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B.E. (Electronics)
AUTOMOTIVE ELECTRONICS SYSTEMS
(2008 Course) (Elective - IV) (Semester-II) (404210)

Time : 3 Hours]　　　　　　　　　　　　　　　　　　　　　　　　*[Max. Marks :100*

Instructions to the candidates:

　　1)　Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 from section I and Q7 or Q8, Q9 or Q10, Q11 or Q12 from section II.

　　2)　Answers to the two sections should be written in separate books.

　　3)　Neat diagrams must be drawn wherever necessary.

　　4)　Figures to the right indicate full marks.

　　5)　Assume suitable data, if necessary.

SECTION-I

Q1) a)　With neat diagram explain Four stroke operation of diesel Engine.　**[10]**

　　b)　Explain transmission system in automotive.　　　　　　　　　**[8]**

OR

Q2) a)　Write a short note on following:　　　　　　　　　　　　　**[10]**

　　　i)　Steering system.

　　　ii)　Power train.

　　b)　What is AFR (stoichiometric ratio)? Explain how engine efficiency can be altered by controlling AFR of a petrol engine.　　　**[8]**

Q3) a)　Explain how below parameters are measured in automotive.　　**[8]**

　　　i)　Mass Air Flow.

　　　ii)　Engine Speed.

P.T.O.

b) How crank shaft position is detected for fuel ignition. **[8]**

OR

Q4) a) Explain working principle of solenoid & How it is used in fuel injection system. **[8]**

b) Explain characteristics and limitations of a sensor to use within the automotive context. **[8]**

Q5) a) With the help of diagram explain how electronics is use to control spark in ignition system. **[8]**

b) Explain in brief how steerability is possible after braking in ABS. **[8]**

OR

Q6) a) How Automotive Cruise Control (ACC) is implemented? What are practical problems in it? **[8]**

b) Explain with block schematic operation of engine management system. **[8]**

SECTION-II

Q7) a) How timer/counters, PWM, WDT and interrupts of a general purpose microcontroller can be used in Automotive application. **[10]**

b) Explain selection criteria for using controller in automotive system. **[8]**

OR

Q8) a) List various 8/16 bit processors that are used for ECU in automotive Vehicle. Describe architecture of any one in detail. **[10]**

b) Explain the tool-chain for developing and Embedded 'C' program. **[8]**

Q9) a) Explain how FlexRay is it suitable for Data communication in Automotive Electronics? **[8]**

b) Compare MOST & LIN Protocol. **[8]**

OR

Q10) a) Why CAN is called Real time protocol? Explain its importance in automotive industry. **[8]**

b) What is Bluetooth and explain its role in automotive communication systems. **[8]**

Q11) a) Explain ON board diagnostic system in automotive. **[8]**

b) Explain emission control standards in automotive. **[8]**

OR

Q12) a) Enlist the various comfort & safety features incorporated in modern Automotive systems. **[8]**

b) What is Off-Board diagnostics? What are its advantages? **[8]**

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