



SECOND SEMESTER EXAMINATION 2018/2019 SESSION
COURSE CODE: QTS 524 COURSE TITLE: HEAVY ENGINEERING II

TIME ALLOWED: 2 Hours

CREDIT LOAD: 2 Units

INSTRUCTION: Answer Three (3) Questions only, all assumption should be clearly stated.

Question 1:

- a. What do you understand by Industrial Engineering works? (5 marks)
- b. Explain the measurement rules for "Ductwork" as provided in the Standard Method of Measurement for Industrial Engineering Works (10 marks)
- c. Outline all works covered as "Heavy Engineering Works" in SMMIEC (5 marks)

Question 2: Federal Government of Nigeria through the Nigeria National Petroleum Corporation (NNPC) signed an agreement with ENERGO Petroleum PLC for crude-oil exploration at OML75 on Bida Basin (Onshore) and your firm is hired by ENERGO Petroleum as Consultant Cost Engineer to prepare the Bills of Quantities (BOQ) for the project.

- a. Explain with supporting sketches; the Survey and Drilling process? (15 marks)
- b. Measure and prepare a draft BOQ for the project (5 marks)

Question 3: Maizube Farms Limited is desirous to link Garatu village with 33KV electricity supply from FUT Gidan-Kwano covering a total distance of 5,600 meters. The H.T. Concrete Poles are erected at 50 meters interval and the poles are located on moderately firm soil.

You are required to:

- a. Sketch a typical 33KVA High Tension Transmission Lines Structure including necessary detail and take-off quantities for H.T. Concrete Poles (only) (10 marks)
- b. Sketch a typical Sub-station Base for 500KVA/33KV/415V Transformer including all necessary sub-station installation details and take-off quantities for all item necessary for complete sub-station installation (10 marks)

Question 4: You have just been invited for job interview by Shell Petroleum Development Company (SPDC), the interview panel demanded that you;

- a. Provide list of the facilities require for Onshore and Offshore Crude Oil Exploration? (10 marks)
- b. Explain with supporting sketches where necessary, the "fractional distillation process" of Crude-oil Refining (10 marks)