

Reg. No.



INSPIRED BY LIFE

# Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



## VII SEMESTER B.TECH (MECHATRONICS ENGINEERING)

END SEMESTER EXAMINATIONS, DEC 2015/JAN 2016

SUBJECT: AUTOTRONICS [MME 421]

Time: 3 Hours

MAX. MARKS: 50

### Instructions to Candidates:

- ❖ Answer **ANY FIVE FULL** the questions.
- ❖ Missing data may be suitably assumed.

- 1A. Explain the significance of remote switching in electronic circuitry in automobiles. **3**
- 1B. With a neat diagram explain the fuel system in petrol engines. **3**
- 1C. Explain the combustion process in SI engines with help of PV (pressure-volume) graph. **4**
- 2A. What is the significance of piston rings? Describe briefly the two types of piston rings? **4**
- 2B. What type of clutch is generally used in two wheelers without gear? Sketch and explain the clutch used. **4**
- 2C. Explain any two types of circuit protection systems. **2**
- 3A. Explain the working of gear system used in automatic transmission with a neat sketch. **4**
- 3B. Justify the usage of hydraulic clutch in heavy vehicles and commercial vehicles. **3**
- 3C. Explain the clutch system used in sports cars. **3**
- 4A. Explain the actuation of injector in intake manifold injection system. **3**
- 4B. Explain the projection of high beam and low beam using a single halogen lamp. **2**

- 4C.** A major accident could have been avoided if the braking distance between the two vehicles was reduced. Explain the technology incorporated to avoid such accidents. **5**
- 5A.** What is gassing? Write a short note on VRLA batteries. **3**
- 5B.** Sketch and explain the working of torque converter. **4**
- 5C.** List out the merits and demerits of four stroke cycle engine. **3**
- 6A.** Explain with a neat circuit diagram 3-phase voltage rectification and reverse current blocking. **4**
- 6B.** Explain the construction and working of Folo Thru Drive. **4**
- 6C.** Write a short note on CRDI technology. **2**