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## P.E.S. College of Engineering, Mandya - 571 401 (An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Automobile Engineering Semester End Examination; Aug. / Sep. - 2020

Alternative Energy Sources for Automobiles Max. Marks: 100 Time: 3 hrs

Note: i) Answer TWO full questions, selecting ONE full question from UNIT - I and UNIT - II. ii) Answer any THREE full questions, choosing from UNIT - III, UNIT - IV and UNIT - V.

	ii) Answer any THREE full questions, choosing from UNIT - 111, UNIT - 17 and UNIT - 11.	
1 a.	Mention the types of energy sources and the need for alternative energy sources.	10
	Distinguish the advantages and disadvantages of renewable energy.	10
	OR	
2 a.	Explain with neat diagram, the working of solar water heaters and solar driers.	10
	State the site selection considerations for wind turbine. Mention advantages of wind	10
	power plants.	
	UNIT - II	
3 a.	Explain in detail about hydrogen as a fuel in automotives.	10
b.	Mention the properties of LNG and LPG.	10
	OR	
4 a.	Elaborate electrolysis. Describe the production method of hydrogen.	10
b.	What is compressed natural gas? Mention its advantages and disadvantages.	10
	UNIT - III	
5 a.	With neat sketch, explain KVIC biogas plant.	10
	Explain the advantages and hazards of biogas plant.	10
6 a.	Explain the production of ethanol and methanol.	10
b.	Explain the properties of methanol and butanol.	10
	UNIT - IV	
7 a.	Elaborate the production of diethyl ether and mention its salient properties.	10
	What do you understand by pyrolysis? Mention the differences between WPO and TPO.	10
8 a.	What is eco friendly plastic fuel? Mention the advantages and disadvantages.	10
b.	Mention the properties of syngas and producer gas.	10
	UNIT - V	
9 a.	Explain the advantages and disadvantages of dual fuel technology.	10
<b>b</b> .	What are electric vehicles? Mention its advantages and disadvantages.	10
10 a.	Explain any three components of EV.	10
b.	Explain the advantages and disadvantages of coal water slurry.	SHINA