

(3 Hours)

[Total Marks: 80]

N.B: 1. Question No. 1 is compulsory.

2. Attempt any **Three** from remaining questions.

3. Draw neat sketches wherever necessary.

- Q.1 Write comparison (differentiate) between the following: 20
- Alkaline Battery and Alkaline Fuel cell
 - D.C Generator and A.C. Generator
 - Direct ignition & waste spark ignition system.
 - Sensors and Actuators
- Q.2 a) Define and Explain with neat sketches: (i) Air management system and 10
(ii) Rectification from AC to DC.
- b) Describe in detail CDI and Distributorless Ignition System with proper diagrams. 10
- Q.3 a) Describe the working of AFC (Alkaline fuel cells) in brief with suitable sketches, reactions, Applications and limitations. 10
- b) Explain the various Cables, their sizes, color codes and wiring harness systems used in Automotive Vehicles. 10
- Q.4 a) What is the need of 42 volt automotive electrical system? Explain transition from 12 volt to 42 volt system with its advantages and disadvantages. 10
- b) Discuss with suitable sketches the functioning of any three types of Automotive Sensors. 10
- Q.5 a) Describe the working of any two Intelligent Vehicle systems with suitable schematic diagrams and also mention their applications. 10
- b) Discuss with suitable sketches the functioning of any three types of Automotive Actuators. 10
- Q.6 Write short-notes on any **four** of the following: 20
- Sealed beam head lamp
 - Standard Bendix drive
 - Power operated windows
 - Types of Starter motor drives and Torque terms used
 - Automotive embedded system
