

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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Seventh Semester B.E. Degree Examinations, February 2025

AUTOMOTIVE ELECTRONICS

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
 2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO:PI)</u>
<u>Module-1</u>			
1	a. Explain working of 4-stroke engine with neat diagram.	10	(2 : 1 : 1.3.1)
	b. Explain ignition system spark plug with neat diagram.	10	(2 : 1 : 1.3.1)
(OR)			
2.	a. Discuss the concept of electronic engine control system.	10	(2 : 2 : 1.3.1)
	b. Describe any five engine performance terms.	10	(2 : 2 : 1.3.1)
<u>Module-2</u>			
3.	a. Explain construction and working of Mass Air Flow (MAF) sensor.	10	(2 : 3 : 1.3.1)
	b. Discuss throttle angle sensor and engine coolant temperature sensor.	10	(2 : 3 : 1.3.1)
(OR)			
4.	a. Explain the working of solenoid with schematic diagram.	10	(2 : 3 : 1.3.1)
	b. Discuss the construction and working of Exhaust Gas Recirculation (EGR) actuator with diagram.	10	(2 : 3 : 1.3.1)
<u>Module-3</u>			
5.	a. Explain ideal speed control and ideal air control with diagrams.	10	(2 : 4 : 1.3.1)
	b. Discuss secondary air control system with block diagram.	10	(2 : 4 : 1.3.1)
(OR)			
6.	a. Mention the operating conditions for the control unit and write a note on design of control unit.	10	(2 : 4 : 1.3.1)
	b. Explain the data processing with respect to the control unit.	10	(2 : 4 : 1.3.1)
<u>Module-4</u>			
7.	a. Mention the real time applications of overall vehicle system.	10	(2 : 5 : 1.3.1)
	b. Write a note on high speed CAN-C and low speed CAN-B bus system.	10	(2 : 5 : 1.3.1)
(OR)			

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| 8. | a. | Explain digital cruise control system with block diagram. | 10 | (2 :5 : 1.3.1) |
| | b. | Discuss in detail the physical configuration of Antilock Braking System (ABS). | 10 | (2 :5 : 1.3.1) |

Module-5

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| 9. | a. | Explain engine timing light with block diagram. | 10 | (2 :5 : 1.3.1) |
| | b. | Discuss accelerometer-based air bag system with block diagram. | 10 | (2 :5 : 1.3.1) |

(OR)

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| 10. | a. | Describe collision avoidance warning system with block diagram. | 10 | (2 :5 : 1.3.1) |
| | b. | Explain major components of generic automatic navigation system with block diagram. | 10 | (2 :5 : 1.3.1) |

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