

II MTECH DEGREE (CIVIL) MODEL QUESTION PAPER

Interdisciplinary elective

AIR POLLUTION CONTROL AND MONITORING

Answer any two questions completely from each module. All questions carry equal marks

Max marks: 60

Time : 3 hours

MODULE 1

1. Discuss the phenomenon of photochemical smog and its effects.
2. Discuss the plume behaviour with neat sketches.
3. A coal fired thermal power plant releases SPM at the rate of 3.7g/s at 160°C. The stack is having a diameter of 3m and height 65m. The wind velocity at the stack height is 2.3 m/s and stack gas velocity is 5m/s. The atmospheric pressure is 1.003 bar. The wind speed at 10m height from the ground is 2.05m/s. Estimate the ground level concentration at 1, 2 and 3 km downwind distances.

Distance, km	σ_y	σ_z
1	34	14
2	63	22
3	117	32

MODULE II

4. Discuss the different particulate control methods with neat sketches.
5. Discuss the stack sampling procedure.
6. A cement plant has a 12 channel ESP to handle 20,000m³/hour of flue gas. The velocity of the particle is 0.1m/s and plate height is 2m with a spacing of 0.18m. Determine the plate length to obtain 90% and 98% collection efficiency.

MODULE III

7. Discuss the methods of control of NO_x emissions from automobile exhausts.
8. Explain in detail about indoor air quality.
9. Describe the wet scrubbing methods for removal of SO₂ emissions