

(3 Hours)

Total Marks-80

- N.B.: 1. Question No: 1 is compulsory.
 2. Solve any three questions out of remaining questions.
 3. Assume Suitable data where necessary.

- Q 1] a) What is embedded system? Discuss the classification of embedded system with one example each. 10M
- b) What do you mean by X by Wire Technology? Explain Drive by wire, Brake by wire and Throttle by wire with suitable example each. 10M
- Q 2] a) Explain working of Manifold Absolute Pressure (MAP) Sensor. 05M
- b) Write a note on Code Warrior IDE. 05M
- c) Define system bus and explain its types. 05M
- d) Explain different control modules in ECM. 05M
- Q 3] a) Explain CAN and FLEXRAY protocol for Automotive Embedded system. 10M
- b) Explain modes of operations of MC9S12XD family. 10M
- Q 4] a) Draw and explain block diagram of MC9S12XD family. 10M
- b) What is ECU? Explain ECU algorithm, Engine maps and Lookup tables. 10M
- Q 5] a) Explain any two actuators used in automobiles with neat labelled diagram. 10M
- b) Explain the modes of operation of SPI. 10M
- Q 6] a) Write short notes on I2C module. 05M
- b) Explain Antilock braking system. 05M
- c) Explain different classes of Multiplexing Communication Protocol? 05M
- d) Explain SCI module. 05M