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**MANIPAL INSTITUTE OF TECHNOLOGY**  
**MANIPAL**

*A Constituent Institution of Manipal University*

**VII SEMESTER B.TECH. (MECHATRONICS ENGINEERING)**

**END SEMESTER EXAMINATIONS, NOV/DEC 2016**

**SUBJECT: Autotronics [MME421]**

**(02/12/2016)**

**Time: 3 Hours**

**MAX. MARKS: 50**

**Instructions to Candidates:**

❖ Answer **ANY FIVE FULL** questions.

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|------------|---|----------|
| <b>1A.</b> | Describe with sketch the working of capacitor discharge ignition system.                                | <b>4</b> |
| <b>1B.</b> | Discuss in detail the desirable properties of engine fuels.   | <b>3</b> |
| <b>1C.</b> | Explain in detail the phenomenon of combustion in spark ignition engine.                                | <b>3</b> |
| <b>2A.</b> | With a sketch explain the working of a fluid coupling.  | <b>4</b> |
| <b>2B.</b> | Describe with sketch the working of constant mesh gear box.   | <b>4</b> |
| <b>2C.</b> | Write a note on common rail system.   | <b>2</b> |
| <b>3A.</b> | With electrical circuit diagram describe the working of three phase alternators circuit.                | <b>6</b> |
| <b>3B.</b> | With suitable sketch, suggest and explain the working of a sensor used to measure the engine speed.     | <b>3</b> |
| <b>3C.</b> | Draw a P-V diagram of otto cycle.   | <b>1</b> |
| <b>4A.</b> | Explain with sketch the working of compression type bendix drive system used in starting of the engine. | <b>4</b> |
| <b>4B.</b> | Discuss on seat-belt pre tensioners (with sketch).  | <b>3</b> |
| <b>4C.</b> | Write a note on Lead acid battery.  | <b>3</b> |
| <b>5A.</b> | Explain the function and components of motronic engine management system.                               | <b>6</b> |
| <b>5B.</b> | Describe the different types of mixture formation used in direct injection system.                      | <b>4</b> |
| <b>6A.</b> | With sketch explain the construction and working of boost pressure actuator control system.             | <b>4</b> |
| <b>6B.</b> | Write a note on gas-discharge lamp.   | <b>3</b> |
| <b>6C.</b> | With sketch explain the working of electronic carburetor- choke plate fuel supply control system.       | <b>3</b> |