

BACHELOR OF ARCHITECTURE
(Supplementary Examination) 3RD. YR. 1ST SEM. EXAM 2024

SERVICES & EQUIPMENT-I

Time: Three Hours

Full Marks: 100

Instruction: Answer for 100 marks
Furnish sketches wherever necessary

01. With the help of suitable sketches, describe how water is available in various forms in Nature.

With the help of a suitable sketch, explain any one type of intake work for a river as a source of supply of water. 25
02. With suitable sketches and description, discuss how raw water is treated in a Water Treatment Plant 25
03. With the help of suitable sketches, describe how water supply and disposal of storm water, waste water and soil wastes are made from a residential household in a municipal area. Draw the plans and sections for an Inspection Pit and a Man hole.

Using suitable sketches describe the various water distribution planning schemes adopted in a town. 25
04. Define: (i) Sewage, (ii) Sewer and (iii) Sewerage.

Describe the process of purification of sewage in a septic tank. Draw plan and section of a typical Septic Tank along with different soaking arrangements of effluents discharged out of Septic Tank. 25
05. In a water supply scheme for a 26 storied (with 10 feet floor-to-floor height) building in a city, the following features and usage facilities are proposed:

40 psi pressure is available at the Public main supply line
Flush Valve type of fixtures are to be provided on each floor excepting on the top 5 floors
Fairly rough iron pipes should be used for supply piping
In each floor, there is one Men's Toilet and one Women's Toilet

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

2 Water Closets (Fixture Unit: 10 for Flush Valve type and 05 for Flush Tank type)

2 Stall or Wall Urinal (Fixture Unit: 05 for Flush Valve type and 03 for Flush Tank type) and

2 Wash Basins with plain Faucet fitting (Fixture Unit: 04 fixed)

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

3 Water Closet (Fixture Unit: 10 for Flush Valve type and 05 for Flush Tank type)

2 Wash Basins with plain Faucet fitting (Fixture Unit: 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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06. Write short notes on (any five):

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- (i) Double Stack system
- (ii) Roof water drainage
- (iii) Jack well
- (iv) Soak Pit
- (v) Lamp Hole
- (vi) Master Trap
- (vii) Slope for laying drainage pipes
- (viii) Purpose of a Water Seal in a Drainage Trap
- (ix) Impeller
- (x) Dry riser and wet riser