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**Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017**  
**Automotive Electrical and Electronic Systems**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Explain the construction and working of a Lead – acid battery. (08 Marks)  
b. Describe various tests that can be conducted on a Battery. (08 Marks)  
c. Write a note on Nickle – Cadmium cell. (04 Marks)
- 2 a. Describe with a neat sketch, the principle of a DC generator. (08 Marks)  
b. What is Armature reaction? Explain in brief. (06 Marks)  
c. Explain voltage regulator, with a neat diagram. (06 Marks)
- 3 a. Describe various torque terms related to cranking motor. (06 Marks)  
b. Explain with a neat sketch, a standard Bendix drive. (08 Marks)  
c. List the causes and remedies for the following :  
i) Armature fails to rotate.  
ii) The engine cranks slowly but does not start.  
iii) Solenoid plunger chatters. (06 Marks)
- 4 a. With a neat sketch, explain Battery – coil Ignition system of a 4 – cylinder SI engine. (08 Marks)  
b. What are the requirements of a good spark plug? Sketch and explain the construction details of a spark plug. (08 Marks)  
c. Write a note on : Electronic spark timing and control. (04 Marks)

**PART – B**

- 5 a. Differentiate between earth return and insulated return systems. (04 Marks)  
b. What is Head light dazzle? List the reasons and remedies. (06 Marks)  
c. Explain the working of : i) Wind screen wiper ii) Temperature gauge. (10 Marks)
- 6 a. With a neat diagram, explain and typical air conditioning circuit in detail. (08 Marks)  
b. What are the functional requirements of a heating and ventilating system? Explain plenum chamber effect of ventilation. (08 Marks)  
c. Write a note on seat heaters. (04 Marks)
- 7 a. Explain Combined Ignition and fuel management system, with a block diagram. (10 Marks)  
b. With a block diagram, describe the complete vehicle management system. (10 Marks)
- 8 a. What is ABS? Mention its requirements. (06 Marks)  
b. With a neat diagram, explain the sensors used in an Active Suspension System. (08 Marks)  
c. Write short notes on : i) Central locking ii) Seat belt tensioner. (06 Marks)

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Important Note: 1. Do not scribble your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.