Reg. No. : [ ]

Question Paper Code : 71125

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Fifth Semester

Automobile Engineering

AT 2302/AU 52/10122 AU 504 — AUTOMOTIVE ELECTRICAL AND ELECTRONICS

(Regulation 2008/2010)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the working principle and reactions of aluminum-air battery.

2. What is meant by hybrid battery?

3. Draw the characteristic curve of a typical starter motor used in automobiles.

4. Why a solenoid is used in the starter circuit?

5. What are the effects of engine speed and load on ignition timing?

6. Differentiate hot and cold spark plugs.

7. List out the merits of digital ignition system.

8. What do you mean by non-contact type ignition system?

9. What is the need of parabolic reflector in the head light of the vehicles?

10. Sketch the circuit diagram of electric horn.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the constant current and constant voltage charging methods for charging a set of batteries.

Or

(b) Explain the constructional details and working of Nickel-Cadmium battery and Sodium-sulphur battery.

12. (a) Describe the features of any three starter drive mechanisms wi necessary sketches.

Or

(b) (i) Explain the working of current regulator. (8

(ii) Describe the working of three phase alternator. (8

13. (a) (i) Explain the working of magneto-ignition system. (8

(ii) Describe the working aspects of battery coil ignition system of a six cylinder petrol engine with suitable circuit diagram. (8)

Or

(b) Describe the working of vacuum and centrifugal advance mechanisms with the aid of neat diagrams.

4. (a) Discuss the features of capacitive discharge ignition and distributor-less ignition with their circuit diagrams.

Or

(b) Write a detailed note on the followings :

(i) Electronically - assisted ignition system. (8)

(ii) Control strategy of electronic ignition system. (8)

(a) (i) Explain in detail about the positive and negative earth systems. (8)

(ii) Discuss about few anti-dazzling devices used in the head light. (8)

Or

(b) Explain the working of oil pressure, coolant temperature and fuel level indicators with suitable sketches.