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

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Automobile Engineering

Semester End Examination; June - 2017

Automotive Electricals and Autotronics

Time: 3 hrs *Max. Marks: 100*

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

UNIT - I

1	a.	Explain briefly the brief history of Electric Vehicle.	8
	b.	With neat circuit diagram, discuss briefly and symbols used in an electrical system.	7
	c.	Discuss in detail the future electrical systems of an automobile.	5
2	a.	With neat sketch, explain the principle of operation of a lead acid battery.	8
	b.	Explain the effect of temperature on electrolyte in a battery.	5
	c.	What are the different methods of charging the battery? Discuss any two in detail.	7

UNIT - II

3	a.	What is an alternator? In what way it differs from generator, give your justifications.	8
	b.	What is cutoff relay? Explain briefly.	6
	c.	What is third brush regulator? What are its limitations?	6
4	a.	Discuss briefly the different torque terms used in a starter motor drive.	4
	b.	With the support of circuit diagram, explain the various types of cranking motors.	9
	c.	With neat sketch, explain briefly the solenoid operated ORC.	7

UNIT - III

5	a.	With neat sketch, explain the principle of operation of a 4-cylinder 4-stroke SI engine ignition system.	12
	b.	What are the pre-requisites of a good sparking plug? Explain briefly.	8
6	a.	Mention at least six differences between the earth return and insulated return system.	6
	b.	With neat sketch, explain the principle of operation of a sealed beam head light configuration.	8
	c.	Explain with wiring circuit the balancing coil type of pressure gauge.	6

UNIT - IV

7	a.	With the support of block diagram, explain the measurement and control system.	10
	b.	Discuss with the help of block diagram the microcontroller based automatic camera.	10
8	a.	What are the sensors and transistors?	4
	b.	Explain the principle of working of light sensor.	6
	c.	Discuss briefly the proximity sensors and hall effect sensors.	10

Contd …2

UNIT - V

9	a.	List out the difference between microcontrollers and microprocessors.	6
	b.	With block diagram, explain briefly the internal structure of a microcontroller.	10
	c.	Explain some common applications of a microcontroller.	4
10	a.	With block diagram, explain the I/O interfacing of a microcontroller.	8
	b.	What are special functions registers? Explain.	6
	c.	Write a note on Times/Counter of a microcontroller.	6

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