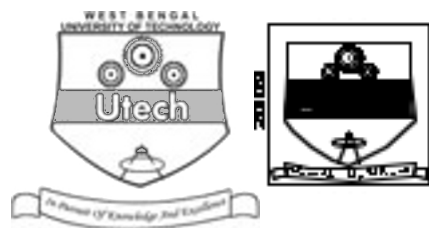


AUTOMOTIVE POLLUTION CONTROL (SEMESTER - 6)

CS/B.TECH(AUE-N)/SEM-6/AUE-604/09



1.
Signature of Invigilator

2.
Signature of the Officer-in-Charge

Reg. No.

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Roll No. of the
Candidate

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CS/B.TECH(AUE-N)/SEM-6/AUE-604/09

ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

AUTOMOTIVE POLLUTION CONTROL (SEMESTER - 6)

Time : 3 Hours]

[Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
b) For **Groups – B & C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

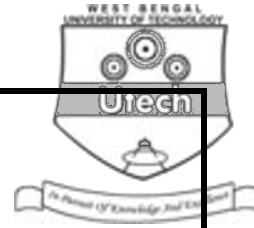
FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B					Group – C					Total Marks	Examiner's Signature
Question Number																						
Marks Obtained																						

.....
Head-Examiner/Co-Ordinator/Scrutineer

6801 (11/06)



DO NOT WRITE ON THIS PAGE



ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009

AUTOMOTIVE POLLUTION CONTROL

SEMESTER - 6



Time : 3 Hours]

[Full Marks : 70

GROUP – A

(Multiple Choice Type Questions)

1. Choose the most correct alternatives for the following : 10 × 1 = 10

i) NO_x emission is maximum in SI engines when the A/F ratio is

- | | |
|--------------------------|-------------------|
| a) nearly stoichiometric | b) lean |
| c) rich | d) none of these. |

ii) Fumigation technique is used to control

- | | |
|----------------|------------------|
| a) HC | b) NO_x |
| c) unburnt oil | d) CO. |

iii) Blue smoke in diesel engines indicate

- | | |
|------------------|--------|
| a) unburnt oil | b) HC |
| c) NO_x | d) CO. |

iv) Thermal converters cannot reduce emission of

- | | |
|------------------|--------|
| a) NO_x | b) CO |
| c) soot | d) HC. |

v) Efficient operation of catalytic converters require maintenance of

- | | |
|-------------------|----------------------|
| a) temperature | b) equivalence ratio |
| c) both (a) & (b) | d) pressure. |



vi) Evaporative emission in SI engine account for emission of

- | | |
|-----------|-------------|
| a) 50% CO | b) 50% HC |
| c) 25% HC | d) 100% HC. |

vii) The smoke in CI engine is noticed during

- | | |
|------------------------|------------------|
| a) Starting and idling | b) Light loads |
| c) Heavy loads | d) Acceleration. |

viii) Rhodium promotes the reduction of

- | | |
|-------|------------------|
| a) HC | b) NO_x |
| c) CO | d) CO & HC. |

ix) Non-dispersive infrared analyzer is widely accepted instrument for measuring

- | | |
|-------|--------------------|
| a) HC | b) NO_x |
| c) CO | d) CO_2 . |

x) Chemiluminescence analyzer is used for measuring

- | | |
|------------------|--------|
| a) NO_x | b) HC |
| c) CO_2 | d) CO. |

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

2. Write detail on diesel smoke.
3. What is compression ratio ? Describe it for both SI & CI engines.
4. What is a Catalytic converter ? Write its working principle.
5. Explain the incomplete combustion losses in automobile.
6. Discuss about the air injection pump.



GROUP – C

(Long Answer Type Questions)

Answer any *three* questions.



3 × 15 = 45

7. a) What are the mechanisms of formation of three major emissions ?
b) Explain emission as a function of equivalence ratio for a CI and SI engine. 9 + 6
8. a) Explain the sources of evaporative HC emission from automobile engine.
b) Discuss the factors which may increase the NO_x concentration. 8 + 7
9. a) Explain the internationally accepted methods of measuring Unburned Hydrocarbons emission.
b) Explain the working principle of Hertridge smoke meter. 9 + 6
10. a) Write the name of automobile pollutants which causes maximum hazards to the human health and mention about the diseases which are happened with respect to individual pollutants.
b) Write how pollutants affect on the natural environment and impact of dusts & soot to the nature. 10 + 5
11. a) What is PCV ? Explain how it functions in case of SI engine.
b) Explain Evaporate Emission Control system with schematic diagram for SI engine.
c) What is exhaust emission ? Write about the measures which can control it.

5 + 5 + 5

END