NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

DEPARTMENT OF LAND AND SPATIAL SCIENCES
(LAND AND PROPERTY SECTION)

QUALIFICATION(S): DIPLOMA IN PROPERTY STUDIES BACHELOR OF PROPERTY STUDIES	
QUALIFICATION(S) CODE: 06DPRS 08BPRS	**NQF LEVEL:** 5
COURSE CODE: BCS520S	**COURSE NAME:** BUILDING CONSTRUCTION AND SERVICES
EXAMS SESSION: NOVEMBER 2022	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	ELINA TEODOL
MODERATOR:	VERINJAERAKO KANGOTUE

INSTRUCTIONS

1. Read the entire question paper before answering the Questions.
2. Please write clearly and legibly!
3. The question paper contains a total of **4 questions**.
4. The question paper contains **2 appendices A & B**. Detached, complete, insert and submit them with the Examination Book (s).
5. You must answer **ALL QUESTIONS**.
6. Make sure your Student Number is on the EXAMINATION BOOK(S).

PERMISSIBLE MATERIALS

1. Non – Programmable Scientific Calculator

THIS QUESTION PAPER CONSISTS OF 10 PAGES (Including this front page)

Question 1

For each of the following statements indicate whether it is 'TRUE' OR 'FALSE'. Each correct answer carries 1 mark. (20)

a) Purlin is a roof member which is placed horizontally to support common rafter of a sloping pitch roof?

b) The traditional set-up of the building team in the construction industry includes the employer and architect only.

c) Any foundation may fail as a result of subsidence caused by underground mining and increase in the water table only.

d) The device that provides for flushing of water and receiving of excrement is known as Water Closet (WC's).

e) The performance requirements of any building include among others its appearance and sound control, dimensional suitability, weather exclusion and fire protection.

f) System building (Closed system Building) refers to a method of erecting a building based on the form of construction in which the component parts of the building fabric are partly factory produced.

g) Slenderness ratio is the proportional relationship between thickness of walls and their foundations width.

h) In building construction working on sloping sites refers to 'reducing floor analyses'.

i) Building component will develop damages whenever the stress in the component exceeds its strength.

j) Party wall refers to a wall separating two detached properties that are in separate ownership

such as in terraced houses.

k) Vertical transportation in buildings such stairs are usually used as means of escape for multi-storey building.

l) A Side Hinged Folding door provide easy 100% opening of doorway.

m) Building finishes can be categorised into groups of wall finishes and joinery and ironmongery only.

n) Pitched roof is the type of roof suitable in plains where rainfall is insufficient, and temperature is high.

o) In floor construction, floor systems must transfer their loads horizontally across space to either beams or columns or to bearing walls.

p) Mechanical transportation in buildings includes lifts and escalators only.

q) Tyrolean render is a wet dash that is thrown on the wall. It is usually of cement and coarse sand with no colouring agent.

r) The vertical member fixed between steps and handrails are known as Balusters.

s) In brick masonry, if the bricks are laid by the shorter face of the brick as seen in the elevation or wall face, it is generally known as a stretcher bond.

t) A roof which slopes in four directions is called Hip roof.

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Question 2

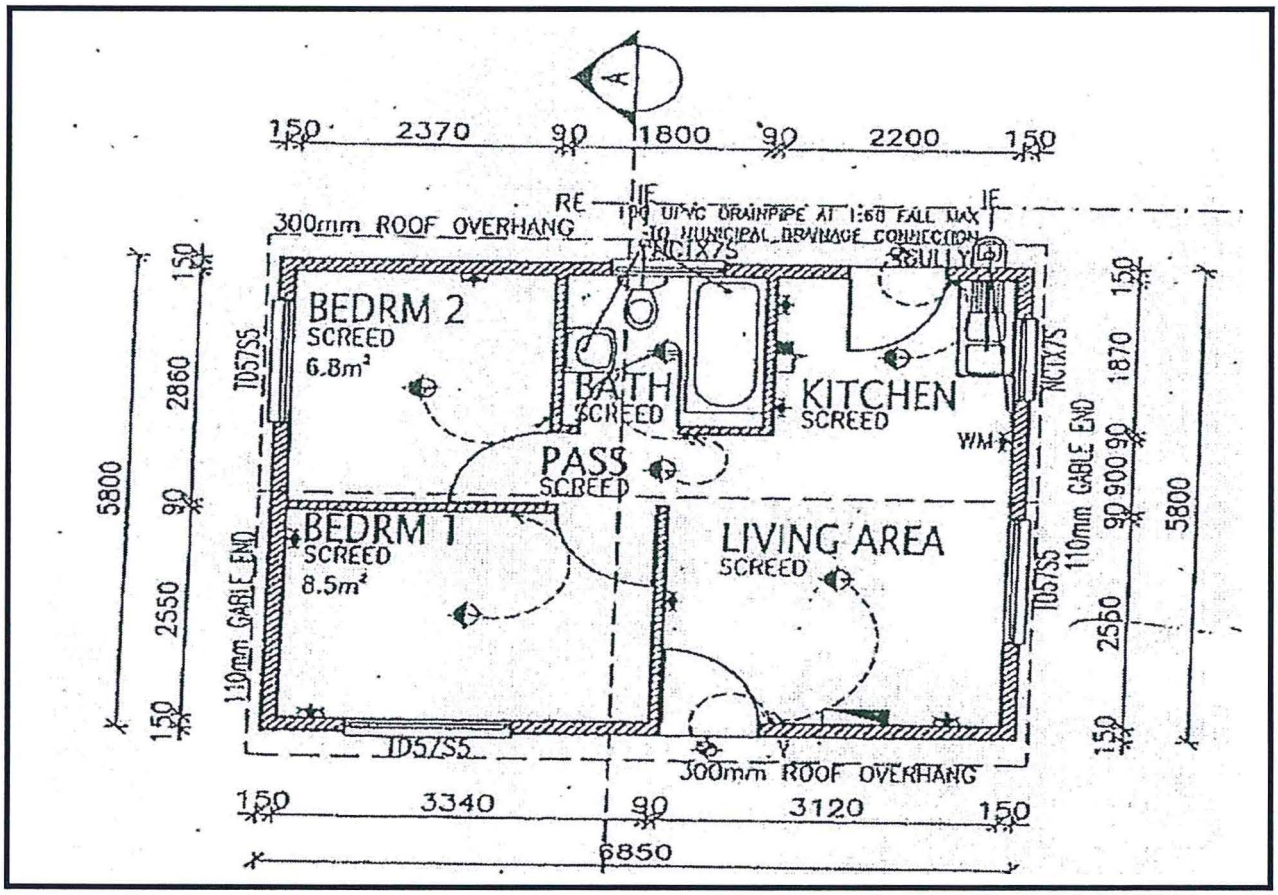
a) Distinguish between the following terms as used in building construction.

i) Substructure and Superstructure (3)

ii) Natural foundation and artificial foundation (2)

iii) English bond and Flemish bond (2)

b) Use the architectural drawing of the house below to answer the following questions:



i) Identify the type of building sketch (1)

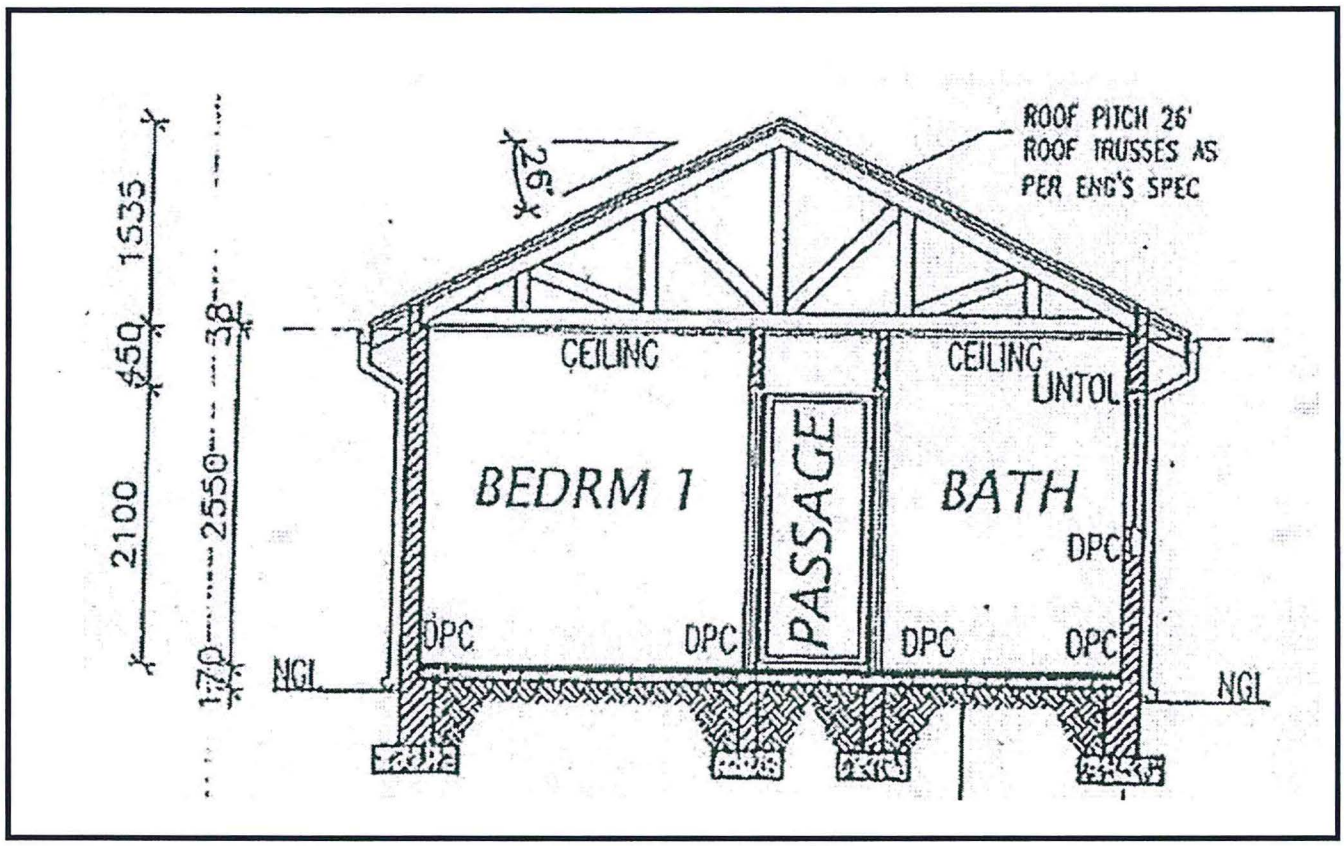
ii) Mention any form of the accommodation details (2)

iii) Identify the thickness of the external and internal walls envelopes (2)

iv) Calculate the Area of the building (in m^2) (3)

v) What does the section plane (vertical dashed line with a symbol A) in the plan represent? (2)

c) Use the building sketch below to answer the following questions:

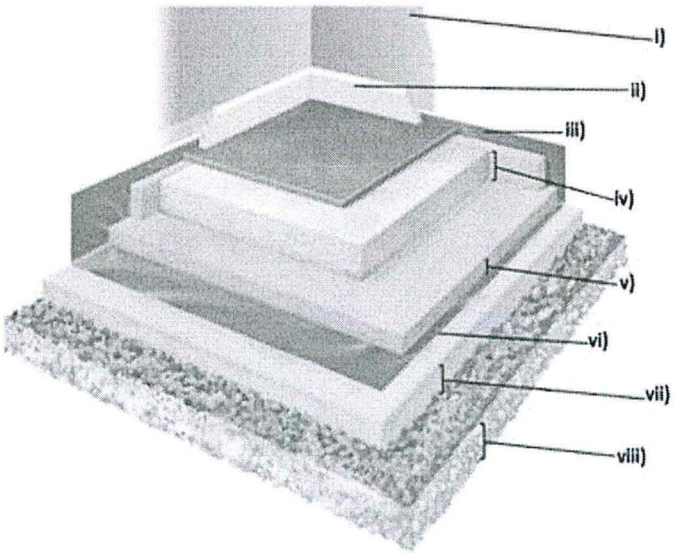


i) Identify the type of building architectural sketch (1)

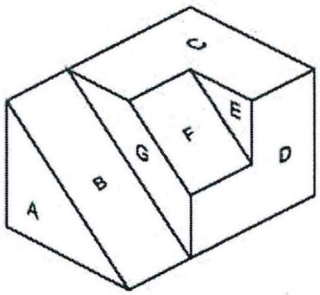
ii) What is the height of the external walls (in metres) from the DPC to the brickplate? (2)

iii) What is the angle of slope of the roof pitch (in degrees) as illustrated in the building sketch? (2)

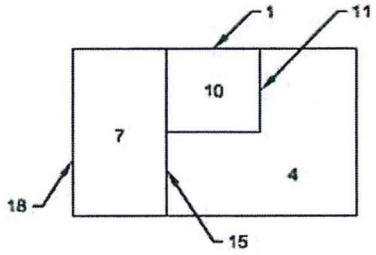
d) Identify the components of a typical floor construction in buildings as illustrated below. (4)



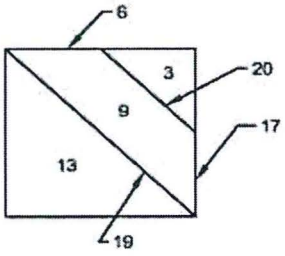
e) Use the isometric Object below and its corresponding multiview in orthographic (two dimension) drawings to complete the table attached as Appendix A. (9)



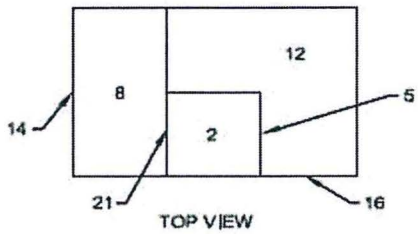
	A	B	C	D	E	F	G
F		7					
T		8					
S		19					



FRONT VIEW



SIDE VIEW



TOP VIEW

f) Outline the six (6) functions of external walls of a building. (3)

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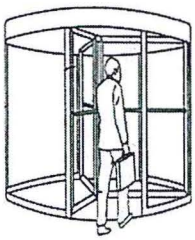
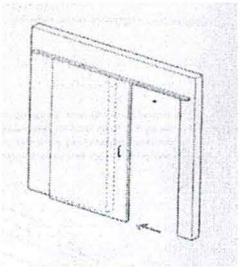
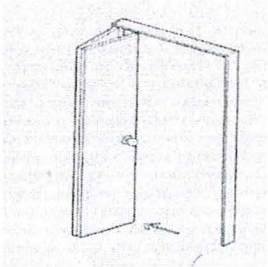
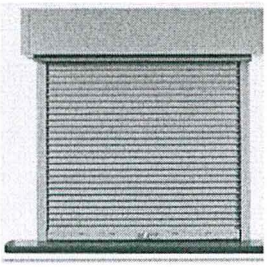
Question 3

a) Mention any two (2) characteristics of mortar. (2)

b) State the four (4) requirements of any building foundation. (4)

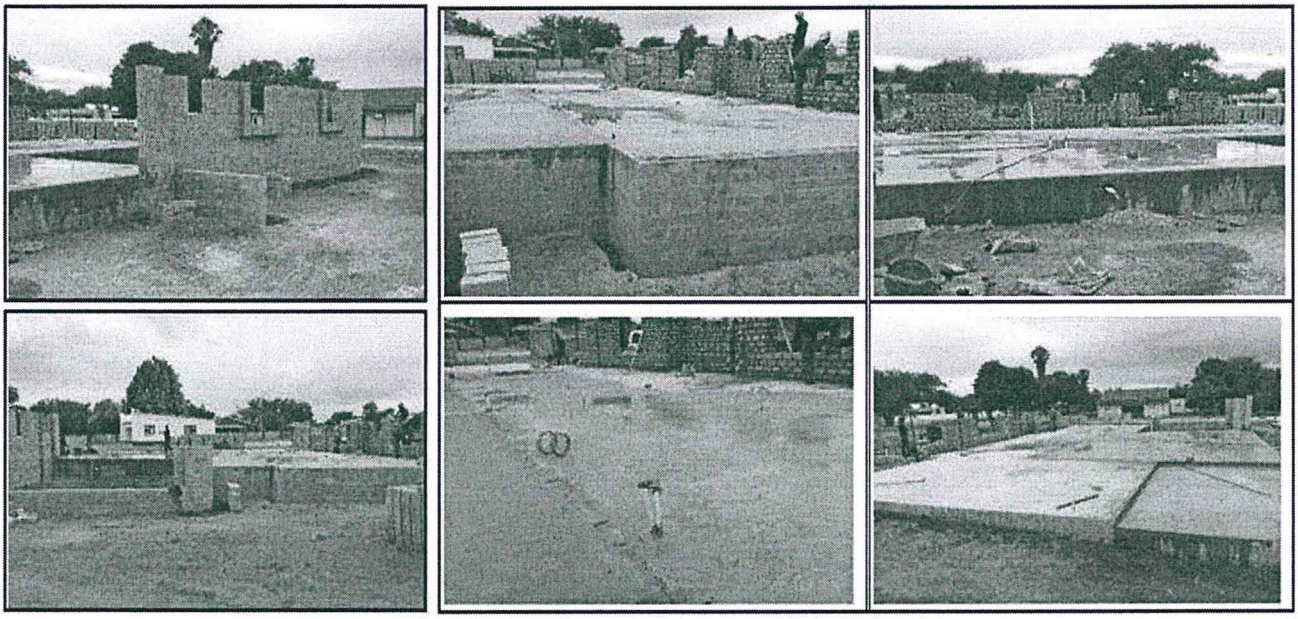
c) In your own words define a Purpose made doors and give 3 examples? (2)

d) Identify the following types of doors by operation. (2)

i)	ii)	iii)	iv)
			

e) Factors affecting the choice of materials for a roof structure include the type of roof required and the costs involved. Briefly explain these two factors. (3)

f) Erf 865 was inspected by a property valuer on the 20th of December 2020. Below are the images taken during the initial physical inspection. All the work seems to be progressing well and meet the bank's minimum requirements in terms of workmanship. (16)



The initial progress inspection was done at 15% and the payment due to the Contractor is N$100 747.42, while the retention amount is N$570 902.03.

Complete the table attached as Appendix B by calculating the progress payment amount due to the contractor at the following stages of the construction work:

i) 50%

ii) 75%

iii) 85%

iv) 95%

TOTAL % OF WORK	100.0%	15.0%	i) 50.0%	ii) 75.0%	iii) 85.0%	iv) 95.0%
DATE OF INSPECTION		20th Dec 2020				
CONTRACT PRICE	N$	671,649.45				
WORK DONE	N$	100,747.42				
TO COMPLETE	N$	570,902.03				
PROGRESS PAYMENT AMOUNT	N$	100,747.42				

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Question 4

a) Draw the following types of buildings components in 2-dimensional view and label them where appropriate:

i) A Header bond and Stretcher bond (3)

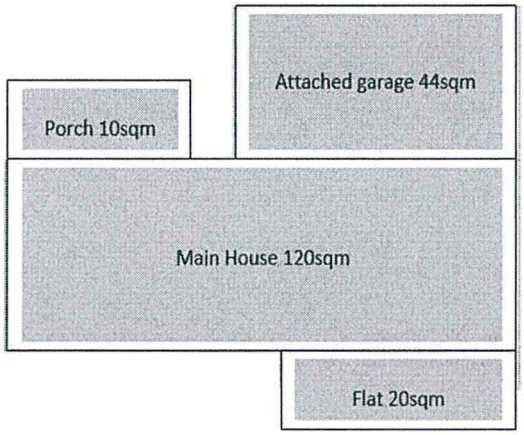
ii) A Deep strip foundation and a Pad foundation. (3)

iii) Symmetrical Lattice roof and Asymmetrical Lattice roof (2)

b) Use the building sketch provided below to answer the following questions: (5)

i) What is the Total Floor Area

ii) What is the Total Building Area



[13]

I wish you all the best !!

Student Number:.....

APPENDIX A

QUESTION 2 (e) ANSWER SHEET

	A	B	C	D	E	F	G
F		7					
T		8					
S		19					

[9]

Student Number:.....

APPENDIX B

QUESTION 3 (f) ANSWER SHEET

TOTAL % OF WORK	100.0%	15.0%	i) 50.0%	ii) 75.0%	iii) 85.0%	iv) 95.0%
DATE OF INSPECTION		20th Dec 2020				
CONTRACT PRICE	N$	671,649.45				
WORK DONE	N$	100,747.42				
TO COMPLETE	N$	570,902.03				
PROGRESS PAYMENT AMOUNT	N$	100,747.42				

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