P2035

[5059] - 640(B)
B.E. (E & TC)
ADVANCED AUTOMOTIVE ELECTRONICS
(2012 Pattern) (Semester - II) (Open Elective - IV)

Time : 2½ Hours]   *[Max. Marks : 70*

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)   *Neat diagrams must be drawn wherever necessary.*
   3)   *Figures to the right side indicate full marks.*
   4)   *Assume suitable data if necessary.*

SECTION - I

Q1) Write a short note on following:

   a)   Application of electronic systems in modem automobiles.   **[4]**

   b)   Automotive supply chain.   **[3]**

OR

Q2) a)   Explain V-Model development cycle related to development of automotive product development.   **[3]**

   b)   Explain how electronically controlled power steering works.   **[4]**

Q3) Explain in detail Throttle plate angular positioning is done in automobile system.   **[7]**

OR

Q4) Explain working principle of solenoid & how it is used in fuel injection system.   **[7]**

Q5) Explain the use of lnterrupts Watchdog timers and PWM of a microcontroller in automotive system.   **[6]**

P.T.O.

Q6) a) How engine can be controlled using Fuel maps/tables and Ignition maps/tables. **[6]**

SECTION - II

Q7) a) Explain in detail how Infotainment Systems are useful in automotive systems. **[8]**

b) Explain CAN & Flex Ray automotive communication protocols in detail. **[10]**

OR

Q8) a) Compare MOST & LIN Protocol. **[8]**

b) Write a short note on following:

i) Global positioning systems (GPS) **[5]**

ii) General packet radio service (GPRS) **[5]**

Q9) a) Explain Control system approach in Automotive Electronics in Automotive Electronics. **[8]**

b) Write short notes on MATLAB and Simulink tool boxes. **[8]**

OR

Q10) a) What is Model-Based Design? Explain with an example. **[8]**

b) Explain Real time simulations on a simple target (e.g. Arduino). **[8]**

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

b) Explain in detail Safety process for product life cycle in automotive. **[8]**

OR

Q12) a) What is Diagnostic tools and Diagnostic protocols explain in detail?**[8]**

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

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