| Reg. No. | | | | | | | | | | |
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# Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

## VII SEMESTER B.TECH (AUTOMOBILE ENGINEERING)

## END SEMESTER EXAMINATIONS, DEC 2015/JAN 2016

SUBJECT: AUTOMOTIVE POLLUTION AND CONTROL [AAE471]

PROGRAMME ELECTIVE III

**REVISED CREDIT SYSTEM**

Time: 3 Hours MAX. MARKS: 50

**Instructions to Candidates:**

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

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| **1A.** | What are the effects of automotive pollutants on human beings? | **(04)** |
| **1B.** | Illustrate constructional details and working of an air injection pump. | **(04)** |
| **1C.** | Discuss the principle of working of Bosch smoke meter. | **(02)** |
| **2A.** | Explain the effectiveness of exhaust gas recirculation in Engine emission control. | **(03)** |
| **2B.** | Illustrate the constructional and working of any one anti back fire valve. | **(03)** |
| **2C.** | How the exhaust gas analysis is carried out using an orsat apparatus? | **(04)** |
| **3A.** | Write a short note on silicon carbide wall flow particle filters. | **(03)** |
| **3B.** | Explain how the particulate measurement can carried out in dilution tunnels. | **(04)** |
| **3C.** | Why the air injection switching is necessary to the downstream side of catalytic converter when the engine is warmed up? | **(03)** |
| **4A.** | Discuss with a neat sketch the essential features of PCI Volkswagon stratified charge engine. | **(03)** |
| **4B.** | Discuss the factors affecting the HC emissions from I C Engines. | **(03)** |
| **4C.** | Discuss any four methods of production of Hydrogen. | **(04)** |
| **5A.** | What are the advantages of using gaseous fuels in engines? | **(03)** |
| **5B.** | Discuss the important requirements of fuels for usage in C I engines. | **(04)** |
| **5C.** | Find the air- fuel ratio and equivalence ratio when iso octane is combusted with 120% stoichiometric air in an Engine. | **(03)** |
| **6A.** | Discuss any three methods of controlling the smoke emission from diesel engines. | **(03)** |

**6B.** Define the following with reference to Gas chromatography. **(03)**
(i) Retention time (ii) capacity factor (iii) phase ratio

**6C.** Write short notes on (i) Smog (ii) Ringlemann charts. **(04)**