

C.U.SHAH UNIVERSITY

Summer Examination-2016

Subject Name: Automobile Pollution and Control

Subject Code: 4TE06APC1

Branch: B.Tech (Auto)

Semester: 6

Date: 13/05/2016

Time: 02:30 To 05:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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Q-1 Attempt the following questions:

(14)

- a) Photochemical smog is formed by the emission of
(a) HC (b) CO (c) SO₂ (d) NO_x
- b) All 3 gases (HC, CO, NO_x) are removed in
(a) oxidation converter (b) reduction converter
(c) 3-way converter (d) None of these
- c) Noise is:
(a) Loud sound (b) Sound of high frequency
(c) Unwanted sound (d) Constant sound
- d) Blow by gases are emitted from
(a) carburettor (b) Fuel tank (c) Crank case (d) Tail pipe
- e) The function of automobile catalytic converter is to control emissions of
(a) carbon dioxide and hydrogen
(b) carbon monoxide and hydrogen
(c) carbon monoxide and carbon dioxide
(d) carbon monoxide and nitrogen dioxide
- f) The principal source of volatile organics (Hydrocarbons) is
(a) Transportation (b) Industrial processes
(c) Stationary fuel combustion (d) Volcanoes
- g) According to EPA of USA, the following is not one of the six major pollutants?
(a) Ozone (b) Carbon monoxide (c) Nitrogen oxides (d) Carbon dioxide
- h) Hydrocarbon emission from diesel engine is as compared to petrol engine.
(a) More (b) Less (c) Equal (d) Any one as per load
- i) What is EGR and what is its purpose?



- j) Write different technologies for NO_x reduction in diesel engines.
- k) What is the effect of spark ignition timing on formation of NO_x?
- l) Write advantages of SCR.
- m) What is meant by FTP?
- n) Give the emission measurement technique name.

Attempt any four questions from Q-2 to Q-8

- Q-2 Attempt all questions**
- a) Discuss various air pollutants and their effects on human health and environment. (7)
 - b) Explain the European Standards for heavy duty vehicle? (7)
- Q-3 Attempt all questions**
- a) Enlist main sources of hydrocarbon emission in 4 strokes SI engines and explain any two. (7)
 - b) Explain ECE and FTP test procedures along with respective driving cycles and sampling systems? (7)
- Q-4 Attempt all questions**
- a) Explain effects of design and operating variables on CI engine emissions. (7)
 - b) Write a note on Evaporative emission control in SI engine. (7)
- Q-5 Attempt all questions**
- a) Write a note on SCR. (6)
 - b) Explain the construction and working of non dispersive infra red analyzer. (4)
 - c) Write a short note on noise pollution from Vehicle. (4)
- Q-6 Attempt all questions**
- a) Write a short note on smoke meters. (4)
 - b) Explain diesel particulate filters. (4)
 - c) Explain Exhaust gas recirculation in SI engine. (6)
- Q-7 Attempt all questions**
- a) Write a note on sources of pollutant formation in a direct injection CI engine during Premixed combustion phase. (7)
 - b) Write types of catalytic converter and explain any one. (7)
- Q-8 Attempt all questions**
- a) Write a note on chassis dynamometers. (7)
 - b) What are the causes of production of air pollutants from vehicle? Discuss. (7)

