

DEC-25-0055

CEPC-415 (Water Supply and Treatment Technology)

B.Tech.-4th NEP

Time : 3 Hours

Max. Marks : 60

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note:** Attempt five questions in all, select one question each from section A, B, C, D. Section E (Question-9) is compulsory.

#### Section A

1. What are the different types of groundwater sources? What is an intake structure? Draw a neat diagram of simple concrete block and explain. Write short note on water borne diseases. How the water is treated for it? (3+6+3=12)

2. Explain the rainfall measurements and rain gage in brief. Explain the importance of chemical and bacteriological analysis of water used for domestic purpose. Under the Water Act 1974 discuss the role of regulatory bodies. (4+4+4=12)

#### Section B

3. Explain the estimation of quantity of water required by a town. Derive arithmetic increase method. Discuss intermittent supply versus continuous supply. (4+5+3=12)
4. Describe how you would arrive at the total quantity of water to be supplied to a metropolitan area. Explain incremental increase method. Discuss single supply versus dual supply. (4+5+3=12)

#### Section C

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5. What is aeration in water purification? Draw neat diagram of rapid sand filter and explain its process in detail. What are the various forms of application of chlorine and its demand? (2+6+4=12)

6. Explain flocculation in water purification. Explain the method of removal of hardness by deionization process. Explain the ultrafiltration membrane technique. (2+6+4=12)

#### Section D

7. Explain the pumping system of water distribution in detail. Explain continuous system of water in detail. (6+6= 12)
8. Explain the valve used in domestic supply. Explain grid iron system of layout distribution system. Write down their advantages and disadvantages. (3+6+3=12)

#### Section E (Compulsory Question)

9. Explain in short answer:
  - (i) Explain dams, their types and selection of site.
  - (ii) Discuss WHO drinking water quality standards.
  - (iii) Short note on fire demand in water supply.
  - (iv) Discuss Wastage of water in public supplies.
  - (v) Write short note on coagulation.
  - (vi) Discuss Metering in distribution supply. (6×2=12)