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10ME844

Eighth Semester B.E. Degree Examination, July/August 2021

Automotive Engineering

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. Sketch and explain any two methods of expansion control in pistons. (08 Marks)
b. Sketch and explain any four types of combustion chamber for spark ignition engine. (08 Marks)
c. Sketch and explain valve timing diagram for four stroke petrol engine. (04 Marks)
- 2 a. With a neat sketch, explain the air fuel ratio requirement at Idle, Start, acceleration and at medium speed. (10 Marks)
b. Sketch and explain types of fuel filters used in automobiles. (10 Marks)
- 3 a. With a neat sketch explain any two types of super chargers. (10 Marks)
b. Sketch and explain turbocharger with inter cooler. (10 Marks)
- 4 a. What are the advantages and disadvantages of Battery and Magneto ignition systems? (05 Marks)
b. Sketch and explain vacuum advance mechanism. (07 Marks)
c. Sketch and explain Battery ignition system. (08 Marks)
- 5 a. Draw two sketches of engage and disengage positions of a synchromesh device. (10 Marks)
b. Sketch and explain 3 speed gear box and show the power flow for 1st, 2nd and 3rd gear. (10 Marks)
- 6 a. Sketch and explain semi floating rear axle arrangement for an automobile. (06 Marks)
b. With a diagram, explain the following:
(i) Caster
(ii) King pin inclination
(iii) Camber (06 Marks)
c. With a neat sketch, explain torque tube drive. (08 Marks)
- 7 a. Sketch and explain simplified diagrams of independent suspension using coil and torsion bars. (10 Marks)
b. Sketch and explain air brake used in automobiles. (10 Marks)
- 8 a. Sketch and explain exhaust gas recirculation used in automobile. (08 Marks)
b. With a neat sketch, explain air aspirator. (06 Marks)
c. Draw a simplified line diagram of a catalytic converter used to reduce HC, CO and NO_x emissions. (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.