



EAST AFRICAN SCHOOL OF AVIATION

ATC COURSE No. 73

FINAL

SUBJECT: AVIATION METEOROLOGY

STREAM: ATC COURSE No. 73

Duration: 2 Hrs

DATE: 16/05/2017

TIME 8.30 – 10.30 AM

INSTRUCTION TO CANDIDATES

1. This paper consists of **THREE (3)** Pages
2. Attempt all questions
3. Read and understand all questions before attempting

QUESTION 1:

- (a) List all the thermodynamic variables? **(2marks)**
- (b) What is the equation of state for dry air? **(2marks)**
- (c) Define an Adiabatic process. **(2marks)**
- (d) When is the atmosphere considered stable? **(2marks)**
- (e) When a parcel of air is given an initial push and continues to rise, the atmosphere is considered to be? **(2marks)**

QUESTION 2:

- (a) Define Atmospheric Pressure. **(3marks)**
- (b) Name any two (2) instruments that are used in pressure measurements **(2marks)**
- (c) List any three (3) corrections required on reading a barometer **(3marks)**
- (d) Define an altimeter **(2marks)**

QUESTION 3:

- (a) Define the following Q Codes as used in pressure.
 - (i) QNH **(2marks)**
 - (ii) QFE **(2marks)**
 - (iii) QNE **(2marks)**
- (b) Define the following terms as used in Altimetry:
 - (i) Transition altitude. **(2marks)**
 - (ii) Transition layer. **(2marks)**

QUESTION 4:

- (a) Define a METAR. **(2marks)**
- (b) In a Metar/Speci, what is the criteria for reporting cloud groups? **(2marks)**
(Hint:1,3,5)
- (c) In an observation, how is 2/8 Cumulonimbus at 1500ft coded in a METAR? **(2marks)**
- (d) In an observation, how is vertical visibility assessed when the sky is completely obscured? **(2marks)**
- (e) Define Highest Minimum Sector Altitude. **(2marks)**

QUESTION 5:

- (a) List any three (3) weather hazards you would associate with Stratus clouds **(3marks)**
- (b) Which two (2) clouds types would you associate with aircraft turbulence? **(2marks)**
- (c) List any five (5) weather hazards you would associate with a mature thunderstorm cloud. **(5marks)**

QUESTION 6:

(a) Convert the following temperature scales as given below:

(i) 85°C to °F (2marks)

(ii) 113°F to °C (2marks)

(iii) 298°K to °F (2marks)

(b) Define Dew Point Temperature (2marks)

(c) List any two (2) conditions necessary for a large diurnal variation of Temperature. (2marks)

QUESTION 7:

(a) Give two (2) examples of heaped clouds. (2marks)

(b) Which among the following group of clouds are layer clouds?
Cumulus, Nimbostratus, Cirrostratus, Altocumulus (2marks)

(c) What type of precipitation is associated with the following clouds:

(i) Cirrostratus. (2marks)

(ii) Nimbostratus. (2marks)

(iii) Stratus. (2marks)

QUESTION 8:

Briefly describe how and when the following local winds form.

(a) Land Breeze. (2marks)

(b) Sea Breeze. (2marks)

(c) Katabatic Wind. (2marks)

(d) Anabatic Wind (2marks)

(e) Föhn Wind. (2marks)

QUESTION 9:

a) In the ICAO International Standard Atmosphere, list all the variables and their values. (4marks)

b) List two (2) purposes that the standard serves in Aviation. (4marks)

c) How are flight levels determined? (2marks)

QUESTION 10:

(a) Decode the METAR below:

METAR HKEL 061200Z 25008G19KT 0800 +SHRA FEW005

FEW020CB SCT025 BKN090 19/18 Q1020 RETS= (8marks)

(b) What is a TREND FORECAST? (2marks)