Department of Quantity Surveying, School of Environmental Technology, Federal University of Technology, Minna.

150

Construction Technology (QTS 322) Examination

SESSION; 2016-2017. SEMESTER – 2nd

Time Allowed; 2 hours.

Instructions; Use the Narration Below to answer Question 1 and any other from section A. Answer One Question from section B. **EXTRA MARKS WILL BE AWARDED FOR CLEAR EXPRESSIONS AND NEAT ANNOTATIONS**

The federal Government of Nigeria is desirous of constructing a world class multifunctional stadium. After a thorough assessment of the potentials of each of the states, Rivers state was selected as the ideal location for the construction. Your consultancy firm has been engaged to design the several components of the stadium. Some of the components include:

- An Olympic size swimming pool
- A tiered audience sitting stand with 50 concrete steps each measuring 25m x 1.5m x 150mm thick.
- Block of offices under the tiered concrete steps.

SECTION A

1. a) Suggest the type of wall around the swimming pool bearing in mind the loose nature of the riverine soil and the expected pressure from the surrounding soil water. (5 marks)
   b) Make a neat labelled sketch of the suggestion in (a) above (15 marks)

2. a) given the description of the audience concrete sitting stand, determine (with reasons), the best foundation for the stands. (5 marks)
   b) Make a neat labelled sketch of the foundation type determined in (a) above (15 marks)

3. Write short notes on the possibility of including the following in the construction of the stadium a) Basement b) Drained cavities c) Membranes d) Asphalt tanking e) Sheet membranes (20 marks)

SECTION B (By means of well-labelled drawings ONLY, show the following):

4. a) Floor duct in a raised access floor (full access) (10 marks)
   b) Adjustable pedestal in a raised access floor (10 marks)

5 a) Mass concrete deep strip foundation (10 marks)
   b) Reinforced concrete deep strip foundation (10 marks)