal arc? [05]
- Q - 2 (b) Explain the working principle of Resistance welding. Differentiate between Spot and Seam Welding processes. [05]

**OR**

- Q - 2 (a) Differentiate TIG and MIG Welding with most five influence factors. [05]
- Q - 2 (b) Explain various flames produced in an Oxy-acetylene gas welding. [05]
- Q - 3 (a) Why do we use welding symbols? Explain Basic symbol with figure. [05]
- Q - 3 (b) Explain Submerged arc welding. [05]

**OR**

- Q - 3 (a) Write short note on Plasma arc welding. [05]
- Q - 3 (b) Write short note on Ultrasonic welding. [05]
- Q - 4 Write short note on Laser welding. [05]

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