

**THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY**  
**DEPARTMENT OF ARCHITECTURE & CONSTRUCTION MANAGEMENT**  
**FIRST SEMESTER EXAMINATION**  
**SECOND YEAR BACHELOR IN ARCHITECTURE & CONSTRUCTION**  
**MANAGEMENT**  
**AR 213 – BUILDING SYSTEMS 1**

Room: ST1

Date: Wednesday 8<sup>th</sup> June 2022

Duration: 3 hours

Time 8.20 to 11.30 am

**Information to Candidate**

1. You have 10 minutes to read the paper. Do not begin writing during this period.
2. Fill in the Attendance Slip with your name and student I.D. number now.
3. There are four (4) pages to this exam paper including drawing attachments
4. There are five (5) questions and you are to answer all questions.
5. **ALL ANSWERS MUST BE WRITTEN IN THE ANSWER BOOK (S) PROVIDED.**
6. Each Question must be answered starting on a New Page.
7. Notes, Textbooks and Electronic devices are **NOT ALLOWED** in the Exam Room.

**WRITE YOUR NAME AND ID NUMBER CLEARLY ON THE FRONT PAGE. DO IT NOW.**

**TOTAL MARKS = 100 MARKS**

Question 1 (30 marks)

Identify and name a material type, range and function of each application in building works for: -

- A) External Building works and (15)
- B) Internal Building works (15)

Question 2 (5 marks)

What is the material composition of reinforce concrete?

Question 3 (30 marks)

Sketch a simple slab foundation with 100mm thickness on an edge beam thickening footing with reinforcement and label the parts that cuts through Section A – A from the plan provided.

Question 4 (5 marks)

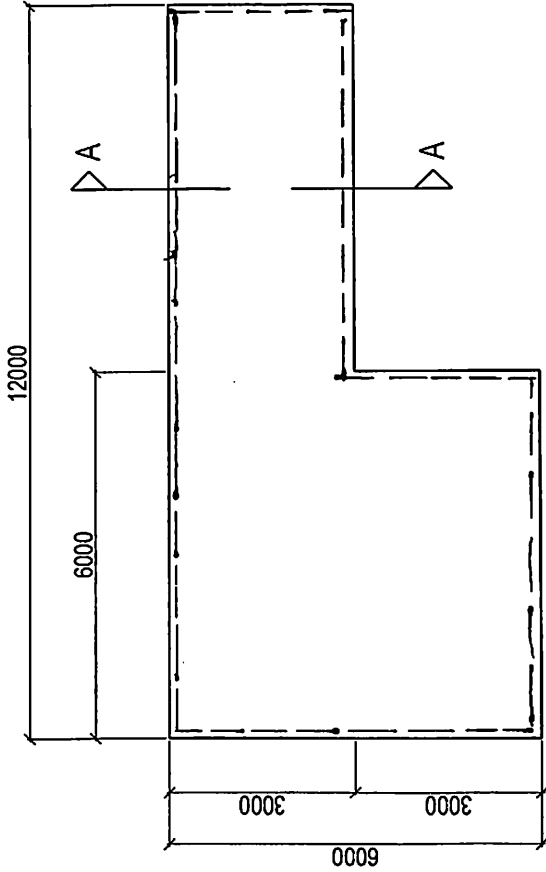
Identify the properties of mass concrete.

Question 5 (30 marks)

Refer to the sketch plan provided, draw and label the plumbing waste line system from the feed- outs to septic tank and absorption trench or soak away.

**End of Exam**

QUESTION 3

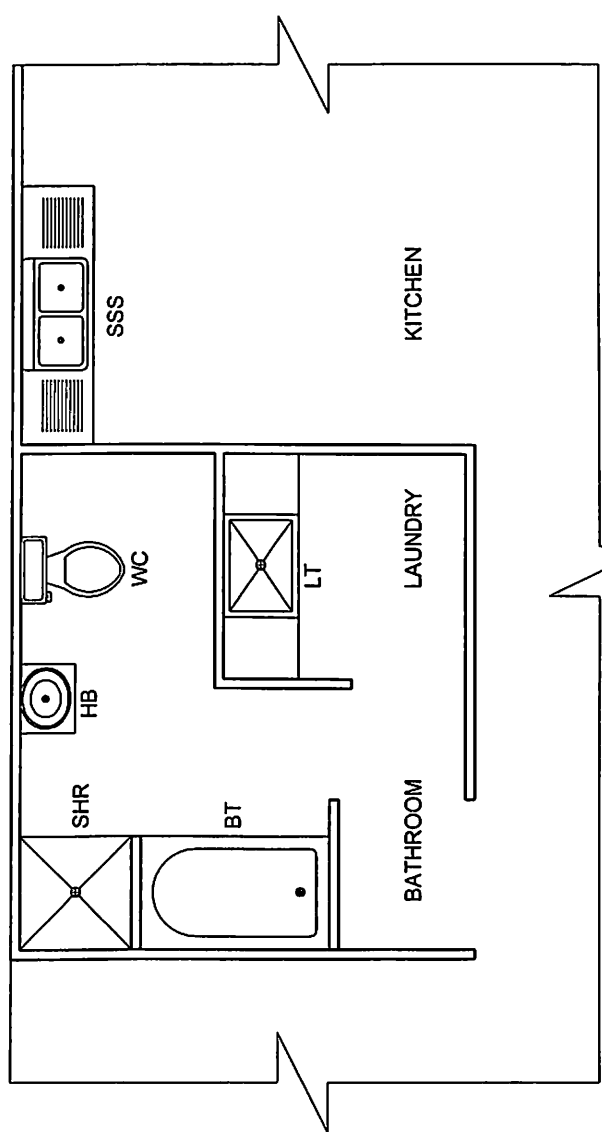


CONCRETE SLAB PLAN SCALE: NTS

QUESTION 5

LEGEND

- 1. SHR - SHOWER TRAY
- 2. BT - BATH TUB
- 3. LT - LAUNDRY TUB
- 4. SSS - STAINLESS STEEL KITCHEN SINK
- 5. WC - WATER CLOSET
- 6. HB - HAND BASIN



WASTE PLUMBING LAYOUT SCALE: NTS