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09ARC3.3/09ENG3.3

**Third Semester B.Arch. Degree Examination, June/July 2019**  
**Building Services - I**

Time: 3 hrs.

Max. Marks:100

**Note: 1. Answer any FIVE full questions.**  
**2. Draw the sketches wherever required.**  
**3. Assume the missing data suitably.**

- 1 a. Mention different forms of water sources, under surface sources and underground sources. Explain in brief with sketches. (10 Marks)
- b. What do you understand by the term per capita demand of water? How is the total quantity of water required by a town estimated? (05 Marks)
- c. What is Spring? What are their types? Explain with sketches. (05 Marks)
- 2 a. What is meant by dis - infection of water? Explain in brief, minor method of dis - infection. (10 Marks)
- b. Differentiate between slow sand filter and rapid sand filter. (10 Marks)
- 3 a. What are drinking water standards for below mentioned parameters? Write ill effects if they exceed limits : i) Turbidity ii) Hardness iii) Iron iv) Nitrates v) Flourides. (10 Marks)
- b. What is meant by Wholesomeness and Palatability of water? (05 Marks)
- c. Explain the various expression used to determine "Fire demand" of water. (05 Marks)
- 4 a. Explain with sketches different layouts of distribution system. (12 Marks)
- b. Describe briefly the principles of sedimentation. (04 Marks)
- c. Explain in brief any five water borne diseases. (04 Marks)
- 5 a. Define Sewage , Sewer , Sullage , Dry weather flow , Wet weather flow. (05 Marks)
- b. Differentiate between Conservancy and Water carriage system. (05 Marks)
- c. What are the requirement of good trap? Explain P, Q, and S trap with sketches. (10 Marks)
- 6 a. Explain with neat sketch the following system: (10 Marks)
- i) One pipe system ii) Two pipe system.
- b. Sketch the following fixtures with dimensions : (10 Marks)
- i) Wash basin ii) European water closet.
- 7 Design a septic tank for boys hostel having a population of 150 persons. The rate of water supply is 150 litres / head / day. (20 Marks)
- 8 With the help of neat schematic diagram, show the external and internal drainage system for a two bed room independent residence. Draw drainage plan of building with site boundary. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.