

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2022 - 23 Examination

Semester: 4
Subject Code: 203109265
Subject Name: Manufacturing Technology

Date: 24/03/2023
Time: 2:00pm to 4:30pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Each of one mark) (15)

1. Which of the following is not type of Tool Wear?

- | | |
|---------------|--------------|
| (a) Flank | (b) Crater |
| (c) Localized | (d) Hardness |

2. Which is the ODD one related to Thread Manufacturing.

- | | |
|-----------------------|---------------------|
| (a) Sand Casting | (b) Tapping |
| (c) Powder Metallurgy | (d) Thread Milling. |

3. For Repairing of Railway Railings----- Welding Technique is used.

- | | |
|------------------------|------------------------------|
| (a) SMAW | (b) Pressure Thermit Welding |
| (c) Resistance Welding | (d) EBW |

4. The size of the press is expressed in terms of

- | | |
|--------------------------|----------------------------------|
| (a) Length of the stroke | (b) Maximum force exerted by Ram |
| (c) Die Space | (d) Ram Speed. |

5. The Ratio of the Pitch circle diameter to number of Teeth is called.

- | | |
|---------------------|--------------------|
| (a) Diametral Pitch | (b) Circular Pitch |
| (c) Module | (d) Addendum. |

6. What do you mean by Jig and Fixtures?

7. State Joule's Law of Heating?

8. Write the Taylor's equation for Tool life. Mention the terms in the equation.

9. Define Centre of Pressure in (Press Tool) Blanking?

10. What is Punching and Blanking?

11. Electron Beam Welding uses the ----- technique to weld deep surfaces.

12. If the Height and Diameter (H/D) ratio is more than 2 is called----- Drawing.
13. Jig is a device that holds the component in position and ----- the cutting tool during operation.
14. ----- welding uses the non-consumable electrode.
15. For Machining of Titanium/Stainless steel (Hard and Brittle) ----- rake angle is used.

Q.2 Answer the following questions. (Attempt any three) **(15)**

- A) With a Neat sketch explain the Single Point Cutting Tool Geometry?
- B) Derive an expression to calculate the length of deformation zone in the Rolling?
- C) It is Required to Join two 3 mm GI Sheets in the Lap Position. Which Welding Process do you Prefer? Explain the Stages of that Welding Processes.
- D) Explain with a neat sketches compound die and progressive die?

Q.3 A) With a Neat Sketches explain about the types of Flames in the Oxy Acetylene Gas Welding? **(07)**

- B) Following data is related to Orthogonal cutting. Uncut chip thickness = 0.127 mm, Width of the chip = 6.35 mm, Cutting Speed = 2 m/s, Rake Angle is 10° Cutting Force = 567 N, Thrust Force = 227 N, cut chip thickness = 0.228 mm. Determine (1) Shear Angle (2) Friction Angle (3) Shear Stress along the Shear Plane (4) Power for Cutting Operation (5) Chip Velocity (6) Shear Strain. **(08)**

OR

- B) With a Neat diagram of Chip Formation Mechanism, Derive an Equation to calculate the Shear Plane Angle. **(08)**

Q.4 A) With a Neat Sketch Explain the 3-2-1 Location Principle. **(07)**

OR

- A) Write the classification of Gear Manufacturing Methods? Explain any 2 methods. **(07)**
- B) Compare and Contrast the Hot Working Processes and Cold Working Processes. **(08)**