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17EME 14/24

# nd Semester B.E. Degree Examination, June/July 2019 Elements of Mechanical Engineering

Tin	ne: 3 hrs. Ma	ax. Marks: 100
U	Note: Answer any FIVE full questions, choosing ONE full question from each module.	
Ci	Module-I	
	<ul><li>a. Distinguish between non—renewable and renewable sources of energy.</li><li>b. With neat sketch describe working hydroelectric power plant.</li><li>c. What are bio fuels? Compare them with petroleum based fuels.</li></ul>	(06 Marks) (08 marks) (06 Marks)
	OR	
2	<ul><li>a. What is a boiler? Classify them.</li><li>b. Briefly describe stream formation with the help of T—H diagram.</li><li>c. Explain working of Babcock and Wilox boiler with a neat sketch.</li></ul>	(06 marks) (04 marks) (10 marks)
	Madula	
3	a. Distinguish between impulse and reaction steam turbines. b. Explain working of Kaplan water turbine.	(06 Marks) (08 Marks) (06 Marks)
	e. compare peutor engine with dieser engine.	(00 19141 KS)
4	<ul> <li>OR</li> <li>a. A four stroke single cylinder internal combustion engine has a volume of 6 1 300 rpm. At full load, tight side and slack side tensions of belt dynomet 300N respectively. The diameter of pulley dynometer is 1 m. The mass of fu a calorific value of 4200010/kg. If the indicated mean effective pressure is the brake power, indicated power, mechanical efficiency, indicated therma brake specific fuel consumption.</li> <li>b. With neat sketches explain working of four stroke petrol engine.</li> </ul>	itres and runs at er are 700N and el is 4 kg/hr with 6 bar, determine l efficiency and (10 Marks) (10 Marks)
	Modulo 3	
5	a. What is machine tool? Explain thread cutting and taper turning opera sketches.	ntions with neat (08 Marks)
i	<ul><li>b. Differentiate between reaming and boring.</li><li>c. Sketch and explain slot milling and end milling.</li></ul>	(06 marks) (06 Marks)
	OR NG Lite CNG Lit	
6	<ul> <li>a. Compare NC machine tool with CNC machine.</li> <li>b. What is automation? Enlist advantages and limitation of robot physical conneat sketches.</li> </ul>	(04 Marks) nfiguration with (16 Marks)

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### Module-4

7 a	. Sta	ate the composition, properties of any four ferrous metals.	(08 marks)
	b.	How are composite materials classified? Enlist their application in biomedical and	d military.
			(08 Marks)
	c.	Sketch and explain electric arc welding.	(04 Marks)

# OR

8	a. S	State the composition and applications of any four non ferrous metals.	(08 Marks)
	b.	Compare welding with brazing.	(06 marks)
	c.	Sketch and explain gas welding.	(06 Marks)

# Module-5

9	a. What is refrigeration? What are desirable properties of a good refrigerant?	(06 marks)
	b. Compare refrigeration system with air conditioning.	(04 Marks'

c. Explain the principle and working of vapour absorption refrigeration with neat sketch.

(10 Marks)

### OR

10	a. N	Name commonly used refrigerants for different applications.	(05 marks)
	b.	What is principle of refrigeration? Name essential parts of refrigerator and brie	fly explain

What is principle of refrigeration? Name essential parts of refrigerator and briefly explain (05 marks)

c. Explain the principle and working of room air conditioner with neat sketch. (10 Marks)

