Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18CE3035** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ATMOSPHERIC ENVIRONMENTAL POLLUTION AND CONTROL** | **Max. Marks :** | **100** |

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| **Q. No.** | **Sub Div.** | **Questions** | **Course Outcome** | **Marks** |
| **ANSWER ANY FIVE QUESTIONS (5 x 16 = 80 Marks)** | | | | |
| 1. | a. | Describe the Gaussian Plume Model. Explain the assumptions of Gaussian plume model. | CO1 | 8 |
| b. | Estimate the plume rise for a 3m diameter stack whose exit gas has a velocity of 20 m/s when the wind velocity is 2 m/s, the pressure is 1atm and the stack and surrounding temperatures are 100 and 15 respectively. | CO3 | 8 |
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| 2. | a. | Determine the effective height of a stack, if the stack is 203 m tall with 1.07 m inside diameter. Wind velocity is 3.56 m/s. Air temperature is  13°C. Barometric pressure is 1000 millibars. Stack gas velocity is  9.14 m/s having 149°C temperature. | CO2 | 8 |
| b. | Define the term (any four)  i) Ground level central line concentration  ii) Ground level centerline concentration from a ground based source  iii) Downwind concentration  iv) Downwind ground level concentration  v) Effective stack height. | CO3 | 8 |
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| 3. | a. | Define the Inversion. Articulate the types of Inversion by using neat and clean diagram. | CO5 | 8 |
| b. | Explain the possible precautions should be taken while air sampling in industrial area. | CO4 | 8 |
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| 4. | a. | Define the term:  i) Incineration ii) Condensation  iii) Absorption iv) Adsorption | CO5 | 8 |
| b. | Write a short note on atmospheric stability. Explain the stable, unstable and neutral condition by using neat and clean diagram. | CO4 | 8 |
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| 5. | a. | Write a short note on air quality monitoring and its importance for human and surrounding environment. | CO3 | 8 |
| b. | Define the particulate matter. Demonstrate the effects of particulate matter on human health, materials, and plant with examples. | CO5 | 8 |
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| 6. | a. | Illustrate the effects of lapse rate on plume behaviors by using neat and clean diagrams. | CO6 | 8 |
| b. | Explain the mechanism of electrostatic precipitator (ESP), gravity settling chamber, high volume sampler by using neat and clean diagram. | CO5 | 8 |
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| 7. | a. | Write a short note on any two of the following:  i) CALINE ii) AERONET  iii) ISCST 3 iv) SCREEN 3 | CO6 | 10 |
| b. | Explain the air pollution. Define the types of air pollution. What are the possible sources of air pollution? | CO5 | 6 |
| **COMPULSORY QUESTION (1 x 20 = 20 Marks)** | | | | |
| 8. | a. | Demonstrate the Iso-kinetic condition and non – Iso kinetic condition during stack sampling by using neat and clean diagram. | CO6 | 10 |
| b. | Explain the national ambient air quality standards. Demonstrate the national ambient air quality standards for any five pollutants with their units. | CO6 | 10 |