Roll No:

BTECH
(SEM V) THEORY EXAMINATION 2025-26
ADVANCE MANUFACTURING PROCESSES

TIME: 3 HRS **M.MARKS: 70**

Note: (a) Attempt all Sections. In case of any missing data; choose suitably.
(b) Draw neat diagram wherever required.

SECTION A

1. Attempt *all* questions in brief. **02 x 7 = 14**

Q no.	Question	CO	Level
a.	Enlist the different types of non conventional machining processes.	1	K2
b.	List the advantages and disadvantages of abrasive water jet machining technique.	1	K2
c.	Differentiate between the traditional and non-traditional machining process that are in commercial use.	1	K2
d.	Differentiate between conventional welding and advanced welding techniques.	3	K2
e.	What are the various types of energy sources used in non-traditional machining techniques? Give examples for each.	1	K2
f.	Analyse the process capability and process economy of different casting techniques.	2	K2
g.	Write a short note on impact of additive manufacturing for product development.	5	K3

SECTION B

2. Attempt any *three* of the following: **07 x 3 = 21**

a.	Draw schematic diagram and demonstrate the range of following process control parameters for abrasive jet machining process. i) Grain types and size. ii) Gastype and pressure. iii) Nozzle material and hardness.	1	K2
b.	What is High Energy rate forming technique? Illustrate its various advantages and disadvantages.	4	K2
c.	Discuss the core principles and components of electro-magnetic forming process.	4	K2
d.	An electron beam welder uses 4.5 kW of power at a welding speed of 600 mm/min. Calculate the specific energy input in kJ/m.	3	K2
e.	How does laser beam welding process works? Highlight the role of various welding parameters involved.	3	K2

SECTION C

3. Attempt any *one* part of the following: **07 x 1 = 07**

a.	Illustrate various issues & its troubleshooting for the contour roll forming process.	4	K2
b.	Explain the principle of electron beam welding process. List all its advantages and disadvantages.	3	K2

4. Attempt any *one* part of the following: **07 x 1 = 07**

a.	Discuss the principle of laser beam machining. Iluustrate the key components & types of lasers used in laser beam machining.	1	K2

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b.	Differentiate between continuous casting and squeeze casting technique.	2	K2

5. Attempt any *one* part of the following: **07 x 1 = 07**

a.	Illustrate the principle of vaccum mold casting technique. When is it better than injection molding and 3D printing?	2	K2
b.	List the important component of ultrasonic welding technique. Enlist the different variations in ultrasonic welding mechanism.	3	K2

6. Attempt any *one* part of the following: **07 x 1 = 07**

a.	What is ceramic shell casting? Discuss the various process and materials for ceramic shell casting technique.	2	K2
b.	Discuss the process and equipment invloved in stretch forming. Illustrate its various advantages.	4	K2

7. Attempt any *one* part of the following: **07 x 1 = 07**

a.	What is additive manufacturing? Enlist the merits of virtual prototyping.	5	K3
b.	Illustrate the various parameters which are influence the MRR. How MRR will be different for brittle and ductile materials.	1	K2