



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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End - Term Examinations – MAY 2025

Date: 27-05-2025

Time: 09:30 am – 12:30 pm

School: SOE	Program: B. Tech-MEC	
Course Code: MEC3087	Course Name: IC Engine and Fuels	
Semester: VI	Max Marks: 100	Weightage:50%

CO - Levels	C01	C02	C03	C04	C05
Marks	14	14	24	24	24

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Define internal combustion engine. Give two examples.	2 Marks	L1	C01
2.	List any two differences between spark ignition and compression ignition engines.	2 Marks	L1	C01
3.	Define octane number.	2 Marks	L1	C02
4.	Mention any two advantages of using alternative fuels.	2 Marks	L1	C02
5.	What is carburetion?	2 Marks	L1	C03
6.	State the function of a fuel injector.	2 Marks	L1	C03
7.	Define ignition delay in a compression ignition engine.	2 Marks	L1	C04
8.	List two factors that affect knocking in spark ignition engines.	2 Marks	L1	C04
9.	Identify any two harmful engine emissions.	2 Marks	L1	C05
10.	State the function of a catalytic converter.	2 Marks	L1	C05

Part B**Answer the Questions.****Total Marks 80M**

11.	a.	Differentiate various types of IC engines based on classification with neat sketches.	10 Marks	L2	C01
	b.	Describe biodiesel as an alternative fuel with its advantages and limitations.	10 Marks	L2	C02
Or					
12.	a.	Explain the differences between conventional and alternative fuels.	10 Marks	L2	C02
	b.	Calculate the indicated power, brake power, and friction power of a 4-stroke engine with bore = 250mm, stroke = 400mm, Torque = 21N-m and speed = 500 rpm.	10 Marks	L3	C01

13.	a.	Demonstrate the working of a simple carburetor with a neat diagram.	10 Marks	L2	C03
	b.	Describe the mechanical fuel injection system used in CI engines.	10 Marks	L2	C03
Or					
14.	a.	Explain the different types of air-fuel mixtures and their applications.	10 Marks	L2	C03
	b.	Explain the different types of air-fuel mixtures and their applications.	10 Marks	L2	C03

15.	Explain stages of combustion in SI and CI engines with P-θ diagrams.	20 Marks	L2	C04
Or				
16.	Discuss the phenomenon of knocking in spark and compression ignition engines, along with methods to reduce it.	20 Marks	L2	C04

17.	Explain various engine emission control systems with the help of suitable diagrams.	20 Marks	L2	C05
Or				
18.	Describe the working of a three-way catalytic converter and its role in emission control.	20 Marks	L2	C05