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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, M. Tech - VLSI Design and Embedded System (MECE)

Semester End Examination; Dec - 2017/Jan - 2018

Automotive Electronics

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1	a.	With the help of a diagram, explain intake and compression strokes of a gasoline fuelled spark ignition engine.	7
	b.	With the help of a neat schematic, explain the electric circuit for the ignition system.	7
	c.	Explain the working of a steering system.	6
2	a.	With the help of necessary graphs, explain the effect of spark timing on IC Engine performance.	10
	b.	With the help of a diagram, explain how three way catalysts are used in air / fuel ratio management?	10

UNIT - II

3	a.	Explain how throttle angle is measured using potentiometers?	10
	b.	Write a note on coolant sensor.	5
	c.	What are the EGO sensor characteristics that are desirable? Explain.	5
4	a.	Write a note on fuel injection.	5
	b.	With the help of a diagram, explain the working of optical crankshaft position sensor.	8
	c.	Explain how MAF sensor is used to measure air flow?	7

UNIT - III

5	a.	With the help of a block diagram, explain the working of EGR Control System.	6
	b.	With the help of a diagram, explain the working of a distributor less ignition system.	8
	c.	Write a note on : (i) Remote keyless entry (ii) GPS.	6
6	a.	What is idle speed control? Explain with a diagram idle speed control system.	10
	b.	With a block diagram, explain an engine control system based on speed density method.	10

UNIT - IV

7	a.	With the help of a block diagram, explain the working of digital cruise control system.	10
	b.	What is ABS? Explain the physical configuration of ABS.	10

Contd…2

8 a. Explain the mechanism for modulating brake pressure in vehicles. 10

b. Explain how an electronically controlled supervision system makes the ride comfortable? Explain the different classes in electronic suspension system. 10

UNIT - V

9 a. Write a note on :

(i) Timing light 10

(ii) Engine analyzer.

b. Explain how expert system technology is used in vehicles? 10

10 a. With a diagram, explain the working of a low tire pressure warning system. 10

b. Write a note on :

(i) Alternate fuel engines 10

(ii) Collision avoidance radar working system.

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