

Code No: **R41244**

R10

Set No. 1

IV B.Tech I Semester Supplementary Examinations, Feb/Mar - 2015

AUTOMOTIVE POLLUTION AND CONTROL

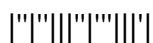
(Open Elective Except for Automobile Engineering)

Time: 3 hours

Max. Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

- 1 Discuss the effects of various regulated and unregulated pollutants on human health and environment. [15]
- 2 a) Name the different properties of gasoline fuels that affect pollutant formation & explain any three. [8]
b) What are the sources of evaporative emission in petrol engine? How can it be controlled? [7]
- 3 a) Explain the effect of low & high content oxygenated compounds on emission in case of petrol engine. [7]
b) Explain the effect of Metallic additives on CI engine emissions. [8]
- 4 a) What is meant by EGR? What for it is used? Explain the method with a neat schematic diagram [8]
b) Explain about common rail fuel injection system in diesel engines with neat sketch. [7]
- 5 a) Explain the preparation of supported catalysts for the
i) Application of the wash-coat. ii) Incorporation of catalysts. [8]
b) What are the different types of diesel traps and explain any two [7]
- 6 a) What are the economic challenges incurred in SI engines? Explain briefly. [8]
b) What are the additional costs incurred by diesel traps? Explain briefly. [7]
- 7 Explain with a neat sketch working principle of Bosch smoke meter. [15]
- 8 Discuss the scope for hydrogen as a fuel in diesel engine. What necessary engine modifications are required? [15]



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Set No. 2

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Time: 3 hours

Max. Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

- 1 a) Explain the Canister technique and Shed techniques used for analyzing volatile compounds and evaporation losses. [8]
b) Explain Photo Voltaic effect. [7]
- 2 a) With reference to Petrol engine, explain the of effect ignition advance. [8]
b) Explain the effect of fuel density and volatility on SI Engine emission. [7]
- 3 a) Explain the effect of following diesel fuel properties on the emission. [8]
i) Viscosity ii) Surplus content.
b) Explain the effect of Cetane number on CI engine emissions. [7]
- 4 What is the purpose of adopting EGR? Discuss various methods. [15]
- 5 a) Explain the influence of support type & position of catalyst on the emission. [8]
b) Explain Phosphorus poisoning. [7]
- 6 a) Explain how the lean NOx traps increases the cost summery of diesel engines? [8]
b) Brief about economics of evaporative emission control systems. [7]
- 7 With a neat sketch explain working principle of Hartridge smoke meter. [15]
- 8 a) Explain alcohols as an alternative fuels to fossil fuels. [8]
b) Discus CNG engine performance and emission over gasoline engine. [7]

