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B. Tech
PECE 8407

Eighth Semester Examination – 2008

POLLUTION MEASUREMENT AND CONTROL

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory
and any **five** from the rest.

The figures in the right-hand margin
indicate marks.

1. Explain in brief : 2×10
- (a) Primary pollutants
 - (b) Lapse rate
 - (c) Atmospheric stability
 - (d) Effective stack height
 - (e) Adsorption



- (f) Criteria pollutants
 - (g) Fugitive emission
 - (h) Environmental impact assessment
 - (i) Environmental audit
 - (j) Emission factor.
2. (a) Briefly explain how would you sample and measure PM_{10} in ambient air. 5
- (b) Why a country needs sustainable energy growth policy ? 5
3. Explain the National Ambient Air Quality standards as prescribed by CPCB of India. 10
4. Compare primary and secondary pollutants with examples. 10
5. Explain the working principles of electrostatic precipitators. How would you determine its efficiency ? 10
6. A dry sieve analysis from a contaminated gas stream at the rate of $660 \text{ m}^3/\text{min}$ for abatement

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of particulate pollutants show that dust produced is in the range of 30 to 150 μm . It has been decided to remove all the particles above 100 μm by simple gravity settling chamber. Estimate the details of the settling chamber. Density of particles is 2700 kg/m^3 . Temperature is 20°C . Pressure is at 1 atm, viscosity is 0.0176 Cp, height of the settling chamber is 1.5 m. 10

7. List the anthropogenic sources of air pollutants. 10
8. Discuss the defence mechanism of human respiratory system against coarse dust. 10
