

**Total No of Questions: [12]**

**[Total No. of Pages : 2 ]**

**B.E.(Electronics) 2008  
(Automotive Electronic System )**

**(Elective - IV) (Semester - II)**

**Time: 3 Hours**

**Max. Marks : 100**

**Instructions to the candidates:**

- 1) Answers to the two sections should be written in separate answer books.
- 2) Answer Q1 OR Q2, Q3 OR Q4, Q5 OR Q6 from SEC I.
- 3) Answer Q7 OR Q8, Q9 OR Q10, Q11 OR Q12 from SEC II
- 4) Neat diagrams must be drawn wherever necessary.
- 5) Figures to the right side indicate full marks.
- 6) Use of Calculator is allowed.
- 7) Assume Suitable data if necessary

**SECTION I**

- Q1) a) Explain 4 stroke petrol engine working with suitable diagram. [9]
- What is a need and advantage of multi cylinder engine?
- b) Describe in detail various component of manual transmission system? How all these functionalities are taken care in automatic transmission system? [9]
- Q2) a) Explain diesel engine working. What are different changes in it compared to petrol engine? [9]
- b) What are different fuel technology used in hybrid vehicle? What are advantages and Disadvantages of such technology? [9]
- Q3) a) Explain the sensors and signal conditioning to be used in MAP [8]
- b) RPM sensor gives output of changing level from 1.2V to 3.2V with lot of glitches and noise Suggest suitable signal conditioning circuit to drive counter measuring speed of engine [8]
- Q4) a) Explain the role of sensors and actuators in used in modern cars [8]
- b) List various sensors used for air flow measurement, which one is best? Justify your answer [8]
- Q5) a) What is the main purpose of engine control? Explain working of it. [8]
- b) What are the different methods used in anti theft system? [8]
- Q6) a) What are the various modes of Engine management system? What is algorithm used to achieve the implementation? [8]
- b) What is need of ABS ? How ABS works? [8]

**SECTION II**

- Q7) a) What is selecting criteria of microcontroller in automobiles? Can you justify use of PIC microcontroller in automotive [8]
- b) write C program using PIC18fxxx to display coolant temperature at every 5 second using timer with interrupt on LCD [10]
- Q8) a) Explain interrupt structure of PIC8fxxx with suitable block diagram How multiple interrupts are mapped? [10]
- b) write C program for controlling position of stepper motor used for actuator [8]
- Q9) a) How multiple nodes send data to master in automotive using CAN bus Give details of CAN protocol frame. [8]
- b) Give specification implementation & applications of MOST bus [8]
- Q10) a) State specification, hardware and software protocol structure of LIN bus State applications in automotive. [8]
- b) Explain the suitable architecture required for multimedia & internet applications [8]
- Q11) a) What is advantage of multiplexing wire system ? How it is implemented ? [8]
- b) Explain Off board diagnostic system and what are associated instruments used along with it? [8]
- Q12) a) What is On Board diagnostics? Explain various error codes? [8]
- b) Explain safety & security system of automotive? [8]