Roll No.											

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 16 – 12- 2025 **Time:** 01:00pm – 04:00pm

School: SOE	**Program:** B.Tech	
Course Code: MEC3040	**Course Name:** Modern Manufacturing Processes	
Semester: VII	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
Marks	**6**	**6**	**22**	**22**	**22**	**22**

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2 marks. **10Q x 2M=20M**

1.	Define **automated assembly system**. How does it differ from manual assembly?	**2 Marks**	**L2**	**CO1**
2.	What is meant by **design for automated assembly (DFAA)**? Give two guidelines followed while designing a product for automated assembly.	**2 Marks**	**L1**	**CO1**
3.	Classify manufacturing processes into **primary and secondary processes** with one example for each.	**2 Marks**	**L2**	**CO1**
4.	What is Electron Beam Machining (EBM)? **Mention one advantage and one limitation.**	**2 Marks**	**L1**	**CO2**
5.	What is a CNC Part Program? **Write the meaning of G-code and M-code.**	**2 Marks**	**L1**	**CO2**
6.	What is meant by 'Machine Control Unit (MCU)' in a CNC machine? **Mention its main function.**	**2 Marks**	**L1**	**CO2**
7.	Define **Continuous Casting** and list any two advantages of this	**2 Marks**	**L1**	**CO3**

	process.			
8.	Define Electron Beam Welding (EBW). Mention any two major advantages of EBW.	**2 Marks**	**L1**	**CO4**
9.	What is High Energy Rate Forming (HERF)?	**2 Marks**	**L1**	**CO5**
10.	What are the 3M's of Lean?	**2 Marks**	**L1**	**CO6**

Part B

Answer the Questions. **Total Marks 80 M**

11.	Explain the different steps involved in evaporative pattern casting with schematic sketches. List its advantages, limitations and industrial applications.	**20 Marks**	**L2**	**CO3**
	Or			
12.	Describe ceramic shell casting with neat diagrams. Enumerate its merits, demerits and applications.	**20 Marks**	**L2**	**CO3**

13.	A manufacturing company needs to weld thin aluminium sheets without damaging nearby electronic components. Suggest the most suitable welding process and justify based on thermal distortion, heat input, welding precision, and cost.	**20 Marks**	**L3**	**CO4**
	Or			
14.	Explain process parameters **(beam current, focus, power density, welding speed)** and defects **(porosity, underfill, spatter, plasma formation, and keyhole instability)** in electron beam welding (EBW) and laser beam welding (LBW.)	**20 Marks**	**L3**	**CO4**

15.	Describe the different types of Stretch Forming machines and its process parameters with neat sketches.	**20 Marks**	**L2**	**CO5**
	Or			
16.	Discuss the working principle, tooling and industrial application of contour roll forming with sketches.	**20 Marks**	**L2**	**CO5**

17.	Explain the key technologies of Industry 4.0, such as IoT, Cyber-Physical Systems, Cloud Computing, Big Data, Additive Manufacturing, and Autonomous Robots. Discuss how they transform modern manufacturing.	**20 Marks**	**L2**	**CO6**
	Or			
18.	Evaluate the impact of Industry 4.0 on industries, workforce, supply chain, and sustainability. Discuss both advantages and challenges faced by manufacturing organizations.	**20 Marks**	**L2**	**CO6**