

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF ARCHITECTURE AND QUANTITY SURVEYING

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE

PART III SUPPLEMENTARY EXAMINATIONS – AUGUST 2004
AAR 3103 – BUILDING SERVICES I

Instructions

Time : 3 Hours

Answer All Questions

QUESTION 1

- a) Both underground and surface water are polluted in one way or another. Discuss possible ways in which underground water can be polluted and briefly write notes on how you can assess this. [10]
- b) Write brief note on Flocculation and Coagulants in water supply network for a residential house in the low density area. [5]
- c) Discuss briefly how you can design water supply network for a residential house in the low density area. [10]

QUESTION 2

- a) Hot water is supplied through local hot water and central hot water systems. Differentiate the two and briefly explain how the central system becomes the nerve of the indirect hot water supply system. [8]
- b) Discuss the position suitable for location of a geyser and the hot water pipe work system for a 10 storey hotel. [10]
- c) Write brief notes on problem associated with hot water in geysers and pipes. [7]

QUESTION 3

- a) In question 2 (b) discuss how you can remove soil/waste water. [8]
- b) Write brief notes on loss of seals on appliances. [8]
- c) Discuss factors considered in determining ,
- i) vertical stack for a one stack soil/waste drainage. [5]
- ii) size of a gutter. [4]

QUESTION 4

- a) Write brief notes on drainage around the building. [10]
- b) A 475 mm diameter pipe with 20 mm walls has an invert level of 63, 745m. If the ground level is 23,990m
- c) Calculate the
- i) pipe soffit level [5]
- ii) depth [5]
- iii) Cover [5]

QUESTION 5

- a) Pollution from urban discharges to the water environment should be controlled in some way. What are the reasons for this? How should the limits be determined? Could there be such a thing as a requirement that is too strict? If so, why. [12 ½]
- b) Write notes on septic tank design for a population of 210 people. [12 ½]