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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

INSTRUCTIONS TO CANDIDATES:

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

SECTION – A

1. Write briefly:
 - (a) A memory chip has 8 data lines and 16 address lines. What is its size in bytes?
 - (b) How does a microcontroller differ from a microprocessor?
 - (c) How does electronic transmission controller determine the desired gear ratio?
 - (d) What is the primary purpose of spark timing controls?
 - (e) What do you understand by a fully-locked tyre?
 - (f) What is the function of timing light in automobile diagnostics?
 - (g) How does a cruise control system control vehicle speed?
 - (h) A p-n junction diode is similar to a fluid check valve. Comment.
 - (i) What are LAN and CAN stands for?
 - (j) Discuss architecture of 8051.

SECTION B

2. Discuss the working of any one type of engine crankshaft angular position sensor.
3. Discuss the input and output variables which are measured and controlled respectively in the electronic engine control system.
4. How does anti lock braking system assist a driver in decelerating the vehicle under poor braking conditions?
5. Describe Engine cranking and warm up control.
6. Explain in detail Telematics and GPS systems.

SECTION – C

7. What is a Hybrid Vehicle? What is difference between series hybrid vehicle and parallel hybrid vehicle? Discuss how power to the drive wheels of a hybrid vehicle is controlled and transmitted?
8. Discuss the functioning and advantages of an electronic steering control system. How is it different from traditional power steering systems?
9. Write short notes on following:
 - (a) Electronic control of automatic transmissions
 - (b) MPFI
 - (c) Open and closed loop control systems

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