NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE
BACHELOR OF ARCHITECTURE (HONOURS) DEGREE
2010-2011 ACADEMIC YEAR
PART III – FIRST SEMESTER EXAMINATIONS – JANUARY 2011
AAR 3103 – BUILDING SERVICES I

Instructions ***Time: 3 hours***

Choose any four questions.
Number all sheets

QUESTION ONE

(a) Explain the provision of a mulsifyre system for fire fighting in a building. [10]
(b) Name the fire fighting agents for portable extinguishers, their colour coding and the classes of fire that can be put out by these agents. [15]

QUESTION TWO

(a) Sketch a line diagram showing the elevation of an elevator for a five storey residential building indicating the principal parts of the whole installation. [15]
(b) Explain the safety features that go with the above-mentioned mechanical equipment. [10]

QUESTION THREE

(a) The government intends to supply water to the Bulawayo community and has two options under consideration, i.e. either to draw from the Zambezi river or from Mtshabezi dam (which is a 30 km stretch of water)
You have been assigned to assess the two sources and advise. You are free to give assumptions where you are not sure of the real facts on the actual ground. [15]
(b) Making use of the table below, calculate the capacity of a cold water storage cistern for a five storey office block which will have a canteen. The population will be 60 persons for each of the first 3 floors and 50 persons for each of the last 2 floors.
10 hours storage of water in case of interruption of supply has been decided.

Table

Provision of cold / hot water storage to cover 24 hours interruption of supply.

Type of building	*Storage (ltrs)*
Hostel	90 per bed space
Hotel	200 per bed space
Offices:	
With canteens	45 per employee
Without canteen	45 per employee
Restaurant	7 per meal
Boarding school	90 per pupil
Children's home	135 per bed space

[10]

QUESTION FOUR

(a) Illustrate a lighting circuit with the following specifications:

- Standard distribution board (SDB)
- Two way lighting switches
- Five (5) single fluorescent tubes
- Indicate live and neutral wires. [10]

(b) Explain the following terms,

(i) Glare index
(ii) Illumination
(iii) Illumination intensity
(iv) Lux
(v) Efficacy

[5]

(c) State the need for earthing
List the factors to be considered in providing an "earthing system".

[10]

QUESTION FIVE

Discuss any two sources of power for providing emergency electricity to buildings.

[25]