

[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
(2064)

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B. Tech 6th Semester Examination
Automotive Pollution & Control System
AU-6001

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions, selecting one question from each section A, B, C and D. Section E is compulsory and Attempt all subparts of it.

SECTION - A

1. (a) What are sources pollutants in an automobile? List them and explain with neat sketch. (7½)
- (b) Explain effect of operating variables on emission formation. (7½)
2. (a) Explain with diagrams different sources of HC emissions in homogeneous charge SI engine. (7½)
- (b) Explain the mechanism of NO formation in SI engines. (7½)

SECTION - B

3. (a) Explain the formation of soot and particulates in CI engines. (8)
- (b) Explain the mechanism of aldehyde emission from diesel engines. (7)
4. (a) Explain the control strategy for NO_x in Diesel engines. (7)

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- (b) Explain with neat sketch working of Diesel trap oxidizers. (8)

SECTION - C

5. Explain with the neat sketch, various techniques and need for EGR. (15)
6. Explain the working principles, constructional details and function of chemiluminescent analyser. (15)

SECTION - D

7. Explain the Indian emission standards for Petrol vehicles and also explain the operating test cycle on which it is based. (15)
8. Explain European emission test procedure for light and medium duty vehicles. (15)

SECTION - E

9. (i) Explain effect of flame quenching on HC emissions.
- (ii) What are thermal reactors.
- (iii) Explain how lubricating oil film contributes to HC emissions.
- (iv) Explain how undermining of fuel contributes to HC emissions.
- (v) How increased compression ratio causes increased emissions? Explain.
- (vi) Explain PCV system of emission control.
- (vii) What is meant by spot sampling?
- (viii) Explain working of Orsat apparatus. (5×8=40)