



Roll No:

BTECH

(SEM. IV) THEORY EXAMINATION 2025-26
MANUFACTURING PROCESSES

TIME: 3 HRS

M.MARKS: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2x7 = 14

QNo.	Question	CO	Level
(a)	Differentiate between open die forging and closed die forging?	1	K1
(b)	What is shrinkage allowance in casting?	1	K1
(c)	What is rake angle?	2	K1
(d)	Explain additive manufacturing.	2	K2
(e)	What is meant by hardness of grinding wheel?	3	K1
(f)	What is HAZ in arc welding?	4	K1
(g)	Explain the function of electrolyte in ECM.	5	K2

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

(a)	Explain the solidification phenomena in casting. Also describe casting defects and their remedies in brief.	1	K2
(b)	What is Machining? Explain the various types of chip formation during the machining of a workpiece.	2	K2
(c)	Briefly explain and differentiate between cylindrical and centerless grinding.	3	K2
(d)	Discuss the principle and working of gas welding and gas cutting processes.	4	K2
(e)	Write brief notes on the following: (i) Laser beam machining (LBM) (ii) Plasma arc machining (PAM)	5	K1

SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

(a)	Differentiate between hot working and cold working. Also explain advantages of metal forming processes over other manufacturing processes.	1	K2
(b)	What do you understand by powder metallurgy? Explain their advantages and disadvantages with suitable example.	1	K2

4. Attempt any one part of the following:

7 x 1 = 7

(a)	The tool life equation for HSS tool is expressed by $VT^{0.15} = C_1$ and the tungsten carbide tool is expressed by $VT^{0.25} = C_2$. If at a speed of 30 m/min the tool life is 120 min, compare the life of the two tools at a speed of 40 m/min.	2	K3
(b)	Explain Merchant's force circle diagram and derive the merchant's shear angle relationship.	2	K2

5. Attempt any one part of the following:

7 x 1 = 7

(a)	Discuss various types of abrasives used for manufacturing of grinding wheels. Also differentiate between dressing and truing.	3	K2
(b)	Write brief notes on all of the following (i) Honing (ii) Lapping (iii) Superfinishing	3	K1

6. Attempt any one part of the following:

7 x 1 = 7

(a)	Explain the working of Friction welding process with the help of neat sketch. Also give its advantages and limitations.	4	K2
(b)	Why do welded joints sometimes fail during service? What precautions should be taken to enhance the life of welded joints?"	4	K2

7. Attempt any one part of the following:

7 x 1 = 7

(a)	Explain the working principle of Electrical Discharge Machining with a neat diagram.	5	K2
(b)	Discuss in brief the important process parameters affecting material removal rate, accuracy, and surface finish in Abrasive Jet Machining.	5	K2