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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: III

MODULE CODE AND TITLE: BDCCM301: Fundamentals of building materials.

DURATION: 3hours

DATE: / / 2025

INSTRUCTIONS TO CANDIDATE:

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

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

SECTION A: Attempt all Questions /55marks

Q1. What do you understand about “dead wood”? **/2marks**

Q2. Answer True or false **/4marks**

- a. Pith is the inner annual rings surrounding the pith.
- b. Outer bark is thin layer of sap between sapwood and inner bark.
- c. Medullary rays the thin radial fibres extending from pith.
- d. Sap wood the outer annual rings between heartwood and cambium layer.

Q3. Fill the sentences below by using the following words: seasoning timber, natural seasoning of timber, water seasoning, air seasoning, kiln seasoning, diagonal grain, and heart rot. **/5marks**

- a..... this is formed when branch has come out of a tree and the tree becomes weak and gives out hollow sound when struck with a hammer.
- b. due to improper sawing of timber.
- c..... is the process in which timber is immersed in water flow, which helps to remove the sap present in the timber.
- d. In the process of timber logs are arranged in layers in a shed.
- e. is the process by which moisture content in the timber is reduced to required level.

Q4. Which is instruments used to determine the standard consistency of a cement paste, as well as its initial and final setting time? **/2marks**

Q5. Choose the letter corresponding to the correct answer in each statement: **/4marks**

- 1. The following are the functions of cement , except
 - a. Making joints for drains, pipes.
 - b. Manufacture of pre cast pipes, piles, garden seats.
 - c. It should be able to retain its colour and shine.
 - d. Construction of telephone cabins, lampposts.
- 2. Which of the following is NOT a desirable properties of cement
 - a. Consistency
 - b. Soundness
 - c. Sulphur trioxide
 - d. Bulk density

Q6. Illustrate any four (4) ingredients of paint and varnish used in construction.

/4marks

Q7. Outline any three (3) merits of oil paint. **/3marks**

Q8. Differentiate thermoplastic from thermosetting and give any two (2) examples for each. **/4marks**

Q9. What do the following abbreviations stand for ? **/2marks**

a. PVC

b. HDPE

Q10. Mention any five (5) applications of plastics in building construction. **/5marks**

Q11. Compare the defects in timber due to fungi from due to natural forces. **/ 4marks**

Q12. Moisture content or dampness is the main hazard for the cement. Mention any four (4) Precautions for Proper Storage of Cement. **/4marks**

Q13. What are any three (3) types of steel section used in building construction?
/3marks

Q14. Aggregates are granular materials, such as sand, gravel, crushed stones, where the aggregate is extracted from? **/ 3marks**

Q15. Provide any three (3) demerits of using improper water for construction works.
/3marks

Q16. Burning of bricks is a very important operation in the manufacturing of bricks to impart hardness, strength and makes them dense and durable. Where burning of bricks is done? **/1marks**

Q17. List any two (2) types of continuous kilns. **/2marks**

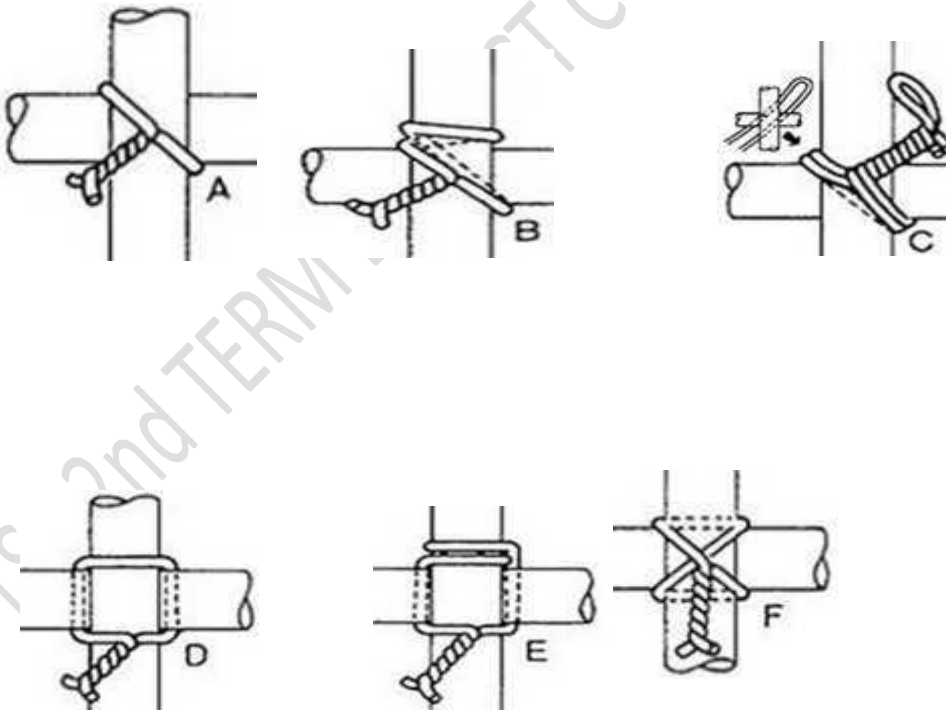
SECTION B: Attempt any three (3) questions**/30marks**

Q18. Mr. MUHIRE want to construct the building by using Portland cement as leaners who learning well the tests of cement. As advanced operator, after defining term cement, help him to compare test of cement for field and laboratory. / **10marks**

Q19. A cement is a binder, a substance used for construction that sets, hardens, and adheres to other materials to bind them together. Cement is seldom used onits own, but rather to bind sand and gravel together. Cement mixed with fine aggregate produces mortar for masonry, or with sand and gravel, produces concrete. As masonry supervisor, you are asked to mention all steps of cement manufacturing. / **10marks**

Q20. Explain clearly sun dried bricks from burnt bricks as broadly categories of bricks. / **10marks**

Q21. I. Name different ways of tying binding wires according to the figures below. / **6marks**



II. State any four (4) types of steel reinforcement used in building construction. /4marks

Q22. Distinguish between the defects in cement-based products and defects of bricks/blocks. /10marks

SECTION C: Attempt only one (1) question 15marks

Q23. Arrange the followings manufacturing process of pre-fabricated buildings structure elements to construct flow chart. /15marks

- ✓ Storage at a land fill
- ✓ Quality check approval
- ✓ Demoulding
- ✓ Element design , selection of materials and laboratory tests
- ✓ Reinforcement skeleton forming
- ✓ Quality control concrete blocks sampling
- ✓ Reinforcement skeleton preparation
- ✓ Design the form and determine the method of element care
- ✓ Concrete testing
- ✓ Concrete strength test
- ✓ Transportation to the construction site
- ✓ Approval
- ✓ Pouring concrete and next layer
- ✓ Checking the construction quality and quality of the elements , approval
- ✓ Application of additional layers protection of the element
- ✓ Concrete care

Q24. I. Explain clearly the following two (2) types of pavers and their manufacturing process: /10marks

- a. Marble pavers**
- b. Plastic pavers**

II. Discuss about any five (5) qualities of cement based products complying with Rwandan standards. /5marks

GOOD LUCK!!!!!!