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MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (AUTOMOBILE ENGINEERING)

END SEMESTER EXAMINATIONS, DEC 2017

SUBJECT: AUTOTRONICS [AAE 3151]

**REVISED CREDIT SYSTEM
(19/12/2017)**

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

- 1A.** What is torque ripple? Where does it originate from and how can it be reduced? **(02)**
- 1B.** What is third harmonics? How does it originate in AC Generators? Suggest a method by which, these can be made beneficial. **(03)**
- 1C.** What is a Potentiometer? Explain the construction and working of it with the aid of neat sketch **(05)**
- 2A.** What are NTC Thermistors? What are the primary functions of it? **(02)**
- 2B.** Write short notes on the following Sensor Characteristics **(03)**
I. Repeatability and Readability
II. Bias and Hysteresis
- 2C.** Explain the working Vane Type Mass Air Flow Sensor with the help of a diagram. **(05)**
- 3A.** What are the types of TPMS? Give the advantages and shortcomings of them. **(02)**
- 3B.** What is the importance of Throttle Screw in TPS? Depict the characteristic curves of TPS. **(03)**
- 3C.** What is Schmitt Trigger? How does it support CKP? Explain with neat schematic diagram **(05)**
- 4A.** State the substantial attributes while performing wiring harness of a vehicle. **(02)**
- 4B.** Write a short note on conventional Knock sensor with the aid of illustration. **(03)**

- 4C.** Explain the construction & functioning of Zirconia Type Lambda Sensor with a neat sketch. **(05)**
- 5A.** What are network nodes? Draw a schematic diagram to show the constituents of it. **(02)**
- 5B.** Explain the different topology of automotive networking. **(03)**
- 5C.** What are components of Anti-lock braking system? Explain the different operating positions of the modulator. **(05)**