

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2017

Subject Code: 2171302
Date: 02/11/2017
Subject Name: Air Pollution Control and Management
Time: 10:30 AM TO 01:00 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) | Construct the cyclone separator with help of its components. | 03 |
| (b) | Explain the working principle of Gravity settling chamber with neat sketch. | 04 |
| (c) | Enlist the cleaning mechanisms of bag filter and explain each in detail with diagram. | 07 |

- Q.2**
- | | | |
|-----|---|----|
| (a) | Define Following terms:
(i) Resistivity (ii) Pressure Drop (iii) Viscosity | 03 |
| (b) | How to maintain the negative pressure in air pollution control System? | 04 |
| (c) | Identify the sources and explain suitable air pollution control system for Thermal Power Plant. | 07 |

OR

- | | | |
|-----|---|----|
| (c) | Identify the sources and explain suitable air pollution control system for cement Industries. | 07 |
|-----|---|----|

- Q.3**
- | | | |
|-----|--|----|
| (a) | Classify the SO _x Control methods. | 03 |
| (b) | Differentiate between single and double alkali scrubbing. | 04 |
| (c) | Explain the magnesium oxide process for control of Sulfur dioxide with its reaction chemistry. | 07 |

OR

- Q.3**
- | | | |
|-----|--|----|
| (a) | Enlist and explain the three opportunities for formation of NO _x . | 03 |
| (b) | Enlist the Control methods of NO _x to reducing the peak temperature and explain anyone in detail. | 04 |
| (c) | Write a short note on selective catalytic reduction with its reaction chemistry and neat sketch. | 07 |

- Q.4**
- | | | |
|-----|---|----|
| (a) | Highlight the importance of the Tall stack dispersion | 03 |
| (b) | Write a short note on hydrocarbon reactivity. | 04 |
| (c) | Explain working principle of Electrostatic precipitator with neat sketch. | 07 |

OR

- Q.4**
- | | | |
|-----|--|----|
| (a) | Write down the working of conventional internal combustion engine. | 03 |
| (b) | Write a note on Crankcase and evaporative emissions. | 04 |
| (c) | Enlist and explain methods of control of vehicular emissions. | 07 |

- Q.5**
- | | | |
|-----|--|----|
| (a) | Define A/F ratio in gasoline engine and also identify the origin | 03 |
|-----|--|----|



- of exhaust emission from gasoline engine. **www.FirstRanker.com** **www.FirstRanker.com**
- (b) Give the difference between: **04**
- (i) Internal Combustion Engine and External Combustion Engine
 - (ii) Two Stroke Engine and Four Stroke Engine
- (c) Write a brief note on Rotary combustion engine with neat sketch. **07**

OR

- Q.5** (a) Which scrubber is efficiently removing the particulate matter? **03**
Draw a neat sketch of that scrubber.
- (b) What are the sources of Volatile Organic compounds? **04**
- (c) Describe the performance parameters of Electrostatic precipitator and explain each in detail. **07**

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