

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is **compulsory**.
 (2) Solve any **four** questions from the **rest** of the questions.
 (3) **Figures to right** indicate **full** marks.
 (4) Draw neat and legible sketches wherever **required**.
 (5) Answer to questions should be **grouped** and written **together**.

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| 1. | Answer any four of the following :- | 20 |
| a) | Dye Penetrant Test as NDT | |
| b) | Lathe Specifications & sizes | |
| c) | Compound Indexing | |
| d) | Pit Crucible Furnace | |
| e) | Centreless Grinding | |
| f) | Plasma Arc Machining | |
| g) | Submerged Arc Welding. | |
| 2. | a) Explain in brief the various allowances provided on pattern. | 10 |
| | b) Describe True Centrifugal Casting. Write its applications. | 10 |
| 3. | a) Explain construction of column & knee type vertical milling machine | 10 |
| | b) Explain (i) Friction Welding, (ii) Stud Welding | 10 |
| 4. | a) Explain Quick Return Mechanism used in shaper machine with neat sketch | 10 |
| | b) Explain (i) Electron Beam Machining, (ii) Radiography Inspection as NDT | 10 |
| 5. | a) Explain the following terms w.r.t. grinding wheel :- | 10 |
| | (a) Grit (b) Grade (c) Structure (d) Bond | |
| | b) Sketch the following drilling operations :- | 10 |
| | (a) Boring (b) Counter-boring (c) Reaming (d) Spot Facing | |
| 6. | a) Differentiate between the following (any two) :- | 10 |
| | (i) Soldering & Brazing, (ii) Capstan & Centre Lathe, (iii) Lapping & Honing, (iv) Up milling Down Milling. | |
| | b) Find gear ratio for indexing 139 divisions differential indexing method. | 6 |
| | c) Define Feed and Cutting Speed related to metal cutting on lathe. | 4 |
| 7. | a) List the various methods of taper turning. Explain any one of them. | 10 |
| | b) Explain in brief the various welding defects, their causes and remedies. | 10 |