

--	--	--	--	--	--	--	--	--	--

**Seventh Semester B.E. Degree Examination, July/August 2022**  
**Automotive Engineering**

Time: 3 hrs.

Max. Marks: 100

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

**Module-1**

- 1 a. Describe the construction and function of following components of an IC engine:
- (i) Piston
  - (ii) Crank shaft.
  - (iii) Flywheel.
  - (iv) Valves
- (08 Marks)
- b. Why engine cooling is necessary? Enumerate the pump feed water cooling system with sketch. (06 Marks)
- c. Sketch and explain splash lubrication system used in IC engines. (06 Marks)

**OR**

- 2 a. Draw a valve timing diagram for a four stroke SI engine and explain. (08 Marks)
- b. Discuss the effect of combustion chamber on the engine performance. (06 Marks)
- c. Write a note on HCCI engines. (06 Marks)

**Module-2**

- 3 a. Explain Rear wheel drive power transmission system with line diagram. (08 Marks)
- b. Sketch and explain the working of single plate dry clutch assembly. (06 Marks)
- c. Describe with neat sketch working of a constant mesh gear box. (06 Marks)

**OR**

- 4 a. Why braking system is required in automobiles? Explain hydraulic braking system with diagram. (08 Marks)
- b. Sketch and explain master cylinder unit. (06 Marks)
- c. State the merits of Antilock braking system. (06 Marks)

**Module-3**

- 5 a. Name the types of steering gear boxes and explain with sketch Rack and Pinion type steering gear boxes. (08 Marks)
- b. Why suspension system required in automobiles. Classify the types of suspension system. (06 Marks)
- c. Describe the construction and working of battery ignition system with diagram. (06 Marks)

**OR**

- 6 a. Explain with sketch the power steering system. (10 Marks)
- b. With line diagram, explain Air suspension system. (10 Marks)

**Module-4**

- 7 a. Why turbocharger are required in automotive engines. Classify the turbocharger and explain any one with sketch. (10 Marks)
- b. Enumerate the detailed working of super chargers with sketch. (10 Marks)

OR

- 8 a. Name the different Alternative fuels and explain any four. (10 Marks)  
b. Describe the Fuel mixture requirement of SI engines. (10 Marks)

**Module-5**

- 9 a. Name different types of pollutants from automobiles and explain about photo chemical Smog and its causes. (10 Marks)  
b. Describe the methods adopted to control automotive pollution. (10 Marks)

OR

- 10 a. Explain the principle of working of a catalytic converter. (10 Marks)  
b. Why EURO norms are necessary to control automotive pollution. Explain EURO-IV norms. (10 Marks)

\*\*\*\*\*