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**SUBJECT CODE NO:- H-103**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**T.E. (Civil)**  
**Environmental Engineering - I**  
**(REVISED)**

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- 1) Attempt any three questions from each section.
  - 2) Q.1 from section A and Q.6 from Section B are compulsory.
  - 3) Assume suitable data if necessary.
  - 4) Draw neat and labeled diagram wherever necessary.

## Section A

- Q.1 a) What are the major air pollutant in an automobile exhaust? Mention suitable control measures. 05  
 b) What do you mean by ringelmann chart? Give its working procedure. 05
- Q.2 a) Define lapse rate and list out the manner which emitted plume behaviour under severe condition. 07  
 Explain any one of them.  
 b) Determine the effective height of stack, with following given data. 08  
 1) Physical stack is 180m tall with 0.95 m inside dia.  
 2) Wind velocity is 2.75 m/s.  
 3) Air temp is 20°C.  
 4) Barometric pressure is 1000 milibars.  
 5) Stack gas velocity is 11.12m/s  
 6) Stack gas temp is 160°C.
- Q.3 a) State layers of atmosphere & explain their importance with respect to air pollution. 07  
 b) Write down working principle of pipe type Electrostatic Precipitator with neat sketch. 08
- Q.4 a) With neat sketch explain i) Wind Speed recorder (ii) Wind direction recorder. 08  
 b) Write a note on effect of SPM on plants & vegetables. 07
- Q.5 Write short note (any three) 15  
 (a) Acid rain  
 (b) Settling chamber  
 (c) Wind rose  
 (d) Primary & secondary air pollutants  
 (e) Smog.

## Section B

- Q.6 a) Draw the layout plan of water purification work & describe in detail unit operation employed in it. 05  
 b) How will you estimate the quantity of water required by a town while arranging a water supply scheme for the same. 05

- Q.7 a) The maximum daily demand at a water purification plant has been estimated as 12MLD. Design the dimensions of a suitable sedimentation tank for the raw supplies, assuming a detention period of 6 hrs and the velocity of flow as 20 cm/min. 07  
 b) What are impurities mostly found in natural water? Explain their effect on quality of water. 08
- Q.8 a) Explain various water demands & factors affecting per capita demand. 05  
 b) Which treatment would you recommend for removal of taste & odour. Discuss in brief. 05  
 c) Enlist the population forecasting method & describe any two. 05
- Q.9 a) Explain the principle of flocculation tank with neat sketch. 07  
 b) What are the operational troubles in Rapid gravity filters. 08
- Q.10 Write short note on (any three) 15  
 a) Fire demand  
 b) Prechlorination & post – chlorination  
 c) merits & demerits of slow sand gravity filter  
 d) Clariflocculator  
 e) Break point chlorination.