

- (e) What is draft in rolling operation ?
- (f) What are the types of dies used in sheet-metal operations ?
- (g) Explain briefly the sheer zone geometry.
- (h) Discuss the defects found in extrusion.
- (i) Illustrate graphically and briefly explain the various features of sand mould.
- (j) What is the difference between a pattern and a core ? **1.5×10=15**

Roll No.

Total Pages : 04

Sep-21-00050

B. Tech. EXAMINATION, 2021

Semester IV (CBCS)

MANUFACTURING TECHNOLOGY-I

ME-401

Time : 2 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. 9 is compulsory. Any missing data may be assumed appropriately.

Section A

1. (a) What is the difference between consumer goods and capital goods ? Give some examples in each category. **7.5**

- (b) Illustrate graphically the various steps of shell mould casting. 7.5
2. (a) Briefly explain the various sand casting defects. 7.5
- (b) Show schematic of a cupola furnace. Explain its working. 7.5

Section B

3. (a) Differentiate between hot and cold working operations. 7.5
- (b) Illustrate using schematic diagrams the various sheet-metal operations. 7.5
4. (a) Differentiate the types of extrusion processes. List their advantages and disadvantages. 7.5
- (b) Illustrate graphically the types of open-die forging operations. 7.5

Section C

5. (a) Classify welding processes. Discuss the principle of arc generation in electric arc welding. 7.5

- (b) Discuss the working principle of resistance spot welding. What are the sequence of steps involved in RSW ? 7.5

6. Write short note on forge welding and diffusion welding. List the advantages and disadvantages and their possible applications. 15

Section D

7. (a) Classify plastics. Give a schematic illustration of typical screw extruder. 7.5
- (b) Chart out the process capabilities of compression molding discussing its various features and types. 7.5
8. Briefly explain the sequence of powder metallurgy process. 15

(Compulsory Question)

9. (a) What are the stages in closed die forging ?
- (b) Draw the schematic of draw die for a round wire.
- (c) Discuss electron beam welding process.
- (d) Highlight the use of core prints.