

**FACULTY OF ENGINEERING****B.E. 2/4 (AE) I – Semester (Main) Examination, November 2013****Subject : Automotive Electrical and Electronics****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

1. What are the essential accessories of an automobile? 2
2. What do you understand from the term sulphation? 2
3. How do you define armature reaction? 3
4. What is the necessity of generator output control? 2
5. What is an alternator? 3
6. What are the security and warning systems employed in automobiles? 3
7. What is an inertia type drive? 2
8. Mention the applications of microprocessors in automobiles. 2
9. What are the requirements of electronic onboard diagnostics? 3
10. Explain the principle of electro magnetic induction. 3

**PART – B (50 Marks)**

- 11.a) Explain the principle of operation of a lead acid battery. 7
- b) What determines the capacity of a battery? 3
12. What are the different types of starting motor drives in current practice? Describe all of them in detail. 10
- 13.a) Explain the principle of a generator. Give its constructional details. 7
- b) What is the function of generator in automobile? 3
14. Explain in detail electronic engine management system. 10
15. Write about the following :
  - a) Strain gauge sensors 5
  - b) Measurement of pressure 5
- 16.a) What are the functions of dashboard diagnostic systems? 5
- b) What is a steppe motor? Explain principle of operation. 5
17. Draw a diagram showing the charging circuit and explain the functions of its various components. 10