

B.E DEGREE EXAMINATIONS: NOV / DEC 2014

(Regulation 2009)

Sixth Semester

AUTOMOBILE ENGINEERING

AUE115: Automotive Pollution and Control

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which one of the component of automobile petrol vehicle gives maximum contribution on pollution
 - a) Fuel tank evaporator
 - b) Crank case blowby
 - c) Tail pipe exhaust
 - d) carburetor
2. The photochemical smog is formed due to
 - a) Hydrocarbon
 - b) Carbon monoxide
 - c) Carbon dioxide
 - d) Oxides of nitrogen
3. Which one of the following is incorrect regarding SI engine compared to diesel engine
 - a) HC emission is higher
 - b) Smoke emission is higher
 - c) Lead emission is higher
 - d) Evaporative emission is higher
4. The NO formation in SI engine will increase with the increase of
 - a) Spark retard
 - b) compression ratio
 - c) Valve overlap
 - d) surface to volume ratio
5. The blue smoke is formed when
 - a) The burning of lubricating oil
 - b) The water leakage in combustion chamber
 - c) The water leakage in combustion chamber
 - d) The vehicle is at full load
6. The aldehyde emission is mainly emitted when the engine is fuelled with
 - a) Diesel
 - b) Biodiesel
 - c) Alcohol
 - d) Gasoline

7. The thermal reactors is used to control
 - a) HC & CO emission
 - b) NO & HC emission
 - c) CO & CO₂ emission
 - d) smoke emission
8. The main function of fuel cell is to
 - a) Reduce the pollution
 - b) Produce & store the energy
 - c) Store the energy
 - d) Increase the power & torque
9. The HC emission is measured with the help of
 - a) NDIR
 - b) Gas chromatography
 - c) Chemiluminescent
 - d) FID
10. The smoke meter works on the principle of
 - a) Light extinction
 - b) Flame ionization
 - c) Infrared
 - d) Vacuum pressure

PART B (10 x 2 = 20 Marks)

11. List out the causes of raise in earth temperature.
12. What are the effects of HC emission on human health?
13. What is meant by quenching distance?
14. What are the methods available to control evaporative emission
15. What do you understand by white smoke?
16. Name the devices that are used to measure the automobile noise.
17. Define EGR ratio.
18. Give few examples of oxidation catalyst.
19. What is meant by driving cycle?
20. State the purpose of chassis dynamometer.

PART C (5 x 14 = 70 Marks)

21. a) Discuss the effects of various pollutants on human health.

(OR)

- b) Write short notes on
 - (i) Global warming. (7)
 - (ii) Transient operational effects on pollution. (7)
22. a) Explain the mechanism of HC and CO emission formation in SI engine.

(OR)

- b) Discuss the effects of design and operating variables on emission formation in SI engine.

23. a) Explain the formation of NO_x emissions in diesel engines.

(OR)

- b) Describe the factors effecting smoke formation in diesel engines. Discuss the smoke control techniques.

24. a) Explain the working of EGR system to control the NO_x emission from the engine exhaust.

(OR)

- b) Explain the layout and working of three way catalytic converter. List out its limitation.

25. a) Explain the working principle of chemiluminescent analyser.

(OR)

- b) Discuss the ECE and SHEP test procedure.
