Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH. (MECHATRONICS ENGINEERING)

END SEMESTER EXAMINATIONS, DEC'17-JAN'18

SUBJECT: AUTOTRONICS [MTE 4003]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Draw relevant diagrams wherever necessary

1A.	Explain the construction and working of Mass Air Flow rate sensor.	**04**
1B.	Discuss the significance of Hydraulic damper in a Unit Injection system.	**04**
1C.	Write a note on the chemical reactions that takes place in a 3-way catalytic converter.	**02**
2A.	Describe the idle speed digital engine control mode strategy.	**03**
2B.	Discuss the effect of Air/Fuel ratio on the engine's performance considering the hydrocarbon, NOX and fuel consumption. Illustrate using a graph.	**04**
2C.	Describe the features of CAN protocol.	**03**
3A.	Discuss the different injection parameters that affect the quality of mixture formation in CI engines.	**04**
3B.	Describe the purpose and working of ABS systems in automobiles.	**04**
3C.	Compare active and passive safety systems.	**02**
4A.	Describe the construction and working of torque converter.	**04**
4B.	Explain the construction and working of vehicle speed sensor.	**03**
4C.	Compare the different types of solid state ignition systems.	**03**

5A. Explain the common rail fuel injection system with a neat block diagram. **04**

5B. Illustrate using a simple block diagram the closed loop fuel control system. **03**

5C. Discuss the characteristic features of Bosch Monojetronic system. **03**