Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VII SEMESTER B.TECH. (MECHATRONICS ENGINEERING)

END SEMESTER EXAMINATIONS – MAKEUP

DEC 2019/JAN 2020

SUBJECT: AUTOTRONICS [MTE 4003]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.

1A.	Compare throttle body injection and multi-point injection system	**2**	**CO1**
1B.	Explain the mono-jetronic injection system in SI engines with a sketch.	**3**	**CO3**
1C.	One fine day you went on a long drive, stopped at some location for a tea break. After the tea break there was a problem in starting your car. Which component might have gone wrong? Justify your answer.	**5**	**CO1**
2A.	With a circuit diagram, describe the transistorized ignition system.	**3**	**CO1**
2B.	Suggest a suitable fuel injector that operates on low power. Explain the working of the suggested injector.	**3**	**CO2**
2C.	Describe the component that assists in torque transmission to rear wheels while turning. Traction between the road and wheel is unequal for two rear wheels.	**4**	**CO3**
3A.	Explain the closed loop lambda control in digital engine management with a block diagram.	**3**	**CO2**
3B.	With a suitable example, explain the implementation of diagnostics in digital engine management.	**3**	**CO3**
3C.	List the different CAN frames. Explain the function of each frame.	**4**	**CO1**
4A.	MAF sensor output is independent of ambient temperature. Explain the design in support of the given statement.	**2**	**CO1**
4B.	With a flowchart, describe the different phases of engine management in one drive cycle.	**4**	**CO2**
4C.	Suggest a suitable sensor to measure the engine speed of a vehicle. Explain the working of suggested sensor.	**4**	**CO1**
5A.	Explain the necessity of circuit breaker in automobiles.	**2**	**CO1**
5B.	Can we use a starter motor to charge the battery by driving the motor shaft by the engine? Justify your answer.	**3**	**CO1**
5C.	With a pressure vs time graph, explain the function of different injection events.	**5**	**CO3**