

**Vivekananda College of Engineering & Technology, Puttur**  
 [A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]  
 Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08	Rev 1.10	<ME>	<23.04.2022>
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**First Semester Preparatory Examination 2021-22**

Dept: ME	Sem / Div: E, F & G	Sub: ELEMENTS OF MECHANICAL ENGG	S Code:21EME15
Date: 29.04.2022	Time: 9.30-12.30PM	Max Marks: 100	Elective: N

Note: Answer any 5 full questions, choosing one full question from each Module.

QN	Questions	Marks	RBT	CO's
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**MODULE 1**

1	a Define the following terms in relation to steam a. Dryness Fraction      b. Latent Heat c. Degree of Super heat d. Saturation Temperature	10	L2	CO1
	b State and Explain Zeroth Law of Thermodynamics	5	L2	CO1
	c Describe various emerging trends and technologies in Manufacturing and Automotive sector	5	L2	CO1

**OR**

2	a Distinguish between Renewable and Non Renewable sources of Energy	8	L2	CO1
	b With a neat sketch explain the working of Pelton Wheel	12	L2	CO1

**MODULE 2**

3	a Define composite material. State the advantages and applications of Composite materials.	8	L2	CO2
	b What are shape memory alloys. Discuss the applications of these alloys.	7	L2	CO2
	c Discuss the applications of Ferrous and Non Ferrous Metals	5	L2	CO2

**OR**

4	a With a neat sketch explain following a. Oxy-acetylene Welding      b. Tig Welding	10	L2	CO2
	b Write a short note on a. Automobile Radiators b. Condensers and Evaporators of Refrigeration System	10	L2	CO2

### MODULE 3

5	a	With a neat sketch explain the working of 4-S Diesel Engine	10	L2	CO3
	b	Write the differences between 4-S and 2-S Engines	6	L2	CO3
	c	List the various components of Electric Vehicle	4	L2	CO3

OR

6	a	Explain with a neat sketch working of Vapour Compression Refrigeration	10	L2	CO3
	b	Explain the following a. Ton of Refrigeration b. COP	5	L2	CO3
	c	What are the properties of Good Refrigerant	5	L2	CO3

### MODULE 4

7	a	Write a short note on Classification of Gear	10	L2	CO4
	b	Two wheels are connected by a cross belt. The velocity ratio of the drive is 3. The driving wheel runs at 1000rpm and has diameter of 120cm. Find the speed and diameter of driven pulley.	10	L3	CO4

OR

8	a	Define Robot. Write down Industrial applications of robot.	8	L2	CO4
	b	Name the common configurations used in Robots and with sketch explain any 2 Robot configurations	12	L2	CO4

### MODULE 5

9	a	With neat sketch Explain the different operations carried out in a lathe (Any 4)	10	L2	CO5
	b	Explain the following with sketch a. Upmilling      b. Down Milling      c. Face Milling	10	L2	CO5

OR

10	a	List and explain Various components of CNC. What are the advantages and disadvantages of CNC.	12	L2	CO5
	b	Differentiate Open Loop and Closed Loop Control system.	8	L2	CO5