



## 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. - 2015**

**Auxiliary Systems of Automotive Engines**

*Time: 3 hrs*

*Max. Marks: 100*

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

### UNIT - I

- |      |   |    |
|------|---|----|
| 1 a. | Define carburetion. Explain transient mixture requirements.   | 8  |
| b.   | With a neat sketch explain the working SU carburetor.   | 12 |
| 2 a. | Explain a typical petrol injection system. List out the advantages and disadvantages of petrol injection in SI engines. | 10 |
| b.   | Sketch and explain “The K – JETRONIC Petrol Injection” system.  | 10 |

### UNIT - II

- |      |  |    |
|------|--|----|
| 3 a. | Mention the principles of a good diesel injection system.  | 10 |
| b.   | Compare: Unit pump system and distributor system of diesel injection.                              | 10 |
| 4 a. | Sketch and explain the common rail diesel injection system and list the merits and demerits of it. | 12 |
| b.   | Write a short note on :  | 8  |
| i)   | Fuel spray atomization   |    |
| ii)  | Injection lag.   |    |

### UNIT - III

- |      |  |    |
|------|--|----|
| 5 a. | Compare the merits and demerits of air cooling and water cooling system.                     | 8  |
| b.   | Explain with a sketch the pressurized cooling system.  | 12 |
| 6 a. | What is governor? Explain the need for a governor and list out different types of governors. | 10 |
| b.   | Explain the construction and working of a pneumatic governor. Mention its merits.            | 10 |

### UNIT - IV

- |      |   |    |
|------|---|----|
| 7 a. | Explain the splash system of wet sump lubrication system, with a neat sketch. | 12 |
| b.   | Describe positive crank case ventilation system with a sketch.                | 8  |
| 8 a. | With a neat sketch, explain the battery coil ignition system.                 | 8  |
| b.   | Compare the battery coil ignition system and magneto ignition system.         | 6  |
| c.   | Write a short note on spark plugs.  | 6  |

### UNIT - V

- |       |  |    |
|-------|--|----|
| 9 a.  | Explain the concept of ‘supercharging’ with the help of a thermodynamic cycle. | 10 |
| b.    | What are the supercharging limits of SI and CI engines?                        | 10 |
| 10 a. | Explain pulse-turbo charging. List the merits and demerits.                    | 10 |
| b.    | Describe two stage turbo charging. Enlist merits and demerits.                 | 10 |