EAST AFRICAN SCHOOL OF AVIATION EXAMINATION
EXAM

ENGINEERING SECTION

DIPLOMA IN AERONAUTICAL ENGINEERING

SUBJECT: AIRFIELD SAFETY & AUTOPILOT

STREAM: MOD III (AVIONICS) **Duration: 3 Hrs**

DATE: 10/04/2011 **TIME: 9.00AM – 12.00p.m**

Instructions to Candidates:

1. *This paper consists of **THREE (3)** printed pages.*
2. *Answer **ANY 3** questions from **SECTION A** and **ANY 2** from **SECTION B***

SECTION A

1 (a)(i)In the Flight Director System, explain all the channels which are found in it.

(4 marks)

(ii Define three possible sources of getting information or data to flight director systems. **(6 marks)**

(b) Show what is contained in a 'typical' electro-mechanical flight director system with a well labeled diagram **(10 marks)**

2 Describe two instruments which are used mainly in autopilot system and out of these explain which one contains the following; (i) ILS failure flag (ii) Directional Gyro failure flag (iii) Selected course (iv) DME range (v) Attitude Gyro (vi) Flight Director warning flag (vii) Localizer flag and (viii)Decision height flag. **(20 marks)**

3 (a) Outline the purpose of Mode Control Panel (MCP) and mention at least five functions found in it. **(10 marks)**

(b)(i) Explain the meaning of "gyro" warning flag in a Flight Director Fail Indications **(4 marks)**

(ii) Which flag will come into view of the HSI when there is poor reception, unreliable or loss of VOR,LNAV and localizer information. **(4 marks)**

(iii) State what the pilot thinks of when the "GS" flag comes in view in the instrument in front of the raw glide slope scale. **(2 marks)**

4 (a) (i) Name two major reasons which enabled the autopilot to be in existence in the aircrafts **(4 marks)**

(ii) Define the term "Fail- Safe" system and explain how the pilot will respond to it in autopilot **(6 marks)**

(b) Explain two types of loops in an autopilot system and state what is contained in each loop. **(10 marks)**

5 Describe all the components which are found in the inner loop control system and explain their purposes. 20 marks

SECTION B AIRFIELD SAFETY PROCEDURES

6. Sketch and label the layout of an approved store and state the activities carried out in any five sections. **(20marks)**

7. a) Outline the purpose of inventory control on an aircraft technical store **(5marks)**
b) Differentiate between the following terms as applied to an aircraft technical store
   i) Quarantine and bonded
   ii) Centralized and decentralized
   iii) Lifed and shelf lifed parts **(6marks)**
c) Describe the procedures of stores spares transaction in airline technical stores **(9marks)**

8. a) State any six categories of aircraft maintenance license issued by KCAA. **(6marks)**

b)State the locations of nationality and registration marks on a fixed wing aircraft. **(4marks)**

c) Define the following terms as used in aircraft maintenance.

   i) Approval
   ii) Duplicate inspection
   iii) License
   iv) Authorization
   v) Validation **(10marks)**