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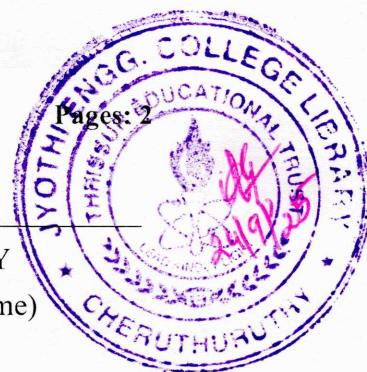
Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S8 (S) Examination September 2025 (2019 Scheme)

Course Code: MRT402

Course Name: AUTOTRONICS

Max. Marks: 100　　　　　　　　　　　　　　　　**Duration: 3 Hours**

PART A
Answer all questions, each carries 3 marks.

Marks

1	Differentiate two stroke and four stroke engines	(3)
2	List down the main components of IC engines	(3)
3	Write the advantages of electronic ignition systems	(3)
4	Explain Idle Air – Control.	(3)
5	What is meant by look up table and how it is used in engine control	(3)
6	Explain electromagnetic interference and suppression	(3)
7	List down the main components of electric vehicles	(3)
8	Explain traction control systems	(3)
9	List the application of mobile robot vision	(3)
10	Write short note on navigation and localisation	(3)

PART B
Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	List and explain various sensors used in automobiles	(7)
	b)	Explain the working of throttle position sensor	(7)

OR

12	a)	Explain the working of ignition systems used in automobiles	(7)
	b)	Explain the hardware implementation of simple automotive systems	(7)

Module II

13	a)	Explain about throttle body injection and multi point fuel injection techniques	(9)
	b)	Explain pilot injection , main injection, advanced injection , post injection and retarded post injection	(5)

OR

14	a)	Explain the working of EGR control valve	(7)
	b)	Explain electronic spark timing control in SI engines	(7)

Module III

15 a) Describe common security and warning systems used in automobiles, explain   (14)
        any one method used to prevent accidents

OR

16 a) Explain the parameters to be controlled in CI engines   (7)

    b) Explain common methods of engine cooling and warmup control   (7)

Module IV

17 a) What are the safety feature to be kept in mind while purchasing a car   (8)

    b) Explain ABS with Neat figure.   (6)

OR

18 a) Compare series and parallel hybrid vehicles   (7)

    b) Draw the block diagram of electric vehicles and explain each component in detail   (7)

Module V

19 a) Explain about dynamic vision systems and mobile robot vision system in   (7)
        automobiles

    b) Explain the types of tire pressure warning system and benefits   (7)

OR

20 a) Explain the basic structure of vehicle intelligence   (6)

    b) Explain the types of collision waring and avoidance systems   (8)

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