NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF BUILT ENVIRONMENT

BACHELOR OF QUANTITY SURVEYING (HONOURS) DEGREE

PART IV SUPPLEMETARY EXAMINATIONS OCTOBER 2009

MEASUREMENT III AQS 4107

<u>**TIME:**</u>   3 Hours   <u>**TOTAL MARKS:**</u> 100

<u>**INSTRUCTIONS:**</u>

Answer Section A and Section B

SECTION A

Question One
Fig P1 and P2 showing plumbing layout and schematic diagram for cold and hot water supply for an office block.

<u>Required</u>
 (a)   Take off sanitary appliances.   (15 marks)

 (b)   Measure cold and hot water supply showing assumptions made.   (35 marks)

SECTION B

Question 1
The table below shows ground levels and formation levels for a proposed road construction. Embankments are to be built with side slopes of 1:2 and the cuttings with the slopes of 1:2,5 the embankment crest width and cutting base width is 13m. It may be assumed that the ground is horizontal across the section

Chainage	Ground level	Formation level	Chainage	Ground level (m)	Formation level (m)
0	28	35	800	4	11
100	29	32	900	3	8
200	32	29	1 000	2	5
300	35	26	1 100	-5	2
400	30	23	1 200	-5	2
500	19	20	1 300	10	5
600	11	17	1 400	15	8
700	7	4	1 500	23	11

Determine the volumes of earthworks using both Simpson Rule and the average end area method. Which method is more accurate? Justify your answer.   (20 marks)

Question 2
       Using the information given below, determine the volumes of earthworks in the construction of a 15m wide road:-
       - The road is 200m long

       - The levels at: 0 chainage is 1.2 m
              50m chainage is 1.3m
              100m chainage is 1.5m
              150m chainage is 200m chainage is 1.0m
       - The final embankment should slope at 1:1,5   (15 marks)

Question 3

The figure shows a roof plan for an Industrial building. Calculate the mass of steelwork in tonne. Use standard measurement sheets for your workings.   (15 marks)