



USN

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

10ME844

Eighth Semester B.E. Degree Examination, Jan./Feb. 2021
Automotive Engineering

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. What are the functions of compression and oil control rings in piston? (04 Marks)
b. Explain with neat diagram any two types of combustion chambers used in C.I. Engines. (08 Marks)
c. Explain with diagram the working of
i) Wax type thermostat valve and ii) Bellow type thermostat valve used cooling system. (08 Marks)
- 2 a. Explain the fuel mixture requirements for S.I Engines in various transient conditions. (06 Marks)
b. List various alternate fuels used in I.C Engines and brief about any one. (06 Marks)
c. Explain with neat diagram working of electrical fuel feed pump used in petrol engines. (08 Marks)
- 3 a. What are the advantages and disadvantages of super charging? (06 Marks)
b. Write any four differences between mechanical supercharging and turbo charging. (04 Marks)
c. Explain with schematic diagram the working of any two types of super charging methods. (10 Marks)
- 4 a. Differentiate between battery and magneto coil ignition system. (04 Marks)
b. With neat sketch, explain the working of battery coil ignition system. (08 Marks)
c. With neat sketch, explain the working of centrifugal advance. (08 Marks)

PART – B

- 5 a. What are the requirements of a clutch? (03 Marks)
b. With neat sketch explain the working principle of fluid coupling. (08 Marks)
c. Determine the dimensions of a clutch plate transmitting a 40kW at 4000rpm. The inner diameter of the clutch plate is 0.6 times its outer diameter. The pressure intensity on the plate should not exceed 75KPa Co-efficient of friction of clutch plate material is $\mu = 0.3$. The design torque is 30% more than the engine torque to accommodate clutch face wear for avoiding the slip. (09 Marks)
- 6 a. What are the forces and torque coming rear axle? (04 Marks)
b. Define the following with sketch and explain their effect on steering
i) Camber ii) King pin angle iii) Included angle and scrub radius iv) Castor. (16 Marks)
- 7 a. Explain the air suspension system with neat layout diagram. (08 Marks)
b. Draw the layout of hydraulic braking system and explain various components. (12 Marks)
- 8 a. Explain with diagram positive crank case ventilation system. (07 Marks)
b. Explain with diagram the exhaust gas recirculation system. (07 Marks)
c. Explain in brief about catalytic convertor. (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.