

B.E. POWER ENGINEERING THIRD YEAR FIRST SEMESTER EXAM - 2025**Subject: MANUFACTURING SCIENCE (HONS.) Time: 3 Hours****Full Marks: 100**Answer any **five (5)** questions from the followings.*5 x 20 = 100 Marks*

1. (a) Define a pattern in casting process. [CO1]
- (b) What are different types of pattern allowances and explain shortly? [CO1]
- (c) What are the materials for a pattern? [CO1]
- (d) Write important five defects of casting. [CO1] *4+9+2+5 = 20 Marks*
2. (a) What is machining process? How it differs from manufacturing process. [CO2]
- (b) What are the specifications of a lathe? [CO2]
- (c) Derive the expression for machining time for a Lathe. [CO2]
- (d) Why called "Lathe is a mother machine tool"? [CO2] *3+5+8+4 = 20 Marks*
3. (a) What are the different types of chip can be produced during a machining process. [CO2]
- (b) What is Taylor's tool life equation? [CO2]
- (c) Derive the expression for cutting time in any gating system. [CO2] *5+3+12 = 20 Marks*
4. (a). Define welding process? [CO1]
- (b) What are the equipments used for 'SMAW' Process. [CO1]
- (c) Classify welding process. [CO1] *4+8+8 = 20 Marks*
5. (a) What is fit? [CO4]
- (b) Explain the terms 'Selective assembly and Interchangeability' [CO4]
- (c) Draw the limits for different tolerance zones. [CO4] *3+5+12 = 20 Marks*
6. Write a short note on any **four (4)** from the followings.
 - (a) Drilling process [CO2] (b) Rolling process [CO1] (c) Gas welding [CO1] (d) Soldering process [CO1] (e) Rake angle [CO2] (f) Welding defects [CO1]*4 x 5 = 20 Marks*