



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S8 (R,S) Examinations April 2026 (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	Explain about charging system used in automobiles	(3)
2	Explain working of Knock Sensor	(3)
3	Explain why three way catalytic convertor are used in automobiles	(3)
4	Explain various types of fuel injection techniques	(3)
5	Explain open loop and closed loop control system	(3)
6	Explain about various security and warning system used in automobiles	(3)
7	Explain the advantages of using ABS	(3)
8	Explain types of electric vehicles	(3)
9	Sketch the basic structure of vehicle intelligence	(3)
10	Explain the application of mobile object detection system used in automobiles	(3)

PART B

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

Module I

- 11 a) With the help of neat sketch explain the various components of IC engines (14)

OR

- 12 a) Explain in detail the working of Oxygen Sensor and Crank shaft Position Sensor (14)

Module II

- 13 a) Explain the working of CRDI with layout (7)

- b) With neat sketch explain MPFI system (7)

OR

- 14 a) Explain the working of three way catalytic convertor (7)

- b) Explain the conversion efficiency versus lambda characteristics of three way catalytic convertor (7)

Module III

- 15 a) Explain the parameters to be controlled in SI and CI engines for optimal performance and efficiency (7)
b) Explain about on board diagnostics and how this can be used to diagnose and monitor engine performance and emission systems (7)

OR

- 16 a) Explain common methods of engine cooling and warmup control and also explain how they impact engine performance and efficiency (14)

Module IV

- 17 a) Explain the working of electric power steering (5)
b) Describe various safety features used in automobiles and also explain in detail the working of airbags (9)

OR

- 18 With neat layout explain the working of Electric vehicles , define each component in detail. (14)

Module V

- 19 Sketch and explain in detail the architecture of dynamic vision system used in automobiles (14)

OR

- 20 a) Write short note on collision warning and avoidance systems (7)
b) Explain object detection systems and list down its application (7)
