

### 3.8 AVIATION TECHNOLOGY (450)

The 2022 KCSE examination for Aviation Technology consisted of two papers namely Paper 1 (Theory) and Paper 2 (Practical). The theory paper constituted 60% while the Practical Project constituted 40% of the final mark. The format and weighting of the papers was the same as that of the previous years.

#### 3.8.1 Candidates general performance

The table below shows candidates' overall performance for the five-year period, from 2018 to 2022.

**Table 17: Candidates overall performance in the years 2018, 2019, 2020, 2021 and 2022**

Year	Paper	Candidature	Maximum scores	Mean Score	Standard deviation
2018	1	117	60	36.17	6.28
	2		40	23.91	3.00
	Overall		100	60.09	8.44
2019	1	176	60	38.81	7.22
	2		40	23.15	3.21
	Overall		100	57.96	9.22
2020	1	200	60	33.78	8.89
	2		40	27.32	4.22
	Overall		100	61.10	11.92
2021	1	200	60	35.32	8.42
	2		40	25.52	4.52
	Overall		100	60.80	11.63
2022	1	202	60	37.50	7.91
	2		40	24.54	3.26
	Overall		100	62.38	13.77

From the table above, the following observations can be made;

- (i) The candidature increased slightly from 200 in the year 2021 to 202 in 2022.
- (ii) The mean score also improved from 60.80 in 2021 to 62.38 in 2022.
- (iii) The standard deviation also improved 11.63 in 2021 to 13.77 in 2022.

#### 3.8.2 Aviation Technology Paper 1 (450/1)

The questions which were reported to have been poorly responded to have been analyzed with a view to pointing out candidates' weaknesses and propose suggestions on some remedial measures that should be taken in order to improve in future. The questions for discussions include 10 and 14 (b), (c).

**Question 10**

**Figure 1** shows a plan of a metal plate with two circles of different diameters. Dimension the distance between the centres of the circles on the plate.

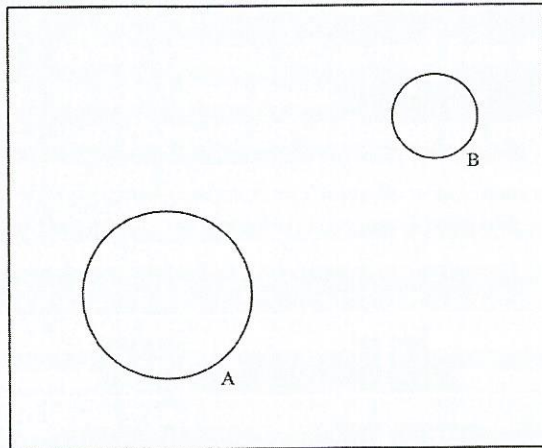


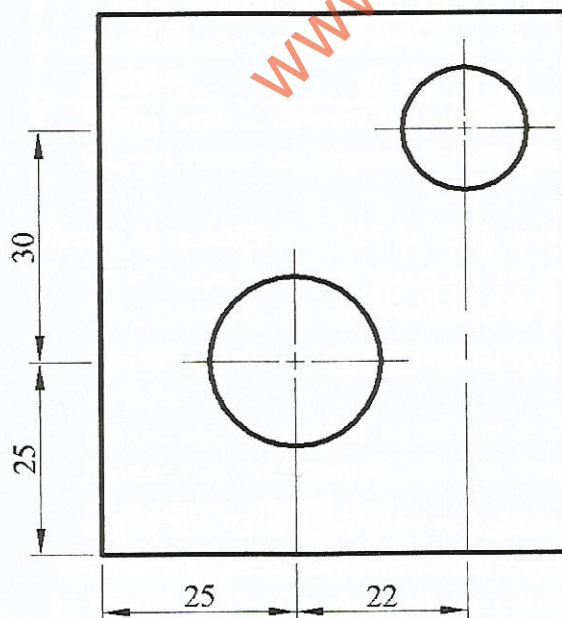
Figure 1

**Weakness**

Most candidates could not dimension the distance between the two centres of the circles.

**Advice to teachers**

Teachers are advised to adequately cover the syllabus including the topic of related drawing.

**Expected response**

**Question 14 (b)**

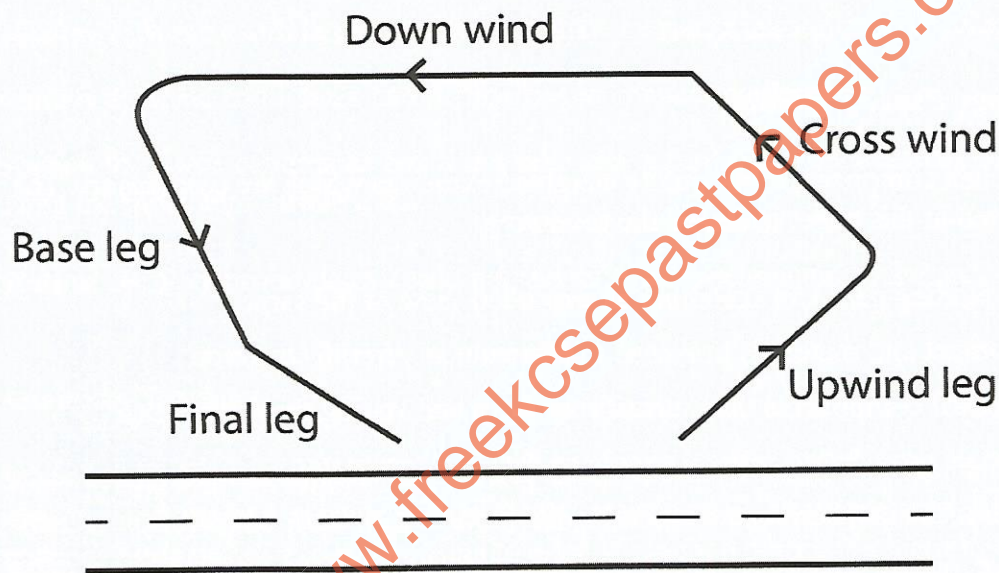
With the aid of labelled sketches, show the air traffic pattern at a controlled airport

**Weakness**

Most candidates could not sketch the air traffic patterns as per the question and instead drew the layout of an airport.

**Advice to teachers**

Teachers are advised to teach thoroughly and explain to the students the air traffic patterns at a controlled airport.

**Expected response****Question 14 (c)**

Sketch and label the cross-sectional view of a turbo propeller centrifugal gas turbine engine

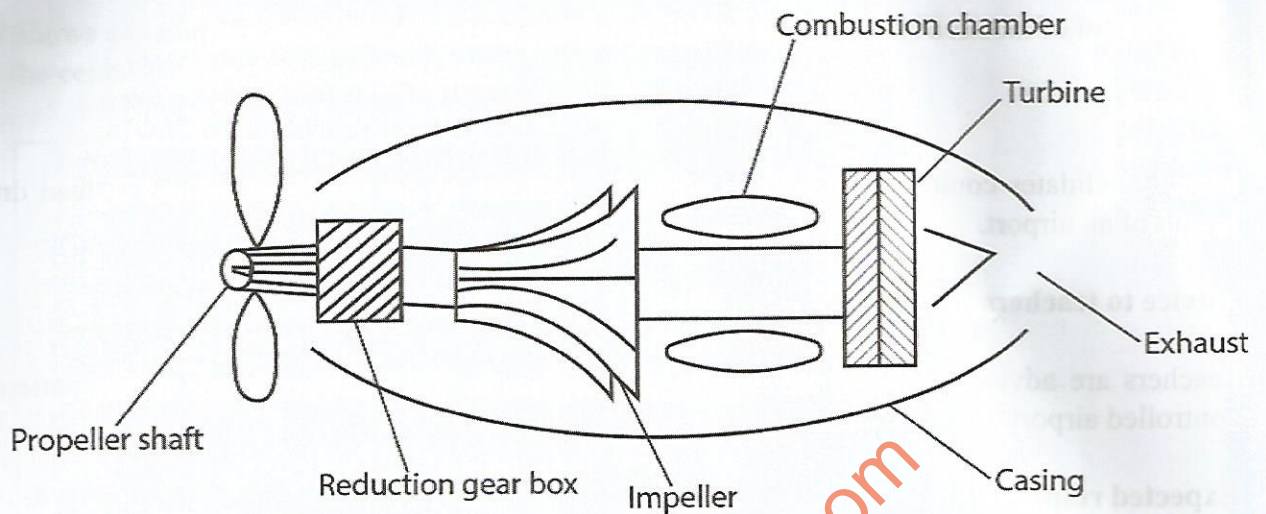
**Weakness**

Most candidates were not able to sketch the cross-sectional view of a turbo engine as per the question.

**Advice to teachers**

Teachers are advised to explain to the students the construction and operations of all aero-gas turbine engines.

### Expected response



### 3.8.3 Aviation Technology Paper 2 (450/2)

This is a practical paper which comprises of 10 equally weighted exercises which are compulsory. The various practical skills tested in this paper included the following:

- Identifying parts of a landing gear and sketching an exploded view of the same
- Using the tools, equipment and materials provided to fabricate an aircraft longeron
- Studying some the aircraft components then identifying them and stating their functions.
- Using tools and materials provided to make a simple model of a barometer.
- Identifying aircraft parts, the materials used in making the parts and systems where they are used.
- Using the aero plane model provided to demonstrate different maneuvers and helicopter marshalling signals.
- Studying a given aircraft instrument and identifying a range of markings .
- Connecting components in a circuit then recording the observations in the circuit when the switch is closed.
- Taking and recording the measurements of the aircraft components using the most appropriate tools.
- Studying some given specimens, identifying them, then stating their use and the system where applicable.

## Weaknesses

Although the overall performance was good, some weaknesses were noted in a few of the questions as discussed below.

**Station 1:** Some students could not sketch the exploded view of the landing gear

**Station 2:** Some candidates could not undertake the task of fabrication with the details provided.

**Station 3:** Some candidates could not identify the aircraft components and state their functions.

**Station 4:** Some candidates could not make a simple model of a barometer.

**Station 5:** Some candidates had difficulties in identifying aircraft part

**Station 6:** Some candidates had difficulties in demonstrating different maneuvers and helicopter marshalling signals.

**Station 7:** Some candidates could not identify the range of markings provided in the task.

**Station 8:** Some candidates had difficulties in connecting the circuit

**Station 9:** Some candidates could not take and record the measurements of the aircraft components using the most appropriate tools.

**Station 10:** Some candidates could not identify the specimen provided and state their use

## Advice to Teachers

Schools offering the subject are advised to source for aircraft instruments from grounded aircrafts in some airstrips and airports within their locality for learning purposes. They should also purchase materials required to expose students to a lot of practice during the learning period.

The schools which started offering the subject in the recent past should ensure they acquire the prerequisite equipment required for the subject as per the Appendix in the syllabus.

Teachers should ensure they cover the syllabus fully with more emphasis in the following:

- Give students exercises in drawing to improve their skills in that area.
- Involve students in fabricating as a skill.
- Use realia to explain parts of the aircraft and involve students in practicals
- Carry out more experiments related to the aircraft system.