SUBJECT COURSE AND CODE: CONSTRUCTION TECHNOLOGY 2A (ENPD2TA)

DURATION: 3 HOURS

FULL MARKS: 100 %

INTERNAL EXAMINER: MR LIVINGSTONE ZIDDAH

EXTERNAL EXAMINER: MR EPHRAIM ZULU

- This is a closed book examination and no reference material is permitted.
- Students are to answer all questions.
QUESTION 1 (ROOF) (10)

1.1 State the function of roof on a building. (2)
1.2 Name five materials that can be used for roofing. (2)
1.3 Explain the following elements in the design of a roof (a, the material (b, the construction (c, the durability. (2)
1.4 Explain the functions of the following: a) Soffit, b) ridge, c) eaves and d) wall plate. (4)

QUESTION 2 (PROPERTIES OF MATERIAL) (20)

2.1 Define the following: a) Porosity, b) Durability and c) Density of material. (3)
2.2 What is the difference between water absorption and water permeability of a building material. (3)
2.3 Explain the water permeability rate of the following materials: a) Sand, b) Clay, and c) Gravel, d) Silt. (4)
2.4 Explain the difference between corrosion and rust. (4)
2.5 List four mechanical properties of a building material. (2)
2.6 State the bulk density of the following building materials (a brick (b sand (c steel (d light concrete. (4)

QUESTION 3 (CONCRETE) (30)

3.1 With a very good sketch identify the differences between mass and reinforced concrete? (4)
3.2 A contractor mixes a concrete and notices that the stone (course aggregate) is separating from the cement and sand mix (paste). What is this called? Explain what is causing it. (4)
3.3 With a very good sketch, explain how to construct a suspended concrete floor. (4)
3.4 With a very nice sketch, identify the components of a solid concrete floor. (4)
3.5 Explain the difference between in-situ and pre-cast concrete. (2)
3.6 A contractor is casting a large concrete pavement. He cast the slab of 100 X 50m. After some weeks, the concrete slab begins to crack. Explain what could be casing the cracking and how can the cracking be prevented? (3)
3.7 A contractor leaves mild still reinforcement and it gets wet after some rain. Explain what is likely to happen to the reinforcement and what would be the consequence of this if it gets worse and the reinforcement is used in concrete. (3)
3.8 Explain the cause of shrinkage in concrete. (2)
3.9 A concrete floor was cast with all the joints being provided within the standard intervals. But after a few days the concrete floor begins cracking despite the concrete being well mixed, well transported and well placed. Explain what could be causing the cracking and how to prevent the cracking? (4)

TOTAL MARKS (60)