

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3161308****Date:11-12-2023****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.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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| Q.1 | (a) | Discuss in Detail “Air Pollution Control Management”. | 03 |
| | (b) | Enlist the different adsorbents used for controlling air pollution. | 04 |
| | (c) | Enlist industries /industrial processes responsible for VOC Emission & also explain possible control mechanism for the same. | 07 |
| Q.2 | (a) | Enlist and explain the selection criteria for the Air pollution control equipment. | 03 |
| | (b) | Which six mechanisms are responsible for particulate collection? | 04 |
| | (c) | Briefly explain the working principle of gravity settling chamber along with sketch. | 07 |
| | | OR | |
| | (c) | Write short notes on Cyclone separator with their principal, construction and working. | 07 |
| Q.3 | (a) | Differentiate between throwaway and regenerative process for flue-gas desulfurization with example. | 03 |
| | (b) | Write a short note on “various bag cleaning mechanism for bag house filter.” | 04 |
| | (c) | Write a short note on Magnesium Oxides scrubbing method for control of SO ₂ with neat sketch. | 07 |
| | | OR | |
| Q.3 | (a) | Enlist and explain any one flue gas control method for NO _x emission. | 03 |
| | (b) | Write a short note on venturi scrubber along with sketch. | 04 |
| | (c) | What are the objections to the lime scrubbing throwaway process for removing SO ₂ from stack gases? | 07 |
| Q.4 | (a) | Explain catalytic convertor in detail. | 03 |
| | (b) | Discuss Alternative fuel to reduce air pollution due to automobile. | 04 |
| | (c) | Write short notes on Electrostatic precipitator with their principal, construction and working. | 07 |
| | | OR | |
| Q.4 | (a) | Define the following terms (i) Stoichiometric Air-Fuel Ratio. (ii) Lean mixture (iii) Rich Mixture. | 03 |
| | (b) | How engine design changes to reduce automobile pollution. | 04 |
| | (c) | Explain the working of Bag filter with neat sketch. | 07 |

- Q.5** (a) Write a short note on “pollutants emitted from diesel engine.” **03**
(b) Enlist and explain the advantages and disadvantages of ESP. **04**
(c) Identify the sources of pollution emission and suggest appropriate air pollution control scheme for cement industry. **07**

OR

- Q.5** (a) Differentiate between dual alkali scrubbing and single alkali scrubbing. **03**
(b) Write a short note on Turbojet Engine with diagram. **04**
(c) Identify the sources of pollution emission and suggest appropriate air pollution control scheme for thermal power plant. **07**
