

BACHELOR OF ARCHITECTURE**3RD YR. 1ST SEM. EXAM 2018****SERVICES & EQUIPMENT-I**

Time: Three Hours

Full Marks: 100

Instruction: Answer for 100 marks

01. Using appropriate sketches describe how water becomes available in Nature. Describe qualitative and quantitative requirements of potable water.

With the help of suitable sketches, describe any one type of intake work with a river as the source of supply of water.

25

02. Using suitable sketches describe the various water distribution planning schemes adopted in a town.

Describe the process of treatment of raw water from a river source in a Water Treatment Plant.

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03. Given Data:

In a water supply scheme for a 30 storied (with 10 feet floor to floor height) building in a city, the following features and usage facilities are proposed:

50 psi pressure is available at the public main supply line

Flush valve typed fixtures are to be provided on each floor excepting on the top three floors

Fairly rough iron piping are to be used for supply piping

In each floor there is one Man's toilet and one Women's toilet

In each of the Men's toilet, the following fixtures are to be provided:

2 water closet (F.U.: 10 for flush valve type and 05 for flush tank type)

4 stall or wall urinal (F.U.: 05 for flush valve type and 03 for flush tank type)

3 wash basins with plain faucet fitting (F.U.: 04 fixed)

In each of the Women's toilet, the following fixtures are to be provided:

3 water closet (F.U.: 10 for flush valve type and 05 for flush tank type) and a bidet (F.U.: 10 for flush valve type and 05 for flush tank type)

2 wash basins with plain faucet fitting (F.U.: 04 fixed)

Using suitable sketches and calculations, describe the design proposal for elevation of the water supply reservoirs and supply pipe sizes. Reference to the charts provided is permitted.

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04. With the help of appropriate sketches, describe the advantages and disadvantages of a 'Single Stack' and a 'Double Stack' system in connection with drainage.

Discuss the utility of installation of 'Traps' in Drainage pipings. With the help of suitable sketches explain how Piping including traps are housed within a 'Sunk Slab'.

With the help of appropriate sketches, describe the functional utility of an 'Inspection Pit' and a 'Man Hole'.

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05. Draw plan and section of a Septic Tank and a Soak pit. Describe the process of purification of sewage in a Septic Tank

Draw Plan and Section for a 'Master Trap'. Describe the utility of a 'Master Trap'. 25

06. Using suitable sketches, describe the construction of a typical Fountain. Name the different types of Sprinklers used in buildings. Using suitable sketches, describe the performance of any one of such type of sprinkler.

Specify the maximum travel distance acceptable by the Kolkata Municipal Corporation that should not be exceeded between two staircases in an Office Building.

Describe 'Dry Risers' and 'Wet Risers' in connection with Fire fighting in a Building. Describe the purpose of installation of 'Hose Reel Installation'. 25

07. Write short notes on (any five) 25

- (i) Travelator
- (ii) Shallow and deep tube wells
- (iii) Clariflocculator
- (iv) Bell & spigot joint in drainage piping
- (v) Macerator
- (vi) Lead jointing process
- (vii) Slope for laying drainage pipes
- (viii) Reciprocating Pumps
- (ix) Soft and hard water
- (x) Centrifugal pumps