

B. E. Third Semester (Civil Engineering)/SoE –2018 Examination

Course Code : CV 2207

Course Name : Water Supply Engineering

Time : 3 Hours]

[Max. Marks : 60

Instructions to Candidates :—

- (1) All questions are compulsory.
- (2) All questions carry marks as indicated.
- (3) Assume suitable data wherever necessary.
- (4) Diagrams and Chemical equations should be given wherever necessary.
- (5) Use of non programmable calculator, Drawing instruments is permitted.

1. (A) Solve any **One** :— (CO1)

(A1) State necessity of water supply scheme.

(A2) State factors affecting design period of water supply scheme.
2

(B) Solve any **One** :— (CO1)

(B1) Explain in detail variation in Water Demand.

(B2) Explain master plan method of population forecasting.
4

(C) Solve any **One** :— (CO1)

(C1) Explain factors affecting water demand.

(C2) Calculate population in the year 2030 using simple graphical method.

Year	1970	1980	1990	2000	2010
Population	40,000	55,000	75,000	1,00,000	1,40,000

4

2. (A) Solve any **One** :— (CO2)
 (A1) List various valves in water distribution system.
 (A2) What is an intake structure ? 2
- (B) Solve any **One** :— (CO2)
 (B1) Name various joints in pipes. Explain with sketch any one.
 (B2) Explain Lake intake with sketch. 4
- (C) Solve any **One** :— (CO2)
 (C1) Explain factors considered for location of intake structure.
 (C2) Draw section through centrifugal pump. State advantages of centrifugal pump. 4
3. (A) Solve any **One** :— (CO3)
 (A1) Name various characteristics of water.
 (A2) Define threshold odour number and Turbidity. 2
- (B) Solve any **One** :— (CO3)
 (B1) Explain Jackson candle turbidimeter.
 (B2) Explain hardness of water. 4
- (C) Solve any **One** :— (CO3)
 (C1) Explain with sketch Multiple Tray Aerator.
 (C2) Write reaction of Alum coagulant. State advantages of using Alum. 4
4. (A) Solve any **One** :— (CO3)
 (A1) Name various operational problems in filters.
 (A2) Write stokes law and its formula. 2

- (B) Solve any **One** :— (CO3)
 (B1) Sketch Inlet and outlet arrangement in settling tank.
 (B2) Write a note on mechanism of filtration. 4
- (C) Solve any **One** :— (CO3)
 (C1) Explain with sketch slow sand filter.
 (C2) Explain backwashing of rapid sand filter. 4
5. (A) Solve any **One** :— (CO4)
 (A1) Define disinfection of water and Name methods.
 (A2) State criteria for good disinfectant. 2
- (B) Solve any **One** :— (CO4)
 (B1) Explain in detail gravity distribution system.
 (B2) Write a note on leakage and its detection. 4
- (C) Solve any **One** :— (CO4)
 (C1) Explain with sketch Grid Iron layout of distribution system.
 (C2) Sketch and explain Elevated Service reservoir. 4
6. (A) Solve any **One** :— (CO5)
 (A1) Define Rubbish, and Garbage.
 (A2) What is Transfer station. 2
- (B) Solve any **One** :— (CO5)
 (B1) Write note on composition of solid waste.
 (B2) Name methods of solid waste collection. Explain any one. 4
- (C) Solve any **One** :— (CO5)
 (C1) Write a note on transportation of solid waste.
 (C2) Explain sanitary landfill method of solid waste disposal. 4