



## **EAST AFRICAN SCHOOL OF AVIATION EXAMINATION**

### **END TERM II EXAMS**

**DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING**

**(TELECOMMUNICATION OPTION)**

### **ELECTRICAL AND SOLAR INSTALLATION TECHNOLOGY**

**STREAM: Module I (Telecom)**

**Duration: 3 Hrs.**

**DAY/DATE: 3/4/2017**

**TIME: 9-12 PM**

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#### **INSTRUCTION TO CANDIDATES**

*You should have the following for this examination:*

- i) Answer booklet*
- ii) Mathematical table/ scientific calculator*

*Answer ANY THREE QUESTIONS IN SECTION A and ANY TWO IN SECTION B in this paper*

*All questions carry equal marks.*

*Maximum marks for each part of a question are as shown*

**This paper consists of Three (3) printed pages.**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

## SECTION A (ELECTRICAL INSTALLATION)

*Answer any THREE questions from this Section.*

1. (a) Define the following term and two example for each;

i. Conductor

ii. Insulator

iii. Cable

**(9 marks)**

(b) State the quantity measured by the following instruments;

i. Ohmmeter

ii. Wattmeter

**(2 marks)**

(c) With the aid of a diagram explain the operation of a Hydro-electrical power station

**(9 marks)**

2. (a) State two IEE Regulation requirement regarding;

i. Cable joints

ii. Cable termination

**(4 marks)**

(c) Explain the following with reference to safety;

i. Electrical shock

ii. Protective clothing.

**(6 marks)**

(b) With aid labelled diagram, outline the procedure of marking a Britannia joint using two pieces of vulcanized rubber insulated cable.

**(10 marks)**

3. (a) Write the full meaning of the following abbreviations of different cables.

i. VRI

ii. PVC

iii. MIMS

**(3 marks)**

(b) State three;

i. Factors that affect the choice of a wiring system

ii. Advantages of Trunking system over Conduit system. **(7 marks)**

(b) Draw the flow diagram of a diesel power station and discuss its operation.

**(10 marks)**

4. (a) Explain the following cable jointing methods;

i. Pot and ladle

ii. Clamping **(4 marks)**

(c) With aid of a labelled diagram, outline the procedure of making a Tee joint

using two pieces of Polyvinyl Chloride insulated cable. **(6 marks)**

(b) Discuss the five merits and five demerits of a hydro-electrical plant.

**(10 marks)**

5. (a) Draw an Armoured Cable and explain the function of its seven parts

**(10 marks)**

(b) Explain five points to be considered when selecting a site for Hydro-electric

power stations.

**(10 marks)**

## SECTION B (SOLAR INSTALLATION)

*Answer any TWO questions from this Section*

6. (a) State the basic energy resource for all types of solar systems. **(10 marks)**
- (b) Draw the solar system lay-out in term of;
- i. Block diagram
  - ii. Schematic diagram **(10 marks)**
7. (a) Explain three application of photovoltaic solar system. **(6 marks)**
- (b) State the main component of a photovoltaic system. **(4 marks)**
- (c) Explain the function of each part of a photovoltaic system. **(10 marks)**
8. (a) Explain how solar energy is used in the following areas;
- i. Crop drying
  - ii. Cooking
  - iii. Water heating
  - iv. Space heating
  - v. Green houses. **(10 marks)**
- (b) With the aid of a labelled diagram explain the operation of a solar cell. **(10 marks)**

**\*\*\*\*End\*\*\*\***