

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(AE) (Sem.-6th)
AUTOMOTIVE ELECTRONICS AND
MICROCONTROLLERS

Subject Code : AE-310

Paper ID : [A0723]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students has to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students has to attempt any **TWO** questions.

SECTION-A**1. Write briefly :**

- (a) Discuss the working of a PNP Transistor.
- (b) Given that $(B2F8)_{16} = (131370)_b$. Determine the value of b.
- (c) Give the symbol and truth table for a XOR gate.
- (d) What do you understand by interrupts in microcomputers?
- (e) What is a CPU register? List the various types.
- (f) What do you understand by aliasing in digital signal processing?
- (g) What do you understand by Hall effect?
- (h) What is the function of crankshaft angular position sensor?
- (i) How does a cruise control system control vehicle speed?
- (j) What is the function of timing light in automobile diagnostics?

SECTION-B

2. What is J-K flip-flop? What are its advantages over S-R flip-flop?
3. With the help of neat and labelled sketch explain the construction and working of Mass Air Flow sensors used in automobiles.
4. Discuss the various troubles most likely to occur in the ignition system of an automobile engine. Also suggest appropriate remedies in each case.
5. How does anti lock braking system assist a driver in decelerating the vehicle under poor braking conditions?
6. How does the electronic suspension system help in improving *ride* and *handling* of automobiles?

SECTION-C

7. With the help of a block diagram explain the starting and acceleration enrichment in digital engine control system.
8. Discuss the functioning and advantages of an electronic steering control system. How is it different from traditional power steering systems?
9. Write notes on :
 - (i) Exhaust emission control.
 - (ii) Security and warning system.