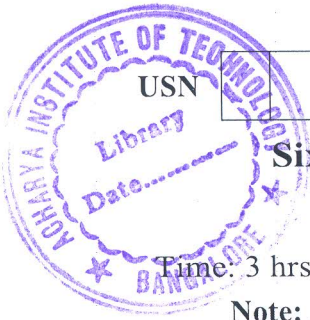


CBCS SCHEME

15AU654



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Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020

Automotive Pollution and Control

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain the following European cycles in brief :
(i) ECE urban cycle (ii) EUDC extra urban cycle. (10 Marks)
- b. Specify the names of testing procedure as per EC2008 regulation for engines emissions. (06 Marks)

OR

- 2 a. Discuss the harmful effect of the following on human health.
(i) Lead (ii) SO₂ (iii) Particulate (iv) Fluorides. (08 Marks)
- b. Discuss the harmful effects of the following on plants.
(i) Chlorine (ii) Hydrogen chloride (iii) nitric oxides (iv) Herbicides. (08 Marks)

Module-2

- 3 a. Explain the formation of unburnt Hydrocarbon in spark ignition engine. (08 Marks)
- b. Explain the following: (i) Photochemical smog (ii) Particulate emissions in SI Engines. (08 Marks)

OR

- 4 a. Explain the formation of NO_x with a graph in CI engine. (08 Marks)
- b. Explain flame quench mechanism in SI engines. (08 Marks)

Module-3

- 5 a. Explain any two engine design modifications to control emission in SI engine. (08 Marks)
- b. Sketch and explain the evaporative loss control device. (08 Marks)

OR

- 6 a. Discuss the effect of following gasoline properties on emissions
(i) Volatility (ii) Octane number. (08 Marks)
- b. Explain the effect of following diesel fuel properties on emissions.
(i) Cetane number (ii) Sulphur content. (08 Marks)

Module-4

- 7 a. List out the various methods adopted in SI engine for reduction of NO_x, Explain briefly. (06 Marks)
- b. Explain the Thermal reactor used for exhaust gas treatment with a sketch. (10 Marks)

OR

- 8 a. Explain the following with neat sketch :
(i) Dual catalyst system (ii) Three way catalytic converter. (10 Marks)
- b. With a sketch, explain Electro static initiation diesel trap. (06 Marks)

Module-5

- 9 a. Explain with sketch, 'ORSAT' apparatus used for flue gas analysis. (08 Marks)
- b. Briefly discuss the following sampling methods.
(i) Thermal precipitation (ii) Centrifugal method. (08 Marks)

OR

- 10 a. Sketch and explain Hartridge smoke meter. (08 Marks)
- b. Explain with suitable sketch, BOSCH smoke meter. (08 Marks)

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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.