

17AU44

Fourth Semester B.E. Degree Examination, Jan./Feb. 2021 **Automotive Engines**

Max. Marks: 100 Time: 3 hrs.

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

Module-1

1	a. b. c.	Define Engine. Mention the classification of IC engines. List the various engine components. Explain atleast three with a new Describe with a neat sketch the valve timing diagram for four strok	(04 Marks) at sketch. (08 Marks) e engines. (08 Marks)
2		Explain the following: i) Otto cycle ii) Diesel cycle.	(10 Marks)

b. Write the comparison between: i) Two stroke and Four stroke engine

(10 Marks) ii) Diesel and Petrol Engine.

Module-2

Mention the Air-Fuel Ratio Requirements for spark ignition systems. (06 Marks) Explain the working of simple carburetor with a neat schematic diagram. (08 Marks) (06 Marks Write short notes on Gasoline Injection System.

OR

Describe the Common Rail Diesel Injection (CRDI) system with a neat sketch. Also list the (10 Marks) merits and Dc-merits.

Define Governer. Explain the construction and working of Hydraulic governer with neat (10 Marks) sketch.

Module-3

Analyse the phases of combustion in SI Engine with a neat graph. (08 Marks)

Explain the following terms: (06 Marks) i) Swirl Chamber ii) Squish. (06 Marks)

Write short notes on detonation or knocking.

Discuss the factors affecting flame propagation in SI Engine. (08 Marks) 6 a. (04 Marks) How Turbulence is generated in CI engines? Explain. b. (08 Marks) Discuss the factors affecting delay period in CI Engine. C.

Module-4

Define supercharging. Discuss different methods of supercharging with a neat sketch. 7

(10 Marks)

Describe the construction and working of turbocharger with intercooler by giving neat (10 Marks) sketch.

OR

- 8 a. List out the necessity of cooling. Explain thermosyphoon cooling system with a neat sketch.
 (10 Marks)
 - b. i) Mention the properties of coolants.
 - ii) Write the comparison between air cooling and water cooling.

(10 Marks)

Module-5

9 a. Discuss the necessity of lubricating systems.

(06 Marks)

b. With a neat sketch, explain the pressure type of wet sump lubrication system for four stroke engine. Also list the properties of lubricating oil. (14 Marks)

OR

- 10 a. Describe the splash system of wet sump lubrication system with a neat sketch. Also mention the grades of lubrication oil. (10 Marks)
 - b. Define and differentiate between:
 - i) Boundary Lubrication
 - ii) Hydrodynamic Lubrication
 - iii) Elasto hydrodynamics Lubrication.

(10 Marks)