



B.E DEGREE EXAMINATIONS: APRIL/ MAY 2016

(Regulation 2013)

Sixth Semester

AUTOMOBILE ENGINEERING

U13AUT604 : Automotive Pollution and Control

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which of the following is odour less gas?
 - a) CO
 - b) LPG
 - c) SO₂
 - d) O₃
2. Acid rain is due to _____ emission.
3. Hydrocarbon emission will be minimum for _____ mixture
 - a) Lean
 - b) Rich
 - c) Stoichiometric
 - d) Both lean and rich
4. Vapour which goes out from a partially filled tank during vehicle operation is called _____
5. The black smoke is due to
 - a) high concentration of soot in exhaust
 - b) burning of lubricating oil
 - c) the water leakage in combustion chamber
 - d) high amount of NO_x in exhaust
6. Dilution effect in EGR is the reduction in inlet _____ concentration
7. Lowest surface to volume ratio in combustion chamber can be obtained by
 - a) Wedge-Shaped Combustion Chambers
 - b) Hemispherical Combustion chamber
 - c) Heart-shaped Combustion Chamber
 - d) Bowl in Piston Combustion Chamber
8. Platinum and Palladium mixture ratio used for obtaining oxidation catalyst is _____
9. The NO_x emission is measured with the help of
 - a) Non-dispersive infrared (NDIR)
 - b) Gas chromatography
 - c) Chemiluminescence detector (CLD)
 - d) Flame Ionization detector (FID)
10. Particulate matter limit in Euro 6 emission standard for passenger diesel engine cars is _____ g/km.

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. Explain the effect of A/F ratio on composition of exhaust of petrol engine.
12. What is smog?
13. What are the reasons for the formation of oxides OF nitrogen in an I.C. Engine?
14. List out the sources of evaporative emissions in S.I Engine.
15. What are the main pollutants of diesel engine?
16. How does combustion chamber design affects pollution from diesel engine?
17. Distinguish between Thermal Reactor and Catalytic Converter. Compare its Efficiency.
18. How are fuel cells contributing for emission control in vehicle?
19. What is driving cycle?
20. What is meant by dilution tunnel? What for is it used?

PART C (5 x 14 = 70 Marks)

(Answer not more than 400 words)

Q.No. 21 is Compulsory

21. Discuss the effect of automotive pollution on human health.
22. (a) Explain the formation of HC emission in S.I. Engines.

(OR)

(b) Explain the effect of design and operating variables on exhaust emissions of S.I. Engine.
23. (a) Discuss the formation of particulate emissions of C.I Engines.

(OR)

(b) Explain the different sources of noise from automobiles. Discuss the noise measurement techniques and Control of automotive noise.
24. (a) Explain the layout and working of three way catalytic converter. List out its limitation.

(OR)

(b) Explain with neat sketch the exhaust gas recirculation system to control NO_x emissions.
25. (a) Explain the construction and working of flame ionization detector

(OR)

(b) Explain the FTP and SHED test procedures along with the respective driving cycle.
