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B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019

Sixth Semester

AE16002 – ALTERNATIVE FUELS AND ENERGY SYSTEMS*(Automobile Engineering)***(Regulation 2016)****Time: Three Hours****Maximum : 100 Marks**Answer **ALL** questions**PART A - (10 X 2 = 20 Marks)**

	CO	RBT
1. What are the advantage of using alcohols in IC engines?	1	U
2. Draw the distillation curve for Gasoline.	1	U
3. What is Transesterification?	2	R
4. List various vegetable oils used for engines.	2	U
5. What are the advantages of hydrogen fuel?	3	U
6. List the problems encountered during the handling of hydrogen.	3	U
7. Compare CNG and LPG.	4	U
8. What are the major constraints in using biogas as fuel in engines?	4	U
9. What do you mean by power density batteries?	5	U
10. List out the limitations of electric vehicles.	5	U

PART B - (5 X16 = 80 Marks)

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| 11. (a) (i) Write short notes on “Need and availability of Alternate fuels”. | (8) | 1 | U |
| (ii) Describe some of the important properties of ethanol. | (8) | 1 | R |
| (OR) | | | |
| (b) Discuss the performance and emission characteristics of methanol-gasoline blend in SI engines. | (16) | 1 | U |
| 12. (a) Explain with neat sketches the different methods of using vegetable oils in engines. | (16) | 2 | U |

(OR)

- (b) Explain in detail the difficulties and remedies with vegetable oil when used as engine fuel. (16) 2 U
13. (a) (i) Enumerate the desirable properties of hydrogen as engine fuel. (8) 3 R
- (ii) Explain the production process of hydrogen. (8) 3 R

(OR)

- (b) Explain with neat sketches the different methods of using hydrogen in engines. (16) 3 U
14. (a) Explain in detail the modifications required to use CNG in SI and CI engines. (16) 4 U

(OR)

- (b) Explain in detail the performance, emission and combustion characteristics of Biogas in SI and CI engines. (16) 4 U
15. (a) Draw the layout and explain the working of an electric vehicle with its advantages and disadvantages. (16) 5 U

(OR)

- (b) What are the different types of batteries used in automobiles and discuss its suitability? (16) 5 U