



**EAST AFRICAN SCHOOL OF AVIATION**  
**END OF TERM EXAMINATIONS**

**SUBJECT: AIRFRAMES SYSTEMS 1**

**DIPLOMA IN AERONAUTICAL ENGINEERING (A&E OPTION)**

**Stream: MODULE II**

**DURATION: 3 hrs**

**DATE: 05/04/2017**

**TIME : 9.00A.M. to 12.00P.M.**

**INSTRUCTIONS TO CANDIDATES**

1. This paper consists of **EIGHT** questions.
2. All questions carry equal marks.
3. Answer any **FIVE** questions in the space provided.

1. (a) Give **FOUR** functions of Aircraft Landing Gears **(4marks)**
- (b) Explain each of the following terms as applied to Aircraft Landing gears.
- (i) Shimmy damper
  - (ii) Deboost valve(compensator)
  - (iii) Steering cylinder **(6marks)**
- (c) With the aid of a sketch, explain the construction and operation of an aircraft air-oil strut. **(10marks)**
2. (a) Describe the **THREE** types of Aircraft landing gears. **(9marks)**
- (b) Outline **FIVE** components used in the construction of an Aircraft landing gear. **(5marks)**
- (c) Describe **THREE** methods used in absorbing shock in a fixed landing gear. **(6marks)**
3. (a) (i) Differentiate between loose flange and detachable type of an Aircraft wheel. **(8marks)**
- (ii) Describe a divided wheel of an Aircraft. **(3marks)**
- (b) (i) Describe the term '**TYRE CREEP**'. **(3marks)**
- (ii) Explain **THREE** methods of counteracting Aircraft tyre creep**(6marks)**
4. (a) Outline tyre markings and explain the meaning of each. **(12marks)**
- (b) Describe any **FOUR** defects which normally affects an Aircraft tyre. **(8marks)**
5. (a) Outline **SIX** functions of an Aircraft tyre. **(6marks)**

(b) With the aid of a labeled sketch describe the construction of an Aircraft tyre. **(14marks)**

6. (a) With the aid of a labeled sketch explain the functions of a basic hydraulic system. **(12marks)**

(b) Outline **FOUR** causes of hydraulic fluid variations in hydraulic reservoir. **(8marks)**

7. (a) Describe the following hydraulic pumps:

(i) Constant Delivery(fixed volume) pump,

(ii) Constant Pressure(variable volume) **(10marks)**

(b) Explain the function of the following types of hydraulic valves:

(i) Pressure control valve

(ii)Flow control valve **(4marks)**

(c) Outline any **SIX** properties of hydraulic fluid. **(6marks)**

8. (a) Outline **SIX** advantages of using compressed air over hydraulic or electrical systems. **(6marks)**

(b) State any **FOUR** sources of air used in pneumatic system. **(4marks)**

(c) With aid of sketches describe the following pneumatic system components:

(i) Relief valve

(ii) Check valve

(iii) Orifice restrictor

(iv) Variable restrictor

(v) Pressure reducing valve **(10marks)**







