

Total No. of Questions : 12]

SEAT No. :

P2035

[Total No. of Pages : 2

**[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 modern 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 Interrupts Watchdog timers and PWM of a microcontroller in automotive system. **[6]**

**P.T.O.**

OR

- 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]

