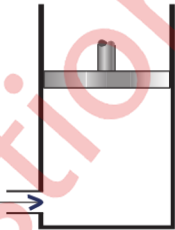


20/05/2025 FE MECHANICAL SEM-II (NEP-2020) EME QP CODE: 10085949

**DURATION: 2 HOURS:****MAX MARKS: 60****Instructions:**

1. Question No 1 is Compulsory.
2. Attempt any 3 out of remaining 5 Questions.
3. Each Question carry 15 Marks

Q.NO	Attempt any five	Marks	BL	CO
1	a) <b>Define</b> the term prime mover and <b>State</b> its two example. b) <b>Differentiate</b> between S.I Engine and C I Engine c) <b>Show</b> with a diagram the arrangement of driver and driven pulleys, tension side, slack side in a simple belt drive. d) <b>Discuss</b> the properties of air that must be controlled during the air conditioning process e) <b>Define</b> a shaft and an axle, and <b>State</b> the functional difference between them. f) <b>Discuss</b> working of different components of robotics.	3 3 3 3 3 3	R R R U R U	1 2 3 4 5 6
2	a) <b>Explain</b> various application of mechanical engineering. b) <b>Show</b> control volume and the types of boundaries in the given piston-cylinder diagram.	4 4	U U	1 2
				
	c) <b>Explain</b> Stroke volume , clearance Volume and Total Volume with respect to Reciprocating I C engine with a neat sketch	7	U	2
3	a) <b>Identify</b> types of power cycle consists of following <ol style="list-style-type: none"> <li>1. Two constant volume process.</li> <li>2. One constant volume and one constant pressure.</li> <li>3. Two constant pressure process</li> <li>4. Two adiabatic and two isothermal process</li> </ol>	4	U	2
	a) <b>State</b> the types of gear used in gear drive with a neat sketch.	4	R	3
	b) <b>Explain</b> salient features of belt drive power transmission system	7	U	3

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|---|---|---|---|---|
| 4 | a) <b>Draw</b> a Automobile layout showing all the parts.   | 4 | R | 5 |
|   | b) <b>Write</b> a note on Rear wheel drive. Give example  | 4 | U | 5 |
|   | a) <b>Discuss</b> on any one Indian Hybrid Electric Vehicle/Electric Vehicle.   | 7 | U | 5 |
| 5 | a) <b>Differentiate</b> between Augmented Reality and Virtual Reality.  | 4 | R | 6 |
|   | b) <b>Write</b> a note on Automation  | 4 | R | 6 |
|   | c) <b>Explain</b> working of refrigeration process with a neat-labelled diagram.  | 7 | U | 4 |
| 6 | a) <b>Define</b> air conditioning process and <b>State</b> types of air conditioning process used in summer and winter season respectively. | 4 | U | 4 |
|   | b) <b>State</b> the law that forms the basis of temperature measurement   | 4 | U | 2 |
|   | c) <b>Discuss</b> slip phenomenon in the belt drive.  | 7 | U | 3 |