



FIRST SEMESTER EXAMINATION 2018/2019 SESSION  
COURSE CODE: *QTS 514* COURSE TITLE: *HEAVY ENGINEERING I*  
TIME ALLOWED: 2 Hours  
INSTRUCTION: Attempt all questions

CREDIT LOAD: 2 Units

**Question 1:**

- a. What is Heavy Engineering? (5 marks)
- b. Outline the characteristics of Heavy Engineering Works. (5 marks)
- c. Messer AMTEX GLOBAL HOLDINGS is proposing to embark on the construction of a Modular Refinery to be sited in Suleja. Identify and discuss the requirements of this important project. (10 marks)

**Question 2**

- a. List all plants and equipment require for "Tablets Production" in a Pharmaceutical factory (10 marks)
- b. Explain in details the essentials of a Feasibility Study Report (5 marks)
- c. Discuss the steps through which Engineering contracts are procured? (5 marks)

**Question 3:**

- a. Outline all works classified as "Heavy Engineering Works" in SMMIEC (4 marks)
- b. What is "Letter of Credit"? (4 marks)
- c. Discuss the following contractual agreements in Engineering Procurement Contract (EPC);
  - i. Operation and maintenance agreement (3 marks)
  - ii. Off-take agreement (3 marks)
  - iii. Shareholder agreement (3 marks)
  - iv. Loan agreement (3 marks)