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

(An Autonomous Institution affiliated to VTU, Belgaum)

**Eighth Semester, B.E. - Automobile Engineering**

**Semester End Examination; June - 2016**

**Automatic Electrical and Electronic Systems**

*Time: 3 hrs*

*Max. Marks: 100*

*Note: Answer any FIVE full questions, selecting atleast TWO full questions from each part.*

### PART - A

1. a. Discuss the following as clear as possible giving neat sketches : 12
  - (i) The plate group of lead acid battery
  - (ii) The Separator
  - (iii) The battery container.
- b. Discuss the effect of temperature in Electrolyte gravity. 4
- c. Write the trouble shooting chart for batteries in case of rundown battery and Sulphated plates. 4
2. a. Draw the various generator field windings connections and discuss them as clearly as possible. 9
- b. What is third brush regulation? Give its limitations. 5
- c. Discuss briefly in wiring diagram of a single unit regulator for alternator. 6
3. a. What are the various torque terms as applied to cranking motors? Explain them as clearly as possible. 6
- b. Explain the working and constructional details of Bendix drive. 10
- c. Write a note on cranking motor selection. 4
4. a. Discuss with the help of a neat sketch the ignition system of the 4-cylinder SI engine. 10
- b. Explain briefly the various characteristics of the ideal spark plug. 10

### PART - B

5. a. What is head light dazzle? Discuss the various causes of dazzle. 6
- b. Describe with the help of a neat diagram the working of the thermostatic type of Temperature gauge. 8
- c. Write a note on : (i) Oil pressure gauges (ii) Water temperature gauge. 6
6. a. What are the functional requirements of a conventional heating and ventilation system? 6
- b. Write a note on seat heaters. 4
- c. Explain with neat sketch the Air conditioning theory of automobile and its system. 10
7. a. Explain with the help of a block diagram, the combined Ignition and fuel management system. 10
- b. Discuss briefly the role of Artificial Intelligence in Engine management system. 6
- c. Write a note on hybrid vehicles. 4
8. a. Explain briefly with the support of block diagram the electronic control of automatic transmission. 10
- b. What is ABS? Discuss the role of ABS in automobiles. 6
- c. Write a note on the necessity of Air-bags in automobiles. 4