**CE1**

**Hall Ticket Number:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **January, 2024** | **Common to EC, EE, ME, CS, IT & DS** | | |
| **Sixth Semester** | **Air Pollution and Control** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
|  | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | CO | BL | M |
| 1 | a) | What is an Aerosol? | CO1 | L1 | 1M |
|  | b) | Differentiate between primary and secondary pollutants. | CO1 | L2 | 1M |
|  | c) | Difference between point and linear pollutant source. | CO1 | L2 | 1M |
|  | d) | Negative lapse rate is called? | CO1 | L2 | 1M |
|  | e) | Name the devices used to measure wind velocity. | CO2 | L1 | 1M |
|  | f) | Define wind rose diagram. | CO2 | L1 | 1M |
|  | g) | When ALR> ELR this condition is called? | CO2 | L3 | 1M |
|  | h) | Write the limitations of gaussian dispersion model. | CO2 | L3 | 1M |
|  | i) | What are different types of filters equipments in APC. | CO3 | L1 | 1M |
|  | j) | What are the different methods of Air Pollution Control? | CO3 | L1 | 1M |
|  | k) | Mention about the formula for efficiency of ESP? | CO3 | L2 | 1M |
|  | l) | List the pollutants which are established by NAAQS | CO4 | L1 | 1M |
|  | m) | What is the minimum height of stack for thermal power plants of 200MW capacity. | CO4 | L1 | 1M |
|  | n) | What is the ambient air standards level of PM2.5 in India | CO4 | L1 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Explain about stationary and mobile sources of air pollution. | CO1 | L2 | 7M |
|  | b) | Write a short note on a) heat islands b) Acid rains | CO1 | L2 | 7M |
| **(OR)** | | | | | |
| 3 |  | Explain in detail about the effects of air pollution on humans, plants & animals | CO1 | L3 | 14M |
| **Unit-II** | | | | | |
| 4 | a) | What is inversion? Explain types of inversion. | CO2 | L4 | 7M |
|  | b) | Construct a wind rose diagram and explain it briefly. Assume relevant data | CO2 | L2 | 7M |
| **(OR)** | | | | | |
| 5 |  | Explain in detail about the meteorological factors that affect the air pollution | CO2 | L2 | 14M |
| **Unit-III** | | | | | |
| 6 | a) | Estimate the ground level concentration of NOx at 1 Km downward and 500m crosswind away from centreline on both sides from a stack of effective height 100m. The Wind velocity is 4m/s and variance values in Y and Z direction at neutral condition is 220m and 120m respectively. The emission rate is 80 g/s. | CO3 | L3 | 7M |
|  | b) | With neat sketches explain briefly about the plume rise models. | CO3 | L2 | 7M |
| **(OR)** | | | | | |
| 7 |  | With neat sketches, explain in detail about the working of the following equipment’s with merits and demerits   1. Scrubbers 2. Electrostatic precipitator | CO3 | L2 | 14M |
| **Unit-IV** | | | | | |
| 8 |  | Write in detail about wet methods for removal of SOx ? | CO4 | L2 | 14M |
| **(OR)** | | | | | |
| 9 |  | Write in detail about methods for removal of NOx | CO4 | L2 | 14M |

