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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. – Automobile Engineering

Semester End Examination; Dec. - 2014

Auxiliary Systems of Automotive Engines

Time: 3 hrs

Max. Marks: 100

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

PART – A

- 1 a. What is meant by carburetion? Why a very rich mixture is required for idling? 5
- b. Explain with suitable sketches the following systems of carburetion: 15
 - i) Main metering system
 - ii) Acceleration pump system
 - iii) Choke
- 2 a. What is petrol injection? What are its advantages and disadvantages? 8
- b. Discuss the working of : 8
 - i) Continuous injection system
 - ii) Timed injection system.
- c. With sketch explain the working of air flow sensor used in K-Jetronic petrol injection system. 4
- 3a. Discuss the relation of spray characteristics to diesel engine performance. 4
- b. With the aid of sketch, explain the two types of injection system. 10
- c. With schematic diagram explain the working of CRDI injection system. 6
- 4 a. Describe the different types of injection nozzles and discuss their relative advantages and disadvantages. 10
- b. Describe the principle of a helix bypass pump with sketches for different types of plunger helix in use. 10

PART – B

- 5 a. Discuss the utility of air filters and indicate the working of different types of air filters. 6
- b. Explain with the aid of sketch, the different types of mufflers. 10
- c. Indicate briefly the basic requirements of induction manifold. 4
- 6 a. Discuss the effects of the following variables on the cylinder temperature: 6
 - i) Air – fuel ratio
 - ii) Compression ratio
 - iii) Engine power
- b. Explain with a neat sketch, the construction and working of thermostat. 8
- c. Indicate the merits and demerits of water cooling systems. 6
- 7 a. Describe with a neat sketch the different types of lubrication systems used in engines. 12
- b. Discuss the functions of lubricant in an engine. 4
- c. Write a note on crankcase ventilation. 4
- 8 a. Discuss the effects of supercharging on the performance of an engine. 8
- b. Discuss the limits of super charging in CI engines. 4
- c. Define two stage turbo charging and discuss its advantages and disadvantages. 8