FEDERAL UNIVERSITY OF TECHNOLOGY

SCHOOL OF ENVIRONMENTAL TECHNOLOGY

ARCHITECTURE DEPARTMENT

2014/2015 RAIN SEMESTER EXAMINATIONS

COURSE TITLE: BUILDING SERVICES IN ARCHITECTURE II

COURSE CODE: ARC 507.

Mid-term assignment **Mark:- 30%**

Instruction: Answer all Questions

1 (a) In the General Principle of Electricity generation, electro- magnetic devices are employed in building construction as part of house-hold equipments; mention three such devices.

(b) Make a simple sketch of generation of an alternating e.m.f. and explain how the combination of the magnetic poles, the magnetic flux and the turning coil of wire generates a sinusoidal wave which flows in the wire as an electricity.

2 (a) Define the term magnetic flux.
(b) In addition to the Direct Current Generators, mention two other sources of direct current electricity and explain how one of them functions and one example of appliances using them in a building.

3 (a) If the root mean square of an electric current is 25A and the average value is 50A, what is the form factor of the current?
(b) Given that the peak or Crest factor of a wave whose root mean square value is 3A is 2, what is the Peak or Maximum value of the wave?

4 (a) The ampere is the unit of current; but it is defined in term of force and length. Define the Ampere.

5 An amarture electrician installed electricity in a private building without circuit breakers and switches. What is the likely consequence of his action?

6. There are at least four types of house wiring systems namely:
Surface wiring; concealed conduit wiring; surface conduit wiring and trunking. Explain the one you understand best.

7. Distribution fuse boards (DFBs) are important in electrical installations in large buildings containing three phase supplies. Why?