



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

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|------|---|----|
| 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

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|------|--|----|
| 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

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| 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

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|------|---|----|
| 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

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|------|--|----|
| 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 |