

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF THE BUILT ENVIRONMENT**

**DEPARTMENT OF ARCHITECTURE**  
**BACHELOR OF ARCHITECTURAL STUDIES (HONOURS) DEGREE**

PART III – END OF FIRST SEMESTER EXAMINATIONS – JANUARY 2008

**BAR 3103 – BUILDING SERVICES I**

**Instructions**

**Duration: 3 Hours**

*Answer any FOUR Questions.*

**Question 1**

- a) State and explain all the known classifications of fire risks. [10]
- b) Fire occurs in four stages. State and explain these stages making it very clear what happens at every stage of fire. [4]
- c) Fire prevention is always better than fire fighting. Discuss all possible measures that can be done on a construction site in order to prevent fires. [11]

**Question 2**

Describe the fire fighting equipment that can be used in a commercial building to put off a fire explaining clearly how the equipment works. Diagrams should be shown and well labelled were necessary. [25]

**Question 3**

- a) In the purification of water it is always vital to remove both permanent and temporary hardness of water. What are the problems caused by these two types of hardness? [5]
- b) If the cold water that is supplied to the building has a high content of both permanent and temporary hardness, how would you reduce this? [10]
- c) Discuss the system you can use to supply, water and its drainage on a 60 storey commercial building. [10]

**Question 4**

- a) A university is to be built in Filabusi Communal Lands. This area lies in Design IV hence a semi-dry area. There is however an informed aquifer and a dam near the school. Briefly discuss how you can come up with the best source of water supply for the school from these two. [10]
- b) Because of low rainfall that is normally received in the area, there is need to improve water supply to the school by rainwater harvesting. Explain how best you can accomplish this. [5]

- c) Various water sources are classified based on the degree of contamination. Briefly explain this classification paying particular attention to water quality properties. [10]

**Question 5**

- a) Briefly discuss the drainage of waste water from a 25 storey building with four water closets, four sinks, six wash hand basins and one urinary in each floor. [12]
- b) A cistern on a tall building, services to supply water using the indirect method. Part of the water is supplied to the geyser.
- i) Briefly explain how you can come with the capacity of such a cistern. [8]
- ii) Discuss factors that you should consider in locating the geyser as well as the cistern in this set up. [5]