



# EAST AFRICAN SCHOOL OF AVIATION EXAMINATION

## END EXAM

**SUBJECT: AIRFRAME SYSTEMS I (A&E Y2)**

**STREAM: MODULE II)**

**DATE: 22/3/2016**

**DURATION; 3 HRS**

**TIME; 9.00AM 12.00PM**

**EASA**  
East African School of Aviation

1. a) With aid of a labelled sketch explain the functions of a basic hydraulic system. **(12 marks)**
- b) Outline FOUR causes of hydraulic fluid variations in hydraulic reservoir. **(8 marks)**
2. 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 **(6 marks)**
3. a) Outline SIX advantages of using compressed air over hydraulic or electrical systems. **(6 marks)**
- b) State any FOUR sources of air used in pneumatic system. **(4 marks)**
- 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 **(10 marks)**
4. a) Describe the types of aircraft landing gear . **(9 marks)**
- b) Outline FIVE components used in the construction of an aircraft landing gear. **(5 marks)**
5. a) Outline FOUR functions of a landing gear. **(4 marks)**
- (b) Describe THREE methods used in absorbing shock in a fixed landing gear. **(6marks)**
- (c) With aid of a labelled sketch describe the construction of an aircraft nose landing gear oleo – strut.
6. (a) (i) Differentiate between Loose flange type and Detachable flange type of an aircraft wheel.
- (ii) Describe a divided type wheel of an aircraft. **(8marks)**

- (b) (i) Describe the term " Tyre Creep".  
(ii) Explain THREE methods of counteracting aircraft tyre creep.
7. (a) Outline tyre markings and explain the meaning of each. **(12marks)**  
(b) Describe any FOUR defects which normally affects an aircraft tyre. **(8marks)**
8. (a) Outline SIX functions of an aircraft tyre. **(6marks)**  
(b) With aid of a labelled sketch describe the construction of an aircraft tyre cover. **(14marks)**