THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

FACULTY OF BUILT ENVIRONMENT

SCHOOL OF ARCHITECTURE AND CONSTRUCTION MANAGEMENT
FIRST SEMESTER EXAMINATION

BACHELOR OF CONSTRUCTION MANAGEMENT – YEAR 4

CM 414 – CONSTRUCTION ECONOMICS IV

Room: L2

Date: Wednesday 29th May 2024

DURATION: 3 Hours

Time: 8:20 – 11:30 am

Instructions to Candidates

1. You have 10 minutes to read the paper.
   Do not begin writing during this time.

2. Fill in the Attendance Slip with your name and student I.D. number now

3. **There are ten questions** and you are to **answer all questions**.

4. ALL ANSWERS MUST BE WRITTEN IN THE ANSWER BOOK (S) PROVIDED

5. Each question must be answered starting on a New Page.

6. Notes and Textbooks are not allowed in the Test Room.

WRITE YOUR NAME AND IDENTIFICATION NUMBER CLEARLY ON THE FRONT PAGE. DO IT NOW!

TOTAL MARKS = 160 MARKS

Question 1 (5 marks):

What is the role of a quantity surveyor in the design stage?

Question 2 (20 marks):

There are 11 phases of Plan of Work Outline, that require quantity surveyor to contribute. List down four (4) important phases of the plan in order, and what should be involved in each phase.

Question 3 (20 marks)

Write down four (4) factors that has greater implications shape, size and height of a building and explain reasons, in detail.

Question 4 (10 marks)

What is 'dead space' and why is it important to the Plan shape of a building? Provide 4 areas in a building considered, dead space.

Question 5 (20 marks)

Provide four (4) reasons why an industrial building will be expensive to build than a classroom building.

Question 6 (20 marks)

There are few critical parameters that has cost implications on the functions of buildings. Give four (4) parameters and how costs have implications on the functions of a building.

Question 7 (20 marks)

In the cost comparison of different structural forms table below, provide two advantages and two disadvantages of each different forms

Structural Forms	Advantages	Disadvantages
Load-bearing brickworks		
Reinforced concrete frames		
Pre-cast concrete structure		
Structural Steelwork		

Question 8 (5marks)

Provide 5 advantages of using structural steel as the good economy when considering functions of a building.

Question 9 (20 marks)

Calculate cost element and provide rates/m^2 for windows and doors of this classroom. Window height 1.5m and door height 2.m. Clear louvred glass, with flyscreens. Internal doors for offices and external doors for classrooms. You will assume other members and rates of your own. Show calculations.

FLOOR PLAN
SCALE 1:75 @ A3
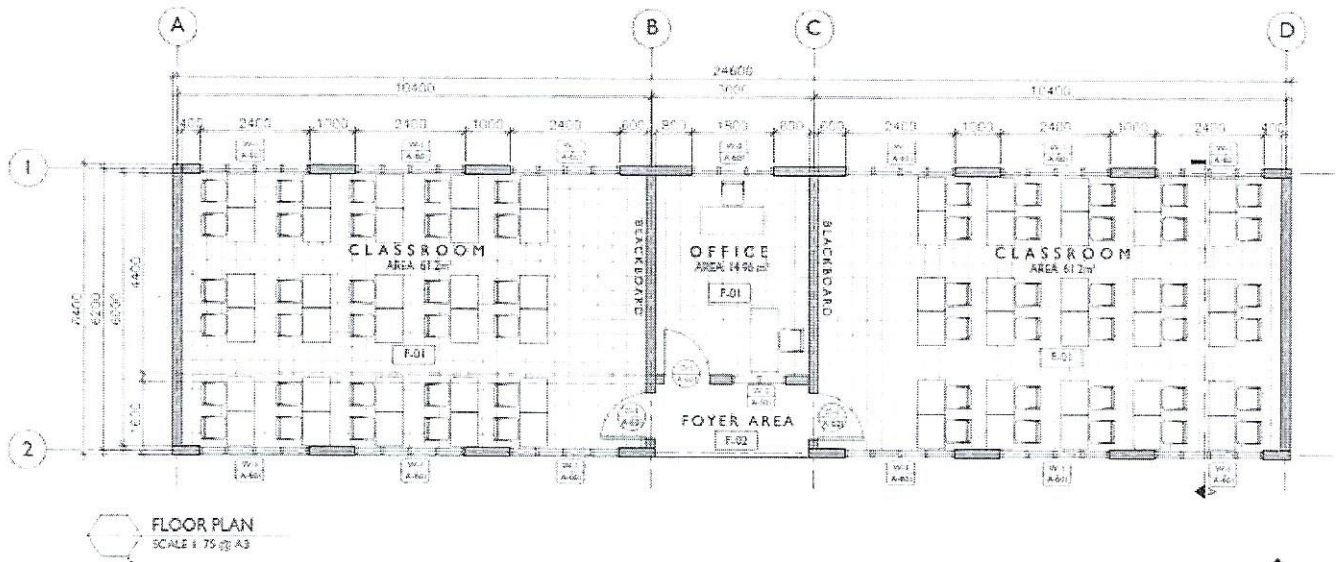
Section 2 – Compare costs of different proposals below and select the best option and provide justification.

Double Classroom Total Floor Area: 157.44m² area	Initial Estimate			Alternatives Consequential Adjustment (cost)			Adjustment from other sections			Selected Solution (cost) Net cost			
	K598,272 (estimate classroom)	K/m² (estimate classroom) (D/FA)	K	Add	Omit	Section Ref	Ref.	Add (B+D)	Omit (B-D)	K (B+/- I or J)	K/m² (K/Floor Area)	% (K/Estimated Cost)	Remarks
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	N
1. Floor Excavations, formwork, reinforcements, concrete 75mm thick, smoothing and tiling	38,800	346.50	Nil	Nil	Nil	1	Nil	Nil	Nil	38,800	346.50	6.5%	
2. Wall a) Reinforced conc. Wall w/ vertical bars, horizontal bars, core fill	40,000	233.10	Nil	Nil	Nil	2(a)	Nil	Nil	Nil	36,700	233.10	6.2%	
(b) Timber frames, hardiplank exterior and 4mm ply interior			37,000	Nil	Replace reinf. wall w/hardiplank	1	Nil	Nil	Nil	38,800	346.50		
(c) Steel frames, with 80NB post and hardiplank			33,000		Replace reinf, wall w/steel frames	2(a)				36,700	233.10		