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BUGESERA DISTRICT

**TSS 2nd TERM DISTRICT COMPREHENSIVE ASSESSMENT
SCHOOL YEAR: 2024-2025**

SECTOR: Construction and building services

...../100 MARKS

TRADE: Building construction

RQF LEVEL: 3

MODULE CODE AND TITLE: BDCSS301: Construction of stones structures.

DURATION: 3hours

DATE: / / 2025

INSTRUCTIONS TO CANDIDATE:

- ✓ **This exam has three sections.**
- ✓ **Maximum marks.../100 Marks**
- ✓ **Attempt all Questions in A**
- ✓ **Choose only two questions in section B.**
- ✓ **Choose only one question in section C.**
- ✓ **Use a drawing instrument.**

**TSS 2nd TERM DISTRICT COMPREHENSIVE ASSESSMENT
SCHOOL YEAR: 2024-2025**

SECTION A: Attempt all Questions /55marks

Q1. Define the following terms /**3marks**

- a. Construction stones
- b. Construct
- c. Stone masonry

Q2. Match the types of work to its corresponding mortar recommended /**4marks**

Types of work	Mortar recommended
1. The structure members that are heavily stressed	A. 1:3 cement mortar or 1:1:3 lime cement mortar
2. Plastering of walls outside	B. 1:1 ^{1/2} cement mortar
3. Plastering of walls inside	C. 1:4 cement mortar
4. Stones masonry in foundations and super structure of ordinary buildings	D. 1:1 cement mortar
5. 10cm partition walls and bricks pillars, dams, retaining walls, lining of reservoirs, pointing	E. 1:5 to 1:6 cement mortar or 1:2 lime mortar
6. Plastering underside of ceiling	F. 1:3 to 1:4 cement mortar
7. Water retaining structure like water tanks	G. 1:4 cement mortar
8. Masonry work below ground level, especially in water logged areas.	H. 1:3to 1:6 cement water or 1:2 lime mortar

Q3. Answer by True or False /**5marks**

- a. Stay bracing method this types of timbering used when loose soil and depth of excavation not more than 4m.
- b. Vertical sheeting method this types of timbering is used when soil is loose and excavation depth is more than 10m
- c. Sheet piling method this types of timbering used when excavation depth is more than 10m.

- d. Runners method are hammered into the ground to the of 60cm from the bottom of the trench
- e. Check the excavation each day before starting work and after any event that may affect its stability.

Q4. List the names of following tools used in stones construction and its function for each /**3marks**



a)



b)



c)

Q5. Complete the sentences below by using the following words: Raft foundation, isolated footing, deep foundation, shallow, footing, sub soil, settlement, combined footing, drilled caisson foundation, pad footing. /**5marks**

- a. According to TERZGHI, a foundation is if its depth is equal to or less its width.in case of, the depth is equal to or greater than its width.
- b. is the lowermost part of the foundation contact with the sub soil.
- c. A spread footing, for a single column is either known as
- d. A spread footing which supports two or more column is termed as
- e. are good solution if the soil has a poor bearing capacity

Q6. Choose the letter corresponding to the correct answer in each statement: / **4marks**

1. The following are causes of settlement, except
 - a. Ground water lowering
 - b. Plastic compression of underlying soil
 - c. The lower part of the foundation contact with the sub soil
 - d. All answer are correct
2. The conditions which may affect the selection of foundation, except

- a. The load bearing of the foundation
 - b. Large water front structures such as pump houses
 - c. The total weight of the building
 - d. Both a and c is correct
3. Piles used for building foundation may be of four (4) types, except
- a. End bearing pile
 - b. friction piles
 - c. Combined friction pile and compacted piles
 - d. compacted piles
4. The followings are the functions of foundation, except.
- a. To give a levelled surface and hard to elevate the super structure
 - b. Is the vertical down ward movement of the base of structure and it strongly affects the structure.
 - c. To increase the stability of the structure against overturning.
 - d. both a and b are correct

Q7.What are things that can be removed and cleaned from site during site preparation.
/2marks

Q8. If water cement ration is 0.3, calculate quantity of water required for one bag of cement/ **2marks**

Q9.Building stones are obtained from rocks occurring in nature and classified in three ways. State the any three (3) classification of rocks based on chemical. **/3marks**

Q10. Organize the following procedures for proper mechanical mixing of mortar so that they have the best sequences: / **3marks**

- ✓ Pour out and make the next batch.
- ✓ Mix together until it all looks the same color.
- ✓ Discharge next, then make next batch.
- ✓ Start or turn on the mixer.

- ✓ Mix for another 2 minutes.
- ✓ Put in about 2/3 of the water you need.
- ✓ Add the sand, gravel and then the cement.
- ✓ Add the rest of the water a bit at a time until you get a mix that is workable but not too wet.

Q11. What do you understand by term “stair”? / **1mark**

Q12. Outline any five (5) the essential factors to be considered when designing a stair case in building. / **5marks**

Q13. Enumerate any three (3) requirements for safe design of retaining walls. / **3marks**

Q14. Mention any three (3) demerits of using mechanical plant in excavation. / **3marks**

Q15. Differentiate valley-dammed from bank-side reservoirs as types of water reservoir. / **3marks**

Q16. Compare the precast from cast in situ of piles in terms of their definition and quality control. / **4marks**

Q17. Give any two (2) Procedures of mark out foundation. **2marks**

SECTION B: Attempt any three (3) questions

/30marks

Q18. With a good, clearly sketches differentiate types of piles used in building foundation. /10marks

Q19. After define angle of repose, discuss eight (8) procedures that are involved in marking out foundation outlines. /10marks

Q20. a. Define the term “stone dressing”. /2marks

b. Demonstrate the process of shaping a rough stone into usable construction materials. / 4marks

c. Explain the importance of shaping and cutting stones in construction. / 4marks

Q21. a. Name and give the uses of the following mechanical excavation plant. /8marks



a).....



b).....



c).....



d).....

b. During excavation of foundation trenches we can use manual and mechanical method, when will you prefer to use mechanical method? /2marks

Q22. Describes the classifications of opened channel based on boundary and based on occurrence and give any one (1) example for each. /10marks

SECTION C: Attempt only one (1) question

15marks

Q23.a. what safety precautions should be taken when handling and mixing mortar?
/8marks

b. Rephrase three (3) factors affecting the durability of foundation. **/3marks**

c. Identify at least four (4) mortar-mixing tips. **/4marks**

Q24. How does the Rwandan standard address the safety factor for retaining wall design, especially in areas with high water pressure or load bearing demands? **/15marks**

GOOD LUCK!!!!!!!!!!!!!!