



USN

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

Eighth Semester B.E. Degree Examination, July/August 2022 Automobile Engineering

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. List the components of automotive engine. Mention their functions and materials used for manufacturing. (10 Marks)
- b. Why cooling is necessary for IC engines? Explain Thermo Siphon cooling system with neat sketch. (10 Marks)

OR

- 2 a. With a neat sketch, explain working of hybrid engines and mention the advantages and disadvantages of hybrid vehicles. (08 Marks)
- b. With neat sketch, explain wet and dry liners. (06 Marks)
- c. Explain the splash lubrication, with a sketch. (06 Marks)

Module-2

- 3 a. With a neat sketch, explain the working of four speed synchromesh gear box. (10 Marks)
- b. With the help of sketch explain the multiplate clutch. (06 Marks)
- c. List the difference between manual transmission and automatic transmission. (04 Marks)

OR

- 4 a. What are the requirements of braking system? Explain with a neat sketch, working of master cylinder. (10 Marks)
- b. Explain with a neat sketch, working of fluid flywheel. (05 Marks)
- c. List the comparison between disc and drum types brakes. (05 Marks)

Module-3

- 5 a. Define the following and explain their efforts during steering:
 i) Camber ii) King pin inclination iii) Castor iv) Toe in and Toe out. (10 Marks)
- b. Explain the working of power steering. (06 Marks)
- c. What are the objectives of suspension system? (04 Marks)

OR

- 6 a. What do you mean by Ignition advance? Explain the following ignition advance methods:
 i) Centrifugal advance ii) Vacuum advance. (08 Marks)
- b. Compare battery ignition and magneto ignition system. (06 Marks)
- c. Draw and explain the layout of air suspension system. (06 Marks)

Module-4

- 7 a. What are the objectives of supercharging and explain any two arrangements of supercharging. (08 Marks)
- b. Define Turbocharging lag. Mention the limitations of Turbo charging. (06 Marks)
- c. Write a note on alternative fuels for automotive engines. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 a. What are the fuel mixture requirements for SI engine? (06 Marks)
b. Write a note on Octane and Cetane numbers in fuels. (06 Marks)
c. Explain the Common Rail Direct Injection system (CRDI) with a neat sketch. (08 Marks)

Module-5

- 9 a. What are catalytic converters? How they are helpful in reducing HC, CO and NO_x emissions. (08 Marks)
b. Discuss how evaporative emission can be controlled. (06 Marks)
c. Mention the various pollutants. List the measures to be taken to reduce pollution. (06 Marks)

OR

- 10 a. Explain with sketch, the working of an EGR system. (08 Marks)
b. Explain sources of Automotive exhaust emissions. (04 Marks)
c. Write a note on emission standards. (08 Marks)

