

USN

BAU301

Third Semester B.E./B.Tech Degree Examination, Dec.2024/Jan.2025 Automotive Engines

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module. 2. M : Marks , L: Bloom's level , C: Course outcomes.

Q.1 a. Explain with a neat sketch construction and working of two strokes SI not service of the engine and explain. 10 L2 CO3 b. Anlayse the theoretical and actual valve timing diagram for a four stroke SI engine and explain. 10 L4 CO2 quations. OR 0 10 L4 CO3 b. Derive an expression for thermal efficiency and mean effective pressure for otto cycle. 10 L4 CO3 Module – 2 OR OR Use the function of carburetor? Explain with a neat sketch the operation of a simple fixed venture carburetor. 10 L2 CO2 Derive an expression for thermal efficiency and mean effective pressure for otto cycle. 10 L2 CO2 Module – 2 OR a. With a neat sketch explain the common rail free injection system. 10 L2 CO3 Not L2 CO3 A. Explain the importance of the injection pump governor. 10 L2 CO3 Module – 3 O.5 a. Analyze the stages of combustion in SI engine il			Module – 1	M	L	С
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b. Anlayse the theoretical and actual valve timing diagram for a four stroke SI 10 L4 CO2 engine and explain. OR Q.2 a. Explain the working of diesel cycle, illustrate with suitable diagram and equations. 10 L2 CO2 b. Derive an expression for thermal efficiency and mean effective pressure for otto cycle. 10 L4 CO3 b. Derive an expression for thermal efficiency and mean effective pressure for otto cycle. 10 L2 CO2 Q.3 a. With a neat sketch explain the common rail free injection system. 10 L2 CO3 b. What is the function of carburetor? Explain with a neat sketch the operation of a simple fixed venture carburetor. 10 L2 CO2 Q.4 a. Explain the importance of the injection pump governor. 10 L2 CO2 explain any one type of injection pump governor. 10 L2 CO3 b. With a neat diagram, explain electronic fuel injection system. 10 L2 CO3 diagram. 10 L2 CO3 GO3 a. Analyze the stages of combustion in SI engine illustrate with suitable factors in control disel knock. 10 L2	C					
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	Q.8	a.	Discuss the centrifugal type supercharger state the effects if super charger	10	L2	CO4
on engine.			on engine.			
b. Describe the following water cooling system with a neat sketches : 10 L3 CO4	, ,	b.	ýý	10	L3	CO4
i) Thermo – Syphon cooling ii) Thermostat cooling.			i) Thermo – Syphon cooling ii) Thermostat cooling.			
Module – 5		-				-
	Q.9	2.		10	L3	CO4
diagram.	×					
b.Illustrate BIS standards for fuels and lubricants.10L2CO5		h.		10	L2	CO5
OR					1	1
Q.10 a. Apply four knowledge to analyse the cetare and octare number of fuels. 10 L3 CO4	0.10	9		10	13	CO4