

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, NOV/DEC 2015

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 with circuit diagram capacitive discharge ignition (CDI) system. **3**
- 1B. Explain with a neat diagram electrically operated fuel pump. **4**
- 1C. Compare passive safety and active safety system in automobiles with an example for each type. **3**
- 2A. Explain the construction and working of Standard Bendix Drive. **4**
- 2B. Explain the factors affecting spray formation. **2**
- 2C. Explain with the help of neat diagram the significance of helical groove in a diesel fuel injection pump. **4**
- 3A. Explain the combustion process in CI engines with pressure-crank diagram. **4**
- 3B. Differentiate between diesel knock and detonation in petrol engines. **3**
- 3C. Explain with a neat sketch the working principle of hall effect pulse generator. **3**
- 4A. Sketch and explain the working of single plate clutch. **4**
- 4B. Summarize the various modes of operation in case of direct injection gasoline engine systems. **3**
- 4C. Explain the construction and working of synchromesh gear box. **3**

- 5A.** Compare working of halogen lamp and gas discharge lamp **4**
- 5B.** Explain the necessity of differential in an automobile. Discuss in detail the construction and working of differential. **3**
- 5C.** Explain the throttle valve regulation in motronic engine management system. **3**
- 6A.** Explain the technology incorporated in vehicles to have a comfortable driving experience without much intervention from driver while on a long distance drive. **4**
- 6B.** Explain with a neat circuit diagram and graph electromagnetic voltage regulation. **4**
- 6C.** What is a cylinder liner? List out 4 differences between dry and wet liner. **2**