

CBCS SCHEME

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18AU643

Sixth Semester B.E. Degree Examination, June/July 2023 Automotive Pollution and Control

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the driving cycles followed in Europe for light and medium duty vehicles. (10 Marks)
b. Discuss the influence of Actual traffic conditions and Vehicle maintenance on emissions. (10 Marks)

OR

- 2 a. What are effects of Automobile Engine Pollutants on Human Health and Plants? (10 Marks)
b. Explain Global Warming and its effects. (10 Marks)

Module-2

- 3 a. Explain the formation of Nitric Oxide (NO) in SI Engines. (10 Marks)
b. Discuss the reasons for the liberation of Carbon Monoxide after the Combustion. (10 Marks)

OR

- 4 a. Explain the formation of unburnt hydrocarbon in diesel engines and also the effect of fuel air ratio and flame quenching. (10 Marks)
b. Explain the following :
i) Characteristic of diesel particulates.
ii) Soot Formation. (10 Marks)

Module-3

- 5 a. Discuss the effects of following on Pollution control :
i) Exhaust Gas Recirculation. (10 Marks)
ii) Fuel Additives. (10 Marks)
b. Explain Positive Crankcase Ventilation System , with a neat sketch. (10 Marks)

OR

- 6 a. Discuss any five properties of Petrol fuel which influence the exhaust emission. (10 Marks)
b. Discuss the effect of following on emission :
i) Alternative fuels
ii) Lubricants. (10 Marks)

Module-4

- 7 a. With a neat sketch, explain 3 – way catalytic convertor. (10 Marks)
b. Discuss the Thermal reactors used for exhaust gas treatment with sketch. (10 Marks)

OR

- 8 a. What are the exhausts gas contents before the treatments? (04 Marks)
b. Discuss various techniques of NOx treatment in diesel engines. (08 Marks)
c. Briefly explain Particulate traps. (08 Marks)

Module-5

- 9 a. Explain the particulate sampling methods using sedimentation and filtration type. (08 Marks)
b. Explain the following :
i) Electrostatic Precipitation.
ii) Thermal Precipitation.
iii) Centrifugal method. (12 Marks)

OR

- 10 a. Explain with a neat sketch, the working of Flame Ionization detector. (06 Marks)
b. Explain Onsat apparatus for the exhaust gas analysis, with a neat sketch. (08 Marks)
c. Explain Bosch Smoke meter, with a neat sketch. (06 Marks)
