CBCS SCHEME

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15AU54

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021
Automotive Fuels and Combustion

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Distinguish between the exhaustible and inexhaustible sources of energy with examples. **(08 Marks)**

b. What is fuel cell? Explain the working of fuel cell with sketch. **(08 Marks)**

OR

2 a. Sketch and explain the petroleum refining by fractional distillation. **(08 Marks)**

b. Explain the different hydrocarbon families indicating properties and examples. **(08 Marks)**

Module-2

3 a. What are the basic requirements of fuels for internal combustion engine? **(08 Marks)**

b. With neat sketch, explain gas chromatograph. **(08 Marks)**

OR

4 a. Explain the working of Orsat apparatus with a neat sketch. **(08 Marks)**

b. Write a short notes on:
i) LPG an a fuel for SI engine.
ii) Biodiesel as a fuel for CI engine. **(08 Marks)**

Module-3

5 a. Explain the various factors that influence the flame speed or flame propagation. **(08 Marks)**

b. What is meant by Abnormal Combustion? Explain the phenomena of detonation in SI engine. **(08 Marks)**

OR

6 a. Discuss the various stages of combustion in CI engine with a neat P.θ. diagram. **(08 Marks)**

b. Explain with figures various types of combustion chambers used in CI engine. **(08 Marks)**

Module-4

7 a. Describe the method of finding friction power using Morse test. **(08 Marks)**

b. With a neat sketch, explain the working of an eddy current dynamometer. **(08 Marks)**

OR

8 a. List and explain the variable affecting performances characteristics of IC Engine. **(08 Marks)**

b. The following observations were made during one hour test on single cylinder 4 stroke oil engine. Bore = 300mm, Stroke = 450mm, Mass of fuel used = 8.8kg, Caloric value = 41800kJ/kg, Average speed = 200rpm, Mean effective pressure = 5.8 bar, Brake load = 1860N, Mass of cooling water circulated = 650kg, Temperature rise = 22°C, Diameter of brake drum = 1.22m. Calculate: i) Mechanical efficiency ii) Brake thermal efficiency iii) Draw a heat balance sheet. **(08 Marks)**

Module-5

9	a.	Explain the process of combustion in dual fuel engine.	(08 Marks)
	b.	Explain the factors affecting the combustion in a dual fuel engine.	(08 Marks)

OR

10	a.	What is multi fuel engine? Explain the characteristics of multi fuel engine.	(08 Marks)
	b.	Discuss the requirements of the multi fuels engine modification.	(08 Marks)

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