**Reg. No. :** | | | | | | | | | | |

**Question Paper Code: 41155**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Fifth Semester

Civil Engineering

14UCE505 - WATER SUPPLY ENGINEERING

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Which source of water, among the following, is not a surface source?

   (a) river (b) well (c) ocean (d) lake

2. Coincident draft in relation to water demand is based on

   (a) peak hourly demand (b) maximum daily demand
   (c) maximum daily + fire demand (d) greater of (a) and (c)

3. The formula which is most appropriate to the design of pressure pipes is

   (a) Darcy weisbach formula (b) Mannings formula
   (c) Chezy's formula (d) Dupuit's formula

4. The maximum pressure, which a pipe can withstand without any leakage, during hydrostatic pressure test, is called the

   (a) working pressure (b) test pressure
   (c) design pressure (d) hydrostatic pressure

5. The fine screens are generally not used these days, in water treatment, as the fine suspended particles are removed in

   (a) filtration (b) sedimentation
   (c) aeration (d) disinfection

6. Sedimentation can remove in organic particles, having specific gravity upto, say

(a) *2.65* (b) 1.65 (c) 1.2 (d) *1.03*

7. The suitable method for disinfection of swimming pool water is

(a) ultra violet rays treatment (b) lime treatment
(c) chlorination (d) potassium permanganate

8. Iron and manganese can be removed from water by

(a) boiling (b) aeration followed by coagulation
(c) chlorination (d) activated carbon

9. The suitable layout for a water supply distribution system, for a city of roads of rectangular pattern is

(a) dead end system (b) grid iron system
(c) ring system (d) radial system

10. The water meter, which is installed on individual house connections, on municipal supplies, is

(a) a velocity meter (b) an inferential meter
(c) a displacement meter (d) none of these

PART - B (5 x 2 = 10 Marks)

11. State the objectives of water supply system.

12. Recall any two importance of intake structures.

13. Classify screens.

14. What is mean by water softening?

15. Name the leak detection methods practiced in water supply scheme.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain any four physical and chemical analysis to be carried out for drinking water. (16)

Or

(b) (i) Discuss the factors governing selection of particular sources of water. (8)

(ii) Describe in detail about the various demands in detail. (8)

17. (a) (i) Differentiate between wet intake and dry intake towers. (8)

(ii) List out the different materials used in water supply pipes. (8)

Or

(b) Describe in detail about the various joints that are used in cast iron pipes with neat sketches. (16)

18. (a) Explain the following methods of Disinfection: (i) Treatment with Ozone (ii) Treatment with UV Rays. (16)

Or

(b) A system of water has to purify the water for a town whose daily demand is $9 \times 10^6$ *litres/day*. Design the suitable sedimentation tank. Assume the velocity of flow as 22*cm/min* and the detention period as 8 *hours*. (16)

19. (a) Briefly explain the demineralization process used in water purification process in detail. (16)

Or

(b) Discuss the Lime Soda process and Zeolite Process for removing permanent Hardness in water. (16)

20. (a) How the detection of leakage in the underground distribution pipes is carried out? Discuss various methods in detail. (16)

Or

(b) With a neat sketch explain the one pipe system of plumbing. (16)

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