

**DEPARTMENT OF MECHATRONICS****VI SEMESTER B.TECH Mechatronics****End Sem Exam – Aug 2021****SUBJECT: Automobile Engineering****Subject Code: MTE 3251****Date: 07/08/2021****Time: 2 Hrs****MAX. MARKS: 40**

- ❖ Answer **any FOUR full** questions.
- ❖ Missing data could be suitably assumed and justified.
- ❖ Draw relevant diagrams and properly label it.
- ❖ Explain each term used in the expressions.

Q. No.		M	CO	PO	LO	BL
1A	Explain six major components of an IC engine	6	1	7	2	Understanding
1B	What are the important parameters that specifies an IC engine cylinder? Discuss	4	1	1	2	Applying
2	Derive expressions for thermal efficiency of Otto cycle and Diesel cycle. Draw relevant diagrams and label it. Explain each term used in the expressions.	10	1	1	2	Applying
3	Define Indicated mean effective pressure (IMEP). Derive an expression for the IMEP of Otto cycle. Draw relevant diagrams and label it. Explain each term used in the expressions.	10	2	2	2	Understanding Applying
4A	With relevant P-theta diagram, explain the stages of petrol combustion process.	4	2	1	3	Understanding
4B	Derive an expression for mass flow rate of fuel in simple carburetor	6	2	2	3	Applying
5A	Explain any five emission control system used in automobile	5	3	1	2	Understanding
5B	With a sketch explain the working of air brake system used in heavy commercial vehicle	5	4	2	2	Understanding
6.	What is Ideal Brake Force Distribution (IBFD). Derive the expression for the same. Draw relevant diagrams and label it. Explain each term used in the expressions.	10	5	2	3	Applying