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Fifth Semester B.E. Degree Examination, June/July 2019

Auxiliary System of Automotive Engines

Time: 3 hrs.

Max. Marks:100

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

PART - A

- 1 a. Discuss the kind of air-fuel mixture required for transient operation. (06 Marks)
- b. With a neat sketch explain the working principle of a simple carburetor. (06 Marks)
- c. With a neat line diagram, brief the working of starting and idling system of a solex carburetor. (08 Marks)
- 2 a. Discuss: (06 Marks)
 - i) Gasoline direct injection system
 - ii) Port injection system
 - iii) Manifold injection system
- b. Brief the advantages of petrol injection system over carburetor fuel supply system. (04 Marks)
- c. With a neat sketch, explain the working of battery ignition system of 4-cylinder SI engine. (10 Marks)
- 3 a. Briefly the factors influencing fuel spray, atomization, penetration and dispersion. (08 Marks)
- b. With a neat sketch, explain the working principle of mechanical governor. (07 Marks)
- c. Sketch and describe the working of plunger type fuel feed pump. (05 Marks)
- 4 a. With a line diagram, explain the following fuel injection system: (12 Marks)
 - i) Individual pump and nozzle system
 - ii) Unit injector system
 - iii) Distributor system
- b. With a neat sketch describe the construction and working of jerk pump type injection system. (08 Marks)

PART - B

- 5 a. List the various parts of exhaust system and brief their functions. (06 Marks)
- b. Differentiate between intake and exhaust manifold. (04 Marks)
- c. Explain with neat sketch: (10 Marks)
 - i) Wave cancellation type muffler
 - ii) Absorber type muffler
- 6 a. What is the necessity of engine cooling? Sketch and describe the working of forced circulation cooling system. (10 Marks)
- b. With a suitable figure brief the variation of gas temperature during a cycle. (04 Marks)
- c. Write short notes on: (i) Air cooling (ii) Liquid cooling (06 Marks)
- 7 a. Briefly the functions of lubricating system and the required properties of lubricants. (05 Marks)
- b. What is meant by crank case ventilation? Describe with a neat sketch. (10 Marks)
- c. Write short notes on additives for lubricating oil. (05 Marks)
- 8 a. What is meant by supercharging? Brief its effect on engine performance. (06 Marks)
- b. With a P-V diagram, explain the thermodynamic cycle of a supercharged IC engine. (08 Marks)
- c. With a line diagram, describe the working of two-stage turbo charging. (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.