



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

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 abbreviation of different cable.

i. VRI

ii. PVC

iii. MIMS

(3 marks)

(b) State three;

i. Factor 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 joints methods;

i. Pot and ladle

ii. Clamping **(4 marks)**

(c) With aid labelled diagram, outline the procedure of marking 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 the seven part

(10 marks)

(b) Explain five point to be consider 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)**

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