Roll No. | | | | | | | | | | | | |

Total No. of Pages : 01

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M.Tech.(Ev.S & E) (Sem.–1)

AIR POLLUTION AND CONTROL

Subject Code : ES-505

Paper ID : [E1026]

Time : 3 Hrs. Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

1. (a) What is lapse rate? Discuss the importance of lapse rate for dispersion of pollutants. [5+5]

   (b) What is the dispersion model for the pollutants? Discuss in details. [10]

2. (a) Discuss in detail the working principles of cyclones. [10]

   (b) Discuss the method of estimating efficiency of cyclones in detail. [10]

3. Discuss the working principle of fabric filter with neat sketch. Also, discuss the method to determine the cloth area and number of filter bags. [15+5]

4. (a) An electrostatic precipitator is to be constructed to remove fly-ash particles from stack gases flowing at 10 m^3/s. Analysis from similar system indicates that the drift velocity can be taken as $3\times10^5 \times d_p$ m/s. Determine the plate area required to collect a 0.5 micron particle(d_p) with 90% efficiency. [10]

   (b) Discuss in detail about the combustion generated pollution. [10]

5. (a) Discuss in detail the types and strategies for waste minimization. [10]

   (b) Describe the concepts of the air pollution control design. [10]

6. (a) What is the necessity of air pollution control in industry? Discuss elaborately. [10]

   (b) Discuss the following : (i) Wet scrubber; (ii) catalytic converter [2 × 5]

7. What are the sources of air pollution? Discuss them in details. Hence, discuss the options to control these pollutions. [10+10]

8. (a) Write short notes on design process of pollution control units. [10]

   (b) Discuss the following : (i) Meteorology; (ii) Fate of pollutant. [2 × 5]