Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: NOV/DEC 2024

(Regulation 2018)

Fifth Semester

AUTOMOBILE ENGINEERING

U18AUE0010: Auxiliary Vehicle Systems

COURSE OUTCOMES

CO1: Apply the concept of embedded system for automotive application.

CO2: Outline the importance of stability and safety system in automobile.

CO3: Interface automotive sensor and actuator with microcontroller.

CO4: Obtain an overview of vehicle comfort system.

CO5: Review the telematics system in modern vehicles.

CO6: Recognize the various automotive security system.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Compare microcontroller and microprocessor	CO1	[K_2]
2.	Explain the working of a stepper motor	CO1	[K_2]
3.	Compare open loop and closed loop system.	CO2	[K_2]
4.	List few exhaust gases obtained from an IC engine vehicle.	CO2	[K_2]
5.	Explain the purpose of the vehicle stabilization system	CO3	[K_2]
6.	Explain the concept of ABS.	CO3	[K_2]
7.	Explain the cruise control system.	CO4	[K_2]
8.	What do you mean by CVT?	CO4	[K_2]
9.	Explain the ADAS system.	CO5	[K_2]
10.	Draw the circuit diagram for the keyless entry system.	CO6	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Illustrate with a neat sketch, construction and working of lambda sensor.	CO1	[K_2]
	b)	Justify the importance of Engine Control Unit and explain its working.	CO1	[K_2]

12.	a)	Explain the working of multi-point fuel injection system in detail with a neat sketch.	CO2	[K_2]
	b)	Justify the need for spark timing control. With a neat sketch explain solid state ignition system.	CO2	[K_2]
13.	a)	Differentiate active and passive safety systems. Explain the traction control system with a neat sketch.	CO3	[K_2]
	b)	Illustrate the working of an airbag and seat belt used in the modern car with neat sketch.	CO3	[K_4]
14.	a)	Justify the need for cruise control. With a neat sketch explain the working of adaptive cruise control.	CO4	[K_2]
	b)	Explain in detail (with a neat sketch) 1. Tyre pressure monitoring system 2. Automatic climate control system.	CO4	[K_2]
15.	a)	List the safety system in recent cars. Explain how the voice command system works.	CO5	[K_2]
	b)	Illustrate with a neat sketch working of lane departure warning system.	CO5	[K_2]
16.	a)	Explain in detail the working of electronic engine management system with a neat sketch.	CO5	[K_2]
	b)	Justify the need for the driver monitoring system. Explain its working with a neat sketch.	CO6	[K_2]

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