

CBCS SCHEME



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15ME655

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019

Automobile Engineering

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. State the materials used for cylinder block, Piston, connecting rod and crank shaft. (04 Marks)
- b. What are the methods of swirl generation in C.I engines? Explain briefly. (06 Marks)
- c. Explain with neat sketch the forced circulation type water cooling system. (06 Marks)

OR

- 2 a. Explain with neat sketch the dry linear and wet liner. (06 Marks)
- b. Explain the working of pressurized (force feed) lubrication system with sketch. (06 Marks)
- c. Write short notes on:
 - i) HCCI engine
 - ii) Electric car. (04 Marks)

Module-2

- 3 a. What is the function of clutch? Explain with neat sketch the working of single plate clutch. (06 Marks)
- b. What is final drive? Explain with neat sketch the working of differential. (06 Marks)
- c. Name the forces and torques experienced by rear axle and state (Name) the rear axle drive arrangements. (04 Marks)

OR

- 4 a. State the function of brakes, and give the detailed classification of brakes. (04 Marks)
- b. With a neat sketch, explain the working of hydraulic brake system. (06 Marks)
- c. Write short notes on :
 - i) Disc brakes
 - ii) Air brake
 - iii) Antilock brake system. (06 Marks)

Module-3

- 5 a. Define the terms: Camber, Kingpin inclination, Castor, Toe – in. (04 Marks)
- b. Explain with neat sketch the Recirculating ball type steering gear box. (06 Marks)
- c. Draw the layout of an air suspension system and state the advantages of air suspension. (06 Marks)

OR

- 6 a. State the requirements of an ignition system. (04 Marks)
- b. With a neat circuit diagram, explain the working of Battery ignition system. (06 Marks)
- c. Explain with neat sketch the rotating magnet type magneto ignition system. (06 Marks)

Module-4

- 7 a. State the advantages of supercharging and explain with neat sketch the centrifugal supercharger working. (08 Marks)
- b. What is turbocharger lag? Explain with neat sketch the operation of turbocharger. (08 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.



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OR

- 8 a. Explain briefly :
- i) Octane Number and Cetane Number
 - ii) Detonation
 - iii) Carburettor
 - iv) Multi point Fuel injection (MPFI) (08 Marks)
- b. Name the alternate fuels for automobiles, and explain the Air-fuel mixture requirements for S.I engines operation under steady state. (08 Marks)

Module-5

- 9 a. Name the different pollutants emitted from automobile engines, and explain exhaust Gas Recirculation. (08 Marks)
- b. Explain with neat sketch the positive crankcase ventilation. (08 Marks)

OR

- 10 a. With a neat sketch explain the operation of Air injection system for treating the exhaust gas. (08 Marks)
- b. Write a note on the following :
- i) Photo chemical smog
 - ii) Catalytic converter
 - iii) Bharat stage Norms
 - iv) Motor vehicle Act. (08 Marks)
