Reg.No.										

MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University, Manipal – 576 104

DEPARTMENT OF AERONAUTICAL & AUTOMOBILE ENGINEERING
VI SEM. B.Tech (AUTOMOBILE ENGG.)
DEGREE END SEMESTER EXAMINATIONS MAY. 2016

SUBJECT: AUTOMOTIVE POLLUTION CONTROL (AAE-384)
REVISED CREDIT SYSTEM

Time: 3 Hours. MAX.MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.

1A) With a neat sketch explain the working of gas chromatography technique. List the merits and demerits with other techniques **(04)**

1B) List the different types of diesel engine smoke emission and also explain the reasons for the formation of these smokes **(04)**

1C) Explain the effect of additives in diesel engine **(02)**

2A) With a neat sketch explain the working of catalytic converter **(03)**

2B) With a neat sketch explain the stratified charged engine. Also explain the merits and demerits over lean burn engines **(04)**

2C) With a neat sketch explain the dilution tunnel **(03)**

3A) List the stages of combustion in S.I engine. Explain the engine variables which affect the knocking in S.I engine. **(07)**

3B) Differentiate between filter darkening and light extension type smoke meters **(03)**

4A) Explain the engine design modification required for the emission control **(04)**

4B) With the following given components build a total emission control package [circuit] which aims to emit less pollutants. Justify your circuit **(06)**
1. Engine 2. EGR 3. Catalytic converter 4. PCV [Programmed control valve] 5. Intake mixture 6. Muffler 7. Secondary air 8. Air cooler

5A) With a neat sketch explain the Throttle Body Injection and Multi point Fuel Injection **(03)**

5B) List the merits and demerits of bio-diesels **(03)**

5C) With a neat sketch explain the working of hydrogen fuel cell. List the merits and demerits over gasoline engines **(04)**

6A) Classify the economics of Internal combustion engine and explain briefly the factors effecting the cost of internal combustion engine **(05)**

6A) With a neat sketch explain the electronic fuel injection system. **(05)**