FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA
SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION
INDUSTRIAL AND TECHNOLOGY EDUCATION DEPARTMENT
SECOND SEMESTER 2017/2018 EXAMINATION

Course Tittle:	**Electrical Power and DC Machines**
Course Code:	**ITE 361**
Instruction:	**Answer Question One (1) and Two (2) others.**
Time Allowed:	**2hours**

Q.1. Identify the following two energy converters, and also name the labelled parts ((1) – (4)) from each of the two diagrams.

Q.1b. Briefly explain how each of the two systems operates to deliver electricity.

Q.1c. Which of the two is more capital intensive? And why?

Q.2a. With all the supporting sketches, explain in full the working principle of the elementary DC generator.

Q.2b. Similarly, explain the principle of operation of a DC motor.

Q.3a. Illustrate the sequence of connection of the following protective devices from the supply authority's meter to the distribution box (DB).

i. Cut out fuse (COF)
ii. Miniature circuit breaker (MC)
iii. Earth leakage circuit breaker (ELCB)

Q.3b. Explain the role of each of the following:

(i) Earth electrode (ii) Stablock (iii) Final Sub circuit (iv) Fuse

Q.3c. Physically stablocks look the same, but are actually rated example 5A, 10A, 15, 13A, 20A, 30A and so on, why?

Q4a. Explain briefly the meaning of integrated power system. Your claim must be supported by sketches.

Q.4b. Write down the ranges of the following voltages:

(i) Low voltage (ii) Medium voltage (iii) High voltage (iv) Extra high voltage