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Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

Auxiliary Systems of Automotive Engines

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. What is meant by carburation? List the factors which affects the process of carburetion and justify why can't employ simple carburetor in an automobile. (10 Marks)
- b. Justify why a rich mixture is required for idling and maximum power. (05 Marks)
- c. Compare the construction and operating principal of Solex and SU carburetors. (05 Marks)
- 2 a. Describe the working of shuttle metering unit in mechanical petrol injection system with suitable sketch. (08 Marks)
- b. List the drawbacks of modern carburetors and explain how it can be avoided by introducing the fuel by injection rather than by carburetion. (08 Marks)
- c. Justify why ignition system is necessary for petrol powered vehicle rather than Deuel powered vehicle. (04 Marks)
- 3 a. Name the various types of CI engine fuel supply system. Summarize why the air-injection system is not used nowadays. (06 Marks)
- b. Describe the construction, operation, merits and demerits of a Jerk type fuel injection pump with supporting sketch. (14 Marks)
- 4 a. Paraphrase the necessity of governor in CI engine. With the help of a neat sketch, describe about all speed type of governor. (12 Marks)
- b. List the different types of injection nozzles and discuss their merits and demerits. (08 Marks)

PART – B

- 5 a. Emphasize the functions of air cleaner, sketch and describe an oil bath with centrifugal pre-cleaner type heavy duty air cleaner. (10 Marks)
- b. Enumerate the different types of mufflers. Explain any two types with suitable sketches. (10 Marks)
- 6 a. Are excessive cooling and heating beyond a certain limit desirable? If not, why? (06 Marks)
- b. Out of thermosyphon and pump circulation systems of water cooling which is better and why? Explain the better one with suitable sketch. (10 Marks)
- c. Compare the merits and demerits of air and water cooling system. (04 Marks)
- 7 a. Describe the functions of lubrication system and list significant properties of lubricating oils. (06 Marks)
- b. Summarize the construction and working of dry sump lubrication system with neat supporting sketch. (10 Marks)
- c. What is the significance of S.A.E viscosity ratings? (04 Marks)
- 8 a. With the help of a neat thermodynamic cycle summarize the concept of supercharging and turbocharging. (08 Marks)
- b. Name the different superchargers used for supercharging of IC engines. Appraise their relative merits and demerits. (10 Marks)
- c. Brief the limitations of turbocharging. (02 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.