Roll No _____ **Examination May-2014** Total no of page-1

AE-305 AUTOMOTIVE ELECTRICALS & SYSTEMS

Paper ID- A0715

Time Allowed: 3 Hours Maximum Marks: 60

Note: Section-A is compulsory, attempt any four questions from Section-B and attempt any two questions from Section-C

Section-A

Q.1 (i) What is insulated return system? (10x2)

(ii) What do you mean by sulphation of a battery?

(iii) What is the effect of armature reaction on generated dc voltage?

(iv) Write the relation between number of poles on rotor, speed of rotor and generated frequency of output voltage for an alternator.

(v) Explain why dc motor has high starting torque.

(vi) Write the applications of Flywheel Magneto.

(vii) Write any two limitations of conventional ignition system.

(viii) Discuss in brief working of ignition coil.

(ix) Write the name of different types of reflectors.

(x) What do you mean by fog lamps?

Section-B

Q. 2 Classify and explain the working of a fuel cell. (4x5)

Q.3 Discuss about high energy and power density batteries for electric vehicles

Q.4 Draw speed-torque characteristics of a dc series motor, and on the basis of this, comment why dc series motor should not be started at no load.

Q.5 Write short notes on motor-generator in hybrid vehicles.

Q.6 Discuss different types of ignition system.

Section-C

Q. 7 Describe the construction and working of lead acid battery. Write in brief about charging of a battery.

Q. 8 What is the principle of operation of an alternator? Discuss constructional and working aspects of an alternator.

Q. 9 What different electrical equipments are used in vehicles? Discuss in brief about each of the equipment. (2x10)