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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 - 2016/ Jan - 2017

Auxiliary Systems and Automotive Engine

Time: 3 hrs

Max. Marks: 100

Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT - I

- 1 a. Sketch and explain the A.C. mechanical pump. 10
 b. Sketch and explain the working of carter carburetor. 10
 2 a. Discuss the advantages and disadvantages of carburetor and petrol injection system. 10
 b. Sketch and explain the working of air flow sensor and warm-up regulator used in K-jetronic injection system. 10

UNIT - II

- 3 a. Sketch and explain the distributor type of fuel injection system. 10
 b. Differentiate between the injection used in jerk type pump and CRDI system. 10
 4 a. Discuss the factors influencing the fuel spray atomization. 6
 b. Differentiate between direct injection, indirect injection and continuous and intermittent injection. 7
 c. Sketch and explain the fuel injector used in CRDI system. 7

UNIT - III

- 5 a. Sketch and explain the forced circulation cooling system, what are its merits and demerits? 10
 b. Sketch and explain the thermostat with disc valve radiator and bypass flow control. 10
 6 a. Why does the diesel engine need a governor? What are the different types of governors? 10
 b. Sketch and explain the working of pneumatic governor. 10

UNIT - IV

- 7 a. What are the various desired properties of a lubricant and explain how additives help to achieve this property? 10
 b. Explain and compare the wet sump and dry sump lubrication system. 10
 8 a. Discuss the requirements of an ignition system, spark energy and duration. 10
 b. Why spark advance is required? With sketch explain any one of the spark advance mechanism. 10

UNIT - V

- 9 a. What are the limitations of supercharging in IC engines? 6
 b. Differentiate between constant pressure and pulse turbo charging. 7
 c. Discuss the advantage and disadvantages of pulse turbo charging. 7
 10a. With schematic diagram, explain the working of K-jetronic fuel injection system. 10
 b. Sketch and explain dual stage turbo charging and its advantages. 10