U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

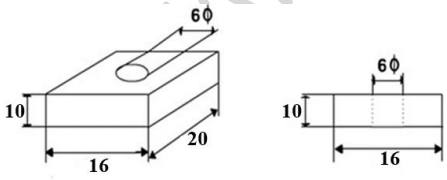
Program: B.E. **Semester: IV**

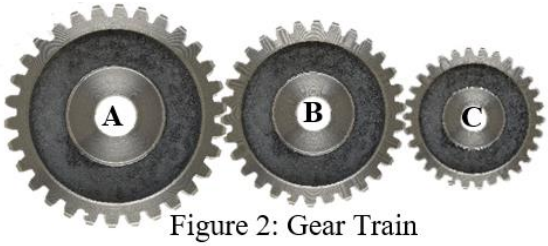
Branch: Aerospace Engineering **Duration: 3 hrs.**

Course Code: 23AS4PCMNT **Max Marks: 100**

Course: Manufacturing Technology

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

		UNIT - I	CO	PO	Marks
1	a)	With a neat sketch explain the casting terms in the sand-casting process. Also state advantages and disadvantages of casting.	CO 1	PO 1	**10**
	b)	The casting shown in figure 1, is to be made in cast iron using a wooden pattern. i) Assuming only shrinkage allowance, calculate the dimension of the pattern. ii) Assuming only machining allowance, calculate the dimension of the pattern. All dimensions are in Inches.  Figure 1: Casting **Shrinkage allowance:** **Material** / **Dimension** / **Shrinkage allowance (inch/ft)** Cast Iron: Up to 2 feet: 0.125 2 feet to 4 feet: 0.105 above 4 feet: 0.083 **Machining allowance:** **Material** / **Dimension (inch)** / **Shrinkage allowance (inch)** Cast Iron: Up to 12 inches: 0.12 12 inches to 20 inches: 0.20 above 20 inches: 0.25	CO 1	PO 2	**10**
		UNIT - II			
2	a)	Write a short note on drop forging explaining the various passes a material undergoes during drop forging.	CO 2	PO 1	**10**

		b)	Which is the most suitable primary manufacturing process for producing the cross-sections or products shown in the figure below? Explain each of them in brief.  (a) Steel Metal,  (b) PTFE rods,  (c) Pipes,  (d) Wrench Tool,  (e) Artwork	*CO 2*	*PO 2*	**10**
			UNIT - III			
3		a)	Briefly explain the different types of grinding processes.	*CO 3*	*PO 1*	**10**
		b)	Write a short note on electrical discharge machining stating its working principle, advantages and disadvantages.	*CO 3*	*PO 1*	**10**
			OR			
4		a)	Write a short note on cutting fluids by stating its functions, types, properties and application methods.	*CO 3*	*PO 1*	**10**
		b)	Write a short note on laser arc machining stating its working principle, advantages and disadvantages.	*CO 3*	*PO 1*	**10**
			UNIT - IV			
5		a)	Discuss any two types of the Numerical Control (NC) machines.	*CO 4*	*PO 1*	**10**
		b)	Explain the fundamental principle behind Rapid Prototyping (RP).	*CO 4*	*PO 1*	**10**
			OR			
6		a)	Write a short note on Numerical Control (NC) machines and Computer Numerical Control (CNC) machines?	*CO 4*	*PO 1*	**10**
		b)	State the difference between Rapid Prototyping (RP) and Rapid Tooling (RT).	*CO 4*	*PO 1*	**10**
			UNIT - V			
7		a)	Explain the following terms related to gears along with a neat illustration of them. i) Addendum and addendum circle ii) Dedendum and dedendum circle iii) Pitch circle iv) Clearance v) Circular pitch	*CO 5*	*PO 1*	**10**
		b)	For the given set of gear data find out gear ratio, output RPM and output torque. Gear | Number of teeth | RPM | Torque A | 48 | 120 PRM | 16 Nm. B | 24 | | C | 12 | |  Figure 2: Gear Train	*CO 5*	*PO 2*	**10**

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