

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA
SCHOOL OF ENVIRONMENTAL TECHNOLOGY
DEPARTMENT OF QUANTITY SURVEYING

FIRST SEMESTER EXAMINATION FOR 2019/2020 SESSION

COURSE CODE: QTS 512

COURSE TITLE: CIVIL ENGINEERING MEASUREMENT 1

CLASS: 500 LEVEL

TIME: TWO HOURS THIRTY MINUTES (2½ HRS) ONLY

INSTRUCTION: ANSWER FOUR QUESTIONS ONLY. BESMM 4, & CESMM3 are allowed

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QUESTION ONE (20 Marks)

The Federal Government of Nigeria proposed the extension of construction of **Rail track** from Ibadan to Kano. You have been commission as a professional Quantity Surveyor to take off Quantities for the proposed extension of project in the attached drawing number (DWG/QS/01)

Brief Specification

- A. Crushed stone ballast: shall consist of crushed granite free dust and vegetable materials as specification clauses. The aggregate shall be random size 32-40mm max thickness.
- B. Rails: shall be flat bottom weighting 56km/m supplied in stock length of 18.00 tracks and shall be jointed with 450mm long x 25mm thick fish plates at 36.00m centre to centre.
- C. Sleeper: timber sleepers shall be 2750mm long x 250mm wide x 275mm thickness in materials treated as described in specification clause and laid at the rate of 24/18mm of track length.
- D. Formation level: the formation level in location of high water table shall be protected with 100mm thick layer of approved sharp sand over laid single layer of 100 polythene damp proof membrane.

QUESTION TWO (20 marks)

The Government of Niger State proposed the construction of **retaining wall** for the river boundary in Katcha Local Government area. You have been commission as a Quantity Surveyor to take off Quantities for the proposed project in the attached drawing number (DWG/QS/02)

Brief Specification

For the purpose of this examination a 30m length of wall is recommended for the proposed project and omit the earth work •

QUESTION THREE (20 marks)

- A. Briefly explain the followings terms in road construction projects
 - ❖ Base course
 - ❖ Sub based course
 - ❖ Binder course
 - ❖ Wearing course
- B. Describe kerbs and outline the functions of kerbs
- C. Describe shoulders and list out the functions of shoulders

QUESTION FOUR (20 marks)

The Federal Government proposed the construction of shopping complex of a ten storey building at Mabushi, Abuja and the site was located in water loading area. You have been commission as a Quantity Surveyor to take off Quantities for the proposed **Concrete Pile** project in the attached drawing number (DWG/QS/03)

Brief Specification

- A. Take 108m length of Quay with concrete and timber piles
- B. 300mm stone pitching with chalk filling
- C. Piles size are 900 x 1200mm and 900 x 600mm respectively and both are 3.600m centre to centre
- D. 300 x 300mm greenheart sleeper.
- E. Reinforced concrete pile cap 1200 x 900 x 450mm and 900 x 600 x 450mm.
- F. 300 x 300mm sleeper and 300 x 300mm fender pile.
- G. Depth drive in are 8.88 and 5.10m.

QUESTION FIVE (25 marks)

Take off quantities for the proposed **cast iron tunnel lining** in the attached drawing number (DWG/QS/04)

Brief Specification

- ❖ 350m length was proposed for the cast iron tunnel lining
- ❖ Cast iron segment is 500mm wide and the segment are in 9 pieces
- ❖ Caulking groove is 50 x 6mm with 32mm grout hole

Good Luck

QS. Dr. A.M Kasimu