Register Number:……..

B.E DEGREE EXAMINATIONS: APRIL/MAY 2014

(Regulation 2009)

Fifth Semester

CIVIL ENGINEERING

CEE116: Environmental Engineering I

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10x1=10 Marks)

1. Because of excess alkalinity

a) Corrosion is caused b) Water is coloured

c) pitting and tuberculation is induced d) incrustation develops

2. Dental Cries will be absent where the following is present

a) Mottled enamel teeth b) Methanoglobinemia c) itai-itai d) cancer

3. A water borne diseases is

a) Malaria b) Cancer c) Dysentery d) Encephalitis

4. For an old city with constraints for growth the best method of forecasting future population is

a) Arithmetical increase method b) Graphical method

c) Geometrical increase method d) Incremental increase method

5. Design period mainly depends on

a) Percentage interest at which the loan is taken b) Capacity of the municipality to repay

c) Quality of fittings used d)Rate of growth of population

6. Back washing is highly effective in case of

a) Slow sand filter b) Pressure filter

c) rapid sand filter d) rapid sand filter & pressure filter

7. A heavy metal capable of disinfecting is

a) Lead b) Iron c) Zinc d) Silver

8. Intermittent system is popular in India because

a) Supply hours can be staggered for different zones of different elevation

b) Less quantity of water shall be supplied

c) Wastage is quite less

d) It is highly economical in the long run

9. The best materials for pipes to be laid under water is

a) Cast iron b) summits c) Cement concrete d) asbestos cement

10. Air valves are provided at

a) Saddles b) Summits c) dead ends d) regularly at 1 Km intervals

PART B (10x2= 20 Marks)

11. What is most probable number?

12. What is wholesome water?

13. What is per capita demand of water?

14. When priming is required?

15. What is the quantity of residual chlorine to be applied for protected water supply ?

16. What is blue baby syndrome?

17. What is the effectiveness of ozone in disinfection of water?

18. What is a servicer reservoir? Where it should be located?

19. What is the function of stand pipe in distribution system?

20. What is the importance of chloride test in water distribution?

PART C (5 x 14= 70 Marks)

21. a) What do you understand by the expression per capita demand of water supply? What factors determine the rate per capita per day water supply to a city? What are the common values of rate per capita per day of water supply in India with local conditions?

(OR)

b) Describe the different method of forecasting the future population of a given town. Describe any one in detail.

22. a) (i) Sketch a shallow well showing there in construction details to protect water from contamination. (7)

(ii) Explain how you would determine the yield from a deep well . (7)

(OR)

b) What are the general factors to be considered in the design of an impounding reservoir? How the storage of an impounding reservoir is considered? What points have to be considered in deciding a suitable site for its location?

23. a) (i) What are the factors considered in the selection of type of pump? (7)

(ii) Discuss the situation under which following types of pumps may be used? Centrifugal pump and Air lift pump (7)

(OR)

b) (i) Describe briefly the procedure of laying underground distribution pipes in city areas and mention the safety precautions you will take to safe guard the traffic and workmen from an untoward incident. (7)

(ii) How will you test the soundness of your construction before bringing a pipeline into commission? (7)

24. a) (i) What is meant by sterilization of water? Describe various methods of application of chlorine for sterilization of water and explain one method in detail. (7)

(ii) Explain a. Prechlorination b. Break point chlorination

(OR)

b) (i) What is the action of coagulant added to raw water (5)

(ii) What is flocculation? What are the common aids used to make the process more thorough? Explain reactions involved. (9)

25. a) (i) What are the different methods of analyzing a given distribution system? Explain any one in detail. (7)

(ii) What points are to be considered in view in design of distribution system? (7)

(OR)

b) A distribution main is tapped at a point where RL is 30M and where pressure is 12m head. The servicer pipe is 60m long and supplies water to 12 occupants at an average rate of 135 lit per head per day. The hourly variation factor is given as 4. Calculate the size of the supply main if the residual head at tap outlet having RL of 33m is not to fall 1.5m. Use the formula $V = 83.5\ m^{2/3}\ i^{1/2}$.

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