

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:2161902****Date:03/06/2022****Subject Name:Internal Combustion Engines****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS	
<b>Q.1</b>	(a) Define brake power, indicated power and brake specific fuel consumption.	<b>03</b>	
	(b) Explain effect of dissociation with suitable graphs	<b>04</b>	
	(c) Explain stages of combustion in SI engine.	<b>07</b>	
<b>Q.2</b>	(a) Why cooling is necessary in IC engines?	<b>03</b>	
	(b) Compare battery ignition system with magneto ignition system	<b>04</b>	
	(c) Discuss various mixture requirements for different loads and speeds	<b>07</b>	
<b>OR</b>			
<b>Q.3</b>	(a) State and explain effects of knocking in SI engine	<b>07</b>	
	(a) What are the objectives of supercharging?	<b>03</b>	
	(b) Make comparison of wet and dry sump lubrication system.	<b>04</b>	
<b>Q.3</b>	(c) Derive the equation for variation of air standard efficiency of diesel cycle on account of variable specific heat.	<b>07</b>	
	<b>OR</b>		
	<b>Q.3</b>	(a) Explain knocking in short.	<b>03</b>
(b) Derive equation for isentropic expansion with variable specific heat.		<b>04</b>	
(c) Explain construction and working of bomb calorimeter with figure.		<b>07</b>	
<b>Q.4</b>	(a) What are the limitations of supercharging for SI engines?	<b>03</b>	
	(b) Explain factors affecting on delay period in C.I. engine.	<b>04</b>	
	(c) Explain Morse test for measurement of IP of multi-cylinder engines.	<b>07</b>	
<b>OR</b>			
<b>Q.4</b>	(a) State advantages of water cooling system.	<b>03</b>	
	(b) Explain construction of spark plug.	<b>04</b>	
	(c) Explain air-cell combustion chamber with figure.	<b>07</b>	
<b>Q.5</b>	(a) Write short note on adiabatic flame temperature.	<b>03</b>	
	(b) Write a short note on air pollution due to IC engines	<b>04</b>	
	(c) Write short note on catalytic converter.	<b>07</b>	
<b>OR</b>			
<b>Q.5</b>	(a) Write merits and demerits of diesel engine power plant	<b>03</b>	
	(b) Draw a neat sketch of a general M.P.F.I system and explain its working.	<b>04</b>	
	(c) Explain construction and working of simple carburetor with neat sketch	<b>07</b>	

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