UNIVERSITY OF JOHANNESBURG

PROGRAM	:	NATIONAL DIPLOMA CIVIL ENGINEERING *CIVIL ENGINEERING TECHNOLOGY*
SUBJECT	:	**DOCUMENTATION III**
CODE	:	**DIS 3111**
DATE	:	MAIN EXAMINATION 15-NOVEMBER-2017
DURATION	:	12:30 - 15:30
WEIGHT	:	40 : 60
TOTAL MARKS	:	100

EXAMINER	: DR A OKE	Sanso Number
MODERATOR	: DR B IKOTUN	File Number
NUMBER OF PAGES	: 3 PAGES, 1 ANNEXURE & 6 MEASURING SHEETS	

INSTRUCTIONS

1. ENSURE THAT YOUR STUDENT NUMBER IS CLEARLY MARKED ON ANY MEASURING SHEET OR ANNEXURES THAT YOU HAVE USED AND THEY ARE FIRMLY PLACED INSIDE YOUR EXAMINATION PAPER
2. POCKET CALCULATORS PERMITTED (ONLY ONE PER CANDIDATE)
3. CANDIDATES ARE TO ANSWER ALL QUESTIONS
4. MEASUREMENT PAPER (APPROXIMATELY 6 PAGES) TO BE HANDED IN
5. CANDIDATES MAY USE THEIR OWN COPIES OF THE GENERAL CONDITIONS OF CONTRACT 2004, THE GCC GUIDELINES, JBCC, THE GCC GUIDELINES FOR CIVIL ENGINEERING QUANTITIES AND THEIR LECTURE NOTES AND CLASS HANDOUTS

QUESTION 1 (40 marks)

a. Use the measurement paper provided and the specification below to take off quantities for the diagram on Annexure A. Only the following items should be measured:

- Earthworks
- Concrete
- Formwork (30)

b. Once you have concluded your measure of quantities, draw up a suitable Schedule of Quantities as per the acceptable standard format, on the SOQ sheet provided. (10)

SPECIFICATION

Soil type	:	Refer to the drawing on Annexure A.
Concrete	:	Blinding - 15 MPa
		Floor slab - 20 MPa
		Walls - 20 MPa

QUESTION 2 (40 marks)

Calculate the cost per cubic metre of the fill transported to roadworks from borrow that was spread and compacted on the road based on the following specifications:

- 1 Front end loader costing R200.00/hour with operator earning R10.00/h, having capacity of 40 m^3/h (loose)
- Several tipper trucks of 6 m^3 (loose) capacity, costing R110.00/h with drivers earning R6.00/h. Assume 15 minutes per trip (load, transport, dump and return).
- 1 Grader costing R160.00/h with a skilled operator earning R10.00/h, having the capacity to spread and level soil at 48 m^3/h (loose).
- Several rollers for compaction, each costing R100.00/h, with operators earning R7.00/h and capacity of 20 m^3/h (compacted volume)
- 1 Water bowser costing R60.00/h with a driver earning R6.00/h and a capacity to spread water over 110 m^3 of loose soil /hour.
- Assume the average wage markup to be 40% for the operators and drivers and a soil bulking factor of 25%.

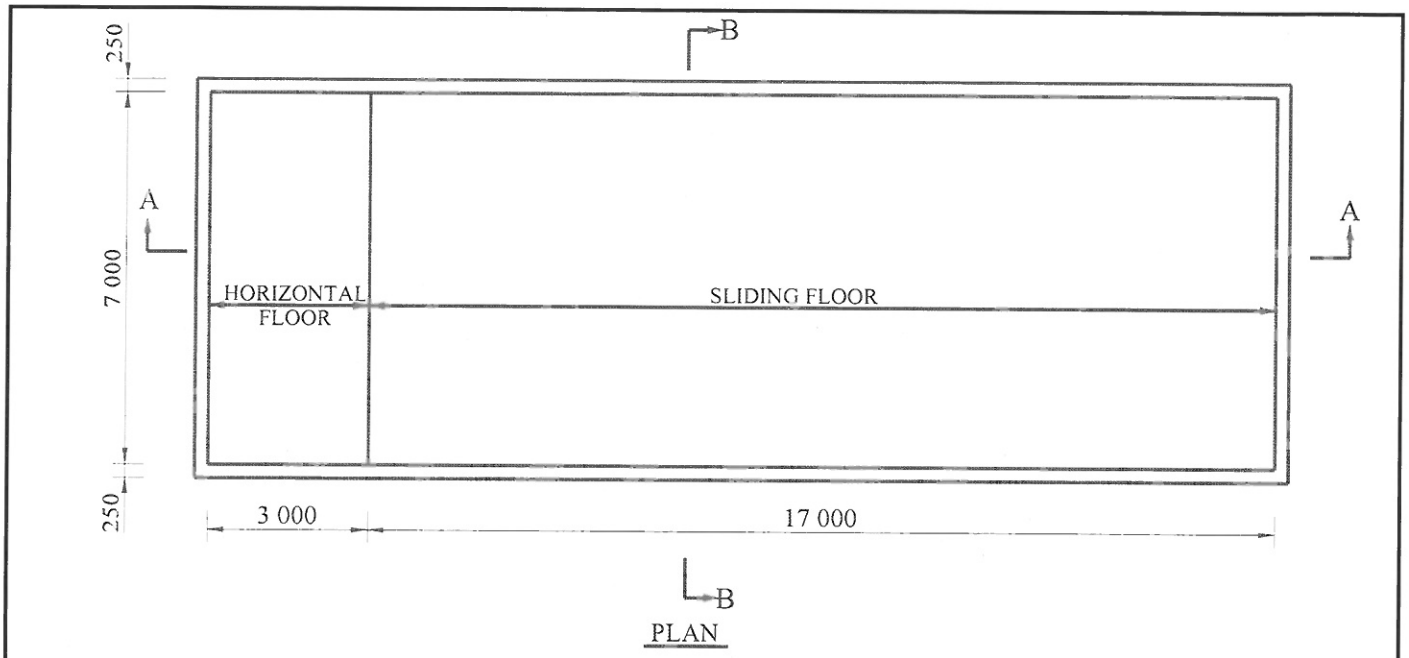
QUESTION 3 (20 marks)

Use the General conditions of Contract for Construction works (GCC) 2010 to answer the following questions. Also, state the relevant clause numbers to substantiate your answers.

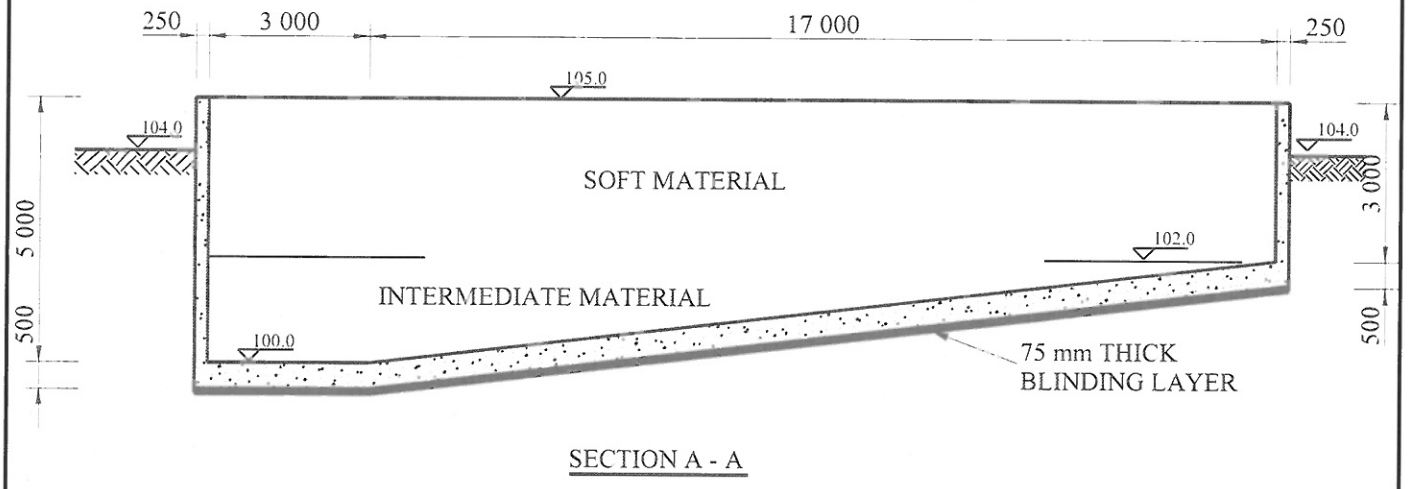
a. What happens if the Employer occupies the works before the due completion date? (2)
b. How is the Employer`s agent for health and safety appointed? (2)

c. Does the Engineer have the authority to remove any person employed by the contractor who he (Engineer) feels is incompetent? (2)
d. Does the Contractor need the Engineer`s consent to remove Construction Equipment from site? (2)
e. When does the defect liability period commence? (2)
f. What happens if a contractor does not clear his / her site within a reasonable time after the completion of the contract? (2)
g. What can the Engineer do if the Contractor`s construction equipment is old and constantly breaking down? (2)
h. May the Contractor make a claim for additional cost for excavation in rock if the contract documents show no reference to rock? (2)
i. Can the Contractor subcontract the whole contract? (2)
j. If concrete placed by a subcontractor fails (e.g. it tests at 20 MPa instead of 30 MPa) who should take responsibility? (2)

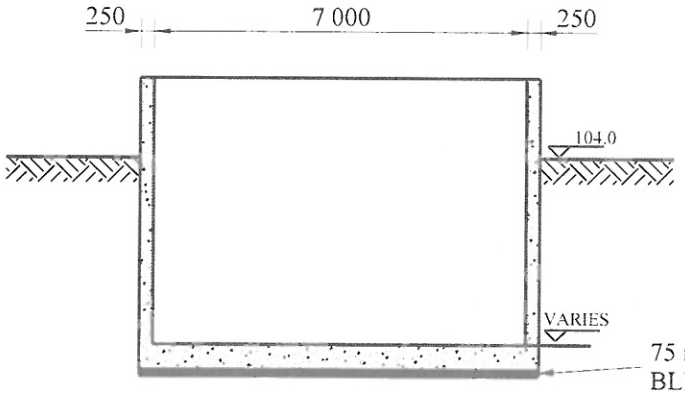
ANNEXURE A
N.T.S



PLAN



SECTION A - A



SECTION B - B

Surname & Init. . . . . STUDENT NUMBER .. . .

1 Item No	2 Timesing	3 Dims	4 Product	5 Description (Incl Ref. & waste)	6 Unit	7 Quantity

Surname & Init. . . . . STUDENT NUMBER .. . .

1 Item No	2 Timesing	3 Dims	4 Product	5 Description (Incl Ref. & waste)	6 Unit	7 Quantity

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1 Item No	2 Timesing	3 Dims	4 Product	5 Description (Incl Ref. & waste)	6 Unit	7 Quantity

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1 Item No	2 Timesing	3 Dims	4 Product	5 Description (Incl Ref. & waste)	6 Unit	7 Quantity

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1 Item No	2 Timesing	3 Dims	4 Product	5 Description (Incl Ref. & waste)	6 Unit	7 Quantity

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1 Item No	2 Timesing	3 Dims	4 Product	5 Description (Incl Ref. & waste)	6 Unit	7 Quantity