

(3 Hours)

Total Marks: -80

- N. B. (1) Question No. 01 compulsory.  
 (2) Attempt any three questions out of remaining five questions.  
 (3) Justify your answer with neat sketches.

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**Q.1 Attempt any four out of six**

- a Explain the chemical reaction that takes place when the battery is being discharged. 05
- b Draw the circuit diagram for bridge wave rectifier. 05
- c What is magneto ignition system and how does it work? 05
- d Name and describe the operation of two types of circuit protectors used in automotive electric circuits. 05
- e What is a trafficator? How does a trafficator work? 05
- f Write a note on glow plug. 05
- Q.2 a Explain in detail 3 types of Battery ratings. 10
- b Explain Bendix drive and overrunning clutch type of starter motor drives. 10
- Q.3 a Explain construction and working of Proton Exchange Membrane fuel cell with neat labelled diagram. Also explain about reformers. 10
- b Explain with neat diagram, construction and working of Alternator? Compare it with direct current generator. 10
- Q.4 a Explain with neat diagram Electric horn and Electric fuel gauge. 10
- b Discuss with the help of neat sketch the ignition system of 4 cylinder spark ignition engine. 10
- Q.5 a What do you understand by cable colour codes? Explain multiplexing and wiring harness systems used in automobiles. 10
- b Explain hurdles in implementing 42 V technology. Draw probable architectures of 42v systems. 10
- Q.6 a Explain 2 sensors and 2 actuators used in Electronic Engine management system. 10
- b Describe the construction of sealed beam headlamp. Also explain headlight beam setting and adjustment. 10

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