

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2171302****Date: 29/04/2017****Subject Name: Air Pollution Control and Management****Time: 02.30 PM to 05.00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Which six mechanisms are responsible for particulate collection? **07**
(b) Discuss about the alternative fuels which can be used to reduce air pollution due to automobile. **07**
- Q.2** (a) List five basic classes of particulate collection equipment and describe which mechanism of collection is prevalent in each case. **07**
(b) Enlist various types of wet scrubbers. Write a detail note on cyclonic scrubber. **07**
- OR**
- (b) Write a short note on “various bag cleaning mechanism for bag house filter.” **07**
- Q.3** (a) (i) Write a brief note on “methods used to reduce sulfur dioxide emission”. **07**
(ii) Differentiate between throwaway and regenerative process for flue-gas desulfurization with example.
- (b) In which circumstances flue gas control methods for NO_x emission is used. Enlist and explain any one flue gas control method for NO_x emission. **07**
- OR**
- Q.3** (a) (i) List down (A) the main parameters that affect NO_x formation in combustion process & (B) factor that control NO_x formation during combustion. **07**
(ii) Explain the effect of combustion zone cooling on NO_x emission.
(b) Enlist industries /industrial processes responsible for VOC Emission & also explain possible control mechanism for the same. **07**
- Q.4** (a) Write a short note on “Electrostatic Precipitator”. **07**
(b) Write a short note on “ Roles of oxides of nitrogen in photooxidation” **07**
- OR**
- Q.4** (a) (i) Define the following terms (i) Stoichiometric Air-Fuel Ratio. (ii) Lean mixture (iii) Rich Mixture. **07**
(ii) Explain the effects of variation in Air-Fuel Ratio on Exhaust gas Emission.
(b) Define photochemical smog. Enlist various chemical species must be present for the formation of photochemical smog. **07**
- Q.5** (a) Enlist and explain the factors that exert strong influence upon emission from gasoline engines. **07**
(b) Identify the sources of pollution emission and suggest appropriate air pollution control scheme for cement industry. **07**
- OR**
- Q.5** (a) Write a short note on “pollutants emitted from diesel engine.” **07**
(b) Identify the sources of pollution emission and suggest appropriate air pollution control scheme for thermal power plant. **07**
