

THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

SECOND SEMESTER EXAMINATIONS 2021

**DEPARTMENT OF ARCHITECTURE AND CONSTRUCTION
MANAGEMENT**

AR 223 - BUILDING SYSTEMS II

IN STUDIO 1

ON TUESDAY 26th OCTOBER 2021 AT 12.50pm

TIME ALLOWED: 3 HOURS

DIRECTIONS TO CANDIDATES

1. You have 10 minutes to read the examination paper. You must not begin writing during this time.
2. **Answer all questions. Answers must be short, brief and concise.**
3. Make sure that you read each question carefully. The number of marks for each question is shown near the question number.
4. Please PRINT your name and student number on the answer sheet provided. **Do it now.**
5. All answers must be written on the answer booklet provided. No other written materials are going to be accepted. Make sure that you hand in every answer sheet that you have used.
6. Calculators are permitted in the examination room. Notes and textbooks are not allowed.
7. Mobile phones are strictly not allowed inside exam room. All bags, hats and other personal items will be surrendered to the front of the room.

Answer all 10 Questions. Total Marks = 100.

Question 1: (10 Marks)

Describe the following considerations:

- a) Environmental considerations
- b) Physical considerations

Question 2: (10 Marks)

Describe the following options for soil improvement and stabilisation:

- a) Remove and Replace.
- b) Surcharging

Question 3: (10 Marks)

Explain the difference between Love wave and Rayleigh wave and draw the diagrams for each wave.

Question 4: (10 Marks)

Describe the difference between Shallow Foundations and Deep Foundations.

Question 5: (10 Marks)

Explain the difference between 'Stepped Footings' and 'Tie Beams' in foundations.

Question 6: (10 Marks)

Describe below ground water.

Question 7: (10 Marks)

Describe any two (2) types of basements.

Question 8: (10 Marks)

Describe any two (2) types of settlements of buildings.

Question 9: (10 Marks)

Explain the Plant Room Location for commercial highrise office.

Question 10: (10 Marks)

Describe the Unit and Mullion Systems of curtain wall and draw a diagram for the system.

End of Paper