



10AU74

Date USN

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Seventh Semester B.E. Degree Examination, June/July 2019
Automotive Air Pollution and Control

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Define a driving cycle. Explain the ECE driving cycle using a graph. (10 Marks)
b. Explain about the various pollutants from gasoline engines and their sources. (10 Marks)
- 2 a. What are the various hydrocarbon emissions in I.C. Engines? Explain the sources of unburnt hydrocarbons. (10 Marks)
b. Explain the mechanism of formation of oxides of nitrogen in engines. Discuss the influence of i) Fuel/air ratio ii) Burnt gas fraction ; on formation of NO. (10 Marks)
- 3 a. Briefly explain the process of crankcase blowby. (04 Marks)
b. Explain the working of Positive Crankcase Ventilation system with neat sketch. (10 Marks)
c. Briefly explain the various methods to control NO_x emission. (06 Marks)
- 4 a. Discuss the effects of any six properties of fuel on S.I. Engine emissions. (12 Marks)
b. Discuss the effects of the following on diesel emissions :
i) Cetane number ii) Volatility iii) Fuel density iv) Additives. (08 Marks)

PART – B

- 5 a. With neat sketch, explain 3 way catalytic converter. (10 Marks)
b. Explain briefly about particulate traps. (04 Marks)
c. Explain the use of thermal reactor using sketch. (06 Marks)
- 6 a. What is Global warming? What are its effects on the environment? (10 Marks)
b. Explain the effects of automotive pollutants on : i) Plants ii) Human health. (10 Marks)
- 7 a. Explain the i) Volumetric method ii) Gravimetric methods of sampling. (08 Marks)
b. Explain sedimentation technique for collection of particulate matter. (08 Marks)
c. Explain Electrostatic precipitation briefly. (04 Marks)
- 8 a. Explain Bosch Smokemeter, with neat sketch. (10 Marks)
b. Explain the Orsat analysis of exhaust gases. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.