NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF QUANTITY SURVEYING

BACHELOR OF QAUNTITY SURVEYING (HONOURS) DEGREE

PART IV SECOND SEMESTER EXAMINATIONS – AUGUST 2009

MEASUREMENT IV - AQS4204

TIME: 3 HOURS **TOTAL MARKS: 100**

Instructions to candidates

Answer **all** Questions in Section A and **two** Questions in Section B

SECTION A

Question 1

Fig 1 shows details of the electrical reticulation and distribution to be constructed.

Take off quantities and prepare a bill of all items as detailed on the drawing that will be used for tendering purposes.

Qualify the basis of your items / quantities where necessary. (15 marks)

Question 2

Fig 2 shows the ground floor layout of a single storey building.

Take off quantities and prepare a bill of all items as detailed on the drawing that will be used for tendering purposes.

Qualify the basis of your items / quantities where necessary. (30 marks)

Question 3

What circumstances of potential delay to practical completion for which the contractor may request an extension to the installation and for which extension of contract sum shall be adjusted to compensate contractor for expense or loss. (5 marks)

SECTION B

Question 4

(a) Define and briefly explain the purpose of Air Conditioning in built environments. (5 marks)

(b) Site and Discuss any five (5) key factors considered in correctly sizing of an air conditioning system for a built environment. (20 marks)

Question 5

You are part of the whole building concurrent design team engaged on the construction of a newly-to-be built up-market 150 bed private hospital. Parts of your brief, as the lead quantity surveyor on the project, include consideration and recommendation of a sustainable cost -effective air-conditioning system for installation on the new complex. As part of the design team it is your brief to advise the proprietors and your colleague design teammates (architects, structural engineers, electrical engineers, e.t.c) on the most appropriate Air-conditioning system to install. Provide a concise account of your convincing presentation to the design team. Your account should address, among other issues, the following: State the two major types of Air Conditioning systems used in buildings, what are the advantages and disadvantages of the respective air-conditioning system you have sited, with the aid of sketch(es) explain the main functional components of an air-conditioning system used on buildings. (25 marks)

Question 6

Modern escalator systems, for providing transportation in built environments, operate under the S.O.D concept in order to enhance energy economy on the transportation infrastructure in buildings. (i) Explain what is meant by the term S.O.D as used on escalator transportation systems on buildings. (3 marks)

(ii) How does a S.O.D system based escalator function? (4 marks)

(iii) Identify and explain the two basic S.O.D based escalator systems (6 marks)

(iv) Briefly discuss how else energy consumption may be minimized with the employment of the transportation technology of escalators and elevators in built environment. (12 marks)

Question 7

(a) Explain the three segments of the combustion triangle, as used in fire protection and fighting fire in built environments. (6 marks)

(b) Active fire protection, passive fire protection and education are structural fire protection systems used in protecting built environments. Discuss these fire protection mechanisms as used for mitigating the dangers paused by fire on life and property in Zimbabwe. (19 marks)

END OF EXAMINATION