

Con. 10167-13.**GS-6579**

(3 Hours)

[Total Marks : 100**N.B. :** (1) Question No. 1 is **compulsory**.(2) Attempt any **four** questions from the remaining **six** questions **overall** solve **five** questions.(3) Illustrate your answers with **neat** sketches wherever **required**.

1. (a) Explain with block diagram ultrasonic machining process. State its basic principles, advantages and applications. **10**
- (b) Give classification of Manufacturing process and explain manufacturing of cast iron. **10**
2. (a) Explain different methods of taper turning. Explain with diagram taper turning by swindling tail stock. **10**
- (b) Give the complete classification of grinding machines. Explain internal and external Centreless type of grinder. **10**
3. (a) Explain following principles of : **10**
(i) Gating (ii) Riser design.
- (b) Explain different drilling machining operations with neat sketches. **10**
4. (a) Explain :— **10**
(i) Friction welding.
(ii) Welding defects.
- (b) Explain different techniques for quality check in casting. **10**
5. (a) What is powder metallurgy ? Why gears are manufactured by powder metallurgy ? List the advantages of powder metallurgy. **10**
- (b) Sketch an upright milling machine. State the functions of some important parts. **10**
6. (a) Explain rotary swaging with its sketch. **10**
- (b) Explain any two non-destructive techniques with sketch. **10**
7. Write short notes on (any **four**) :— **20**
(a) MIG welding.
(b) Resistance welding.
(c) CNC machines.
(d) CO₂ welding.
(e) Metal extrusion.