This question paper contains 3 printed pages.

3164 *Your Roll No.* .....

MEC

J

Paper – CE.603

(Planning and Design of Environmental Services)

Time : 3 hours *Maximum Marks* : 100

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt any four questions.
All questions carry equal marks.

Draw neat labelled diagrams.

1. (*a*) Explain different types of systems of plumbing in building drainage with diagram. 10

   (*b*) A down feed pipe system is proposed for a multistoreyed building. Design:

   (*i*) Capacity of suction tank

   (*ii*) Capacity of overhead tank

   (*iii*) BHP of the pump

   with following design data:

   Height of building=22 m

   No. of occupants=60

P. T. O.

Rate of supply=135 lpcd

No. of W.C.=12

Pumping hours (assumed)=8

Assume the frictional loss as 8 m per 100 m pipe for 25 mm diameter pipe. 15

2. (*a*) Explain different types of hot water appliances available. 10

(*b*) Explain hot water supply and piping systems in buildings. 15

3. (*a*) Explain fire load to classify buildings on the basis of fire load. Discuss what is active and passive fire. 10

(*b*) Discuss in detail different types of portable fire extinguishers. 15

4. (*a*) Explain how ventilation is provided in a room by natural and mechanical means. Compare their merits and demerits. 10

(*b*) What is the necessity and what are the effects of providing ventilation in buildings? Discuss the arrangement made for ventilation in multistoreyed buildings with neat sketches. 15

5. (*a*) Explain merits and demerits of hard and soft waters with regard to swimming pool. Explain whether ideal swimming pool water should be

hard or soft and why. What are hardness requirements of swimming pool waters? 10

(*b*) Explain the various water quality parameters to be tested for swimming pool water with their acceptable limits. 15

6. Write short notes on any *five*:

(*i*) Ventilation of house drains

(*ii*) Testing of drains and pipes in buildings

(*iii*) Design criteria for swimming pool construction

(*iv*) Lighting of buildings

(*v*) Layout of house drainage system

(*vi*) Planning of environmental services in buildings.

5×5=25