Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER B.TECH. (AUTOMOBILE ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2019

SUBJECT: AUTOTRONICS [AAE 3151]

REVISED CREDIT SYSTEM
(14/11/2019)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A. What is the function of mesh spring in a starting system? **(02)**

1B. Define the various components of a lead acid battery. **(03)**

1C. Explain the working of an alternator in detail with necessary diagrams. **(05)**

2A. With neat sketch, explain the working of linear variable differential transformer as a pressure sensor in vehicle. **(04)**

2B. Explain the features of sensors used for monitoring coolant and air temperature of a passenger vehicle. **(02)**

2C. Explain the working of hydraulic starting system in detail with necessary diagrams. **(04)**

3A. Define piezoelectric effect and with suitable sketch explain the process of engine knock measurement. **(04)**

3B. With suitable circuit diagram, explain the use of TRIAC in window winding operation of a commercial vehicle. **(03)**

3C. Develop a fuel level indicator system for a vehicle using float and rotary potentiometer. **(03)**

4A. With suitable diagram, explain the process of idle speed control system in engine management. **(02)**

4B. Sketch the layout of a Motronic M fuel injection system, identify the major input sensor system, and mention its importance in the system. **(05)**

4C. Write the importance of wiring harness and explain the different types of harness and layout used in commercial vehicles. **(03)**

5A. Discuss the features of intelligent lighting system in a passenger vehicle. **(02)**

5B. With suitable block diagram, explain the features of CAN and LIN network systems of a commercial vehicle. **(04)**

5C. Sketch the layout of antilock braking system. With suitable circuit diagram, explain the working of Bosch ABS system. **(04)**