U.S.N.										

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

Autonomous Institute Affiliated to VTU

February / March 2024 Semester End Main Examinations

Programme: B.E. **Semester: I / II**
Branch: Common to all Branches **Duration: 3 hrs.**
Course Code: 22ME1ESIME / 22ME2ESIME **Max Marks: 100**
Course: Introduction to Mechanical Engineering

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

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	*CO*	*PO*	Marks
1	a)		What do you mean Helio Thermal Process? What are the differences between flat plate collector and concentrating collector?	*CO1*	*PO1* *PO7*	**07**
	b)		With neat sketch explain the working of floating drum biogas plant system.	*CO1*	*PO1* *PO7*	**08**
	c)		Write a short note on the followings: (i) Global warming (ii) Ozone depletion	*CO1*	*PO1* *PO7*	**05**
			UNIT - II			
2	a)		What are the different methods of taper turning operation on lathe Machine? With neat sketch, Explain the method of swiveling of compound rest.	*CO1*	*PO1* *PO7*	**07**
	b)		With neat sketch explain the following drilling operations: (i) Boring (ii) Reaming	*CO1*	*PO1* *PO7*	**08**
	c)		What are the advantages and disadvantages of CNC machines?	*CO1*	*PO1* *PO7*	**05**
			OR			
3	a)		Draw the line diagram of the elements of CNC machine system.	*CO1*	*PO1* *PO7*	**07**
	b)		With neat sketch explain the following milling operations: (i) Plane milling (ii) End Milling	*CO1*	*PO1* *PO7*	**08**
	c)		What are the steps involved in the 3D printing Process?	*CO1*	*PO1* *PO7*	**05**

			UNIT - III			
	4	a)	With neat sketch explain the working of 4 stroke CI Engine. Show the cycle on PV diagram.	*CO2*	*PO1* *PO7*	**10**
		b)	Write the differences between CI and SI engines.	*CO2*	*PO1* *PO7*	**04**
		c)	Explain the working of hybrid vehicle with the help of block diagram.	*CO2*	*PO1* *PO7*	**06**
			OR			
	5	a)	Draw the block diagram that indicate the components of Electric Vehicles.	*CO2*	*PO1* *PO7*	**07**
		b)	The following observation are taken by conducted a test on a single cylinder petrol engine which develops one working stroke for two revolution of crankshaft. Bore =25 cm, stroke=40 cm, crank speed = 250 rpm, Net load on brake drum = 700 N, Diameter of the brake drum = 2 m, the engine with a mean effective pressure of 6 bar, consuming fuel at a rate of 2.2 kg/hour. Given that the calorific value of the fuel is 43900 kJ/kg. Mechanical efficiency, Brake thermal and indicated Thermal efficiency.	*CO3*	*PO1*	**08**
		c)	What are the differences between IC engine and electrical vehicles?	*CO2*	*PO1* *PO7*	**05**
			UNIT - IV			
	6	a)	What are the differences between soldering and brazing operations?	*CO1*	*PO1* *PO7*	**06**
		b)	Write a short note on the followings: (i) Fiber reinforced composite materials (ii) Metal Matrix composite materials	*CO1*	*PO1* *PO7*	**08**
		c)	How the engineering materials are classified? Explain them with example.	*CO1*	*PO1* *PO7*	**06**
			UNIT - V			
	7	a)	Explain the anatomy of Robot with the help of neat sketch.	*CO1*	*PO1* *PO7*	**07**
		b)	What is the logical design of IoT? Explain them with block diagram.	*CO1*	*PO1* *PO7*	**08**
		c)	What is industrial automation? What are their different types of automation systems?	*CO1*	*PO1* *PO7*	**05**

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