

24.0 AVIATION TECHNOLOGY (450)

The 2011 Aviation Technology examination was composed of a theory and a practical paper. The format and weighting of the two papers was the same as in the previous years.

24.1 CANDIDATES GENERAL PERFORMANCE

The table below shows as the candidates' performance in Aviation Technology for the year 2011. The statistics for 2007, 2008, 2009 and 2010 have been included in the table for comparison.

Table 35 : Candidates' Overall Performance in Aviation Technology for the last three years

Year	Paper	Candidature	Max. Score	Mean Score	Standard Deviation
2007	1	53	60	31.87	6.27
	2		40	22.17	2.32
	Overall		100	54.04	7.00
2008	1	63	60	34.78	5.84
	2		40	26.56	2.94
	Overall		100	61.33	7.79
2009	1	68	60	34.84	6.17
	2		40	26.24	3.97
	Overall		100	61.07	9.09
2010	1	52	60	37.76	6.62
	2		40	27.21	2.94
	Overall		100	63.52	11.1
2011	1	70	60	35.49	6.51
	2		40	26.16	3.04
	Overall		100	61.26	9.05

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

- (i) The candidature rose by 18 candidates from 52 to 70.
- (ii) The performance in both papers 1 and 2 was a drop from the previous year in the mean and standard deviation from 63.52 to 61.26 and 11.1 to 9.05 respectively.

The following is a discussion of the questions which were poorly done in the theory paper.

24.2 Paper 1 (450/1)

The questions which were poorly done I paper 1 include:3a,9,10,and 11.

Question 3 (a)

State the use of each of the following tools:

- (i) Odd leg caliper
- (ii) Diamond chisel
- (iii) Plug gauge
- (iv) Dial test gauge

This question required the candidates state the use of selected tools and methods of joining aircraft parts.

Most of the candidates failed to state the use of plug gauge dial test gauge and the odd leg caliper.

Expected response

- (i) Odd leg caliper-used to determine the centre of a round bar and draw lines parallel to an edge
- (ii) Diamond chisel- used for cutting very sharp corners
- (iii) Plug gauge- used for checking hole limits
- (iv) Dial guage- used for determining out-of-roundness.

Question 9

Explain **five** requirements of a basic electrical system

The candidates were required to explain the requirements of a basic electrical system.

Most of the candidates missed to state the ideal requirements in the design of an electrical system

Expected responses

Basic requirements of an electrical system:

- (i) Power source for supply of power e.g generator
- (ii) Power regulator/controls/switch

- (iii) Power distribution –busbars
- (iv) Load
- (v) Power protection/feedback- warning system

Question 10

(a) Draw the symbols for each of the following:

- (i) Transformer
- (ii) Diameter
- (iii) Internal threads

(b) Figure 1 shows an isometric view of a truncated cone.

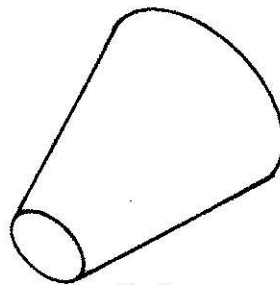


Fig.1

Draw the front and end elevation of the cone in:

- (i) first angle orthographic projection;
- (ii) third angle orthographic projection.

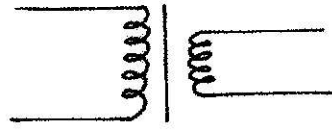
(3 marks)

In this question, the candidates were expected to draw symbols of a transformer, diameter, internal threads, first and third angle projection
Most candidates could not draw the symbols correctly as expected while some could only draw part of the symbols but not in full.

Expected responses

10. (a) SYMBOLS

(i)



(ii)

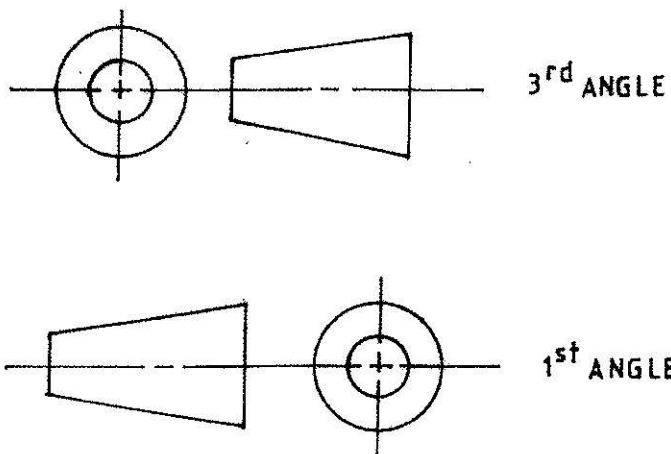


(iii)



(3 x = 1 marks)

(b)



(1 1/2 x 2)

AERO BYPASS GAS TURBINE ENGINE

Question 11

Figure 2 shows the three orthographic views of a bracket drawn in first angle projection. Draw in good proportion an isometric view of the bracket taking F as the lowest point.

l Figure 2 shows the three orthographic views of a bracket drawn in first angle projection.

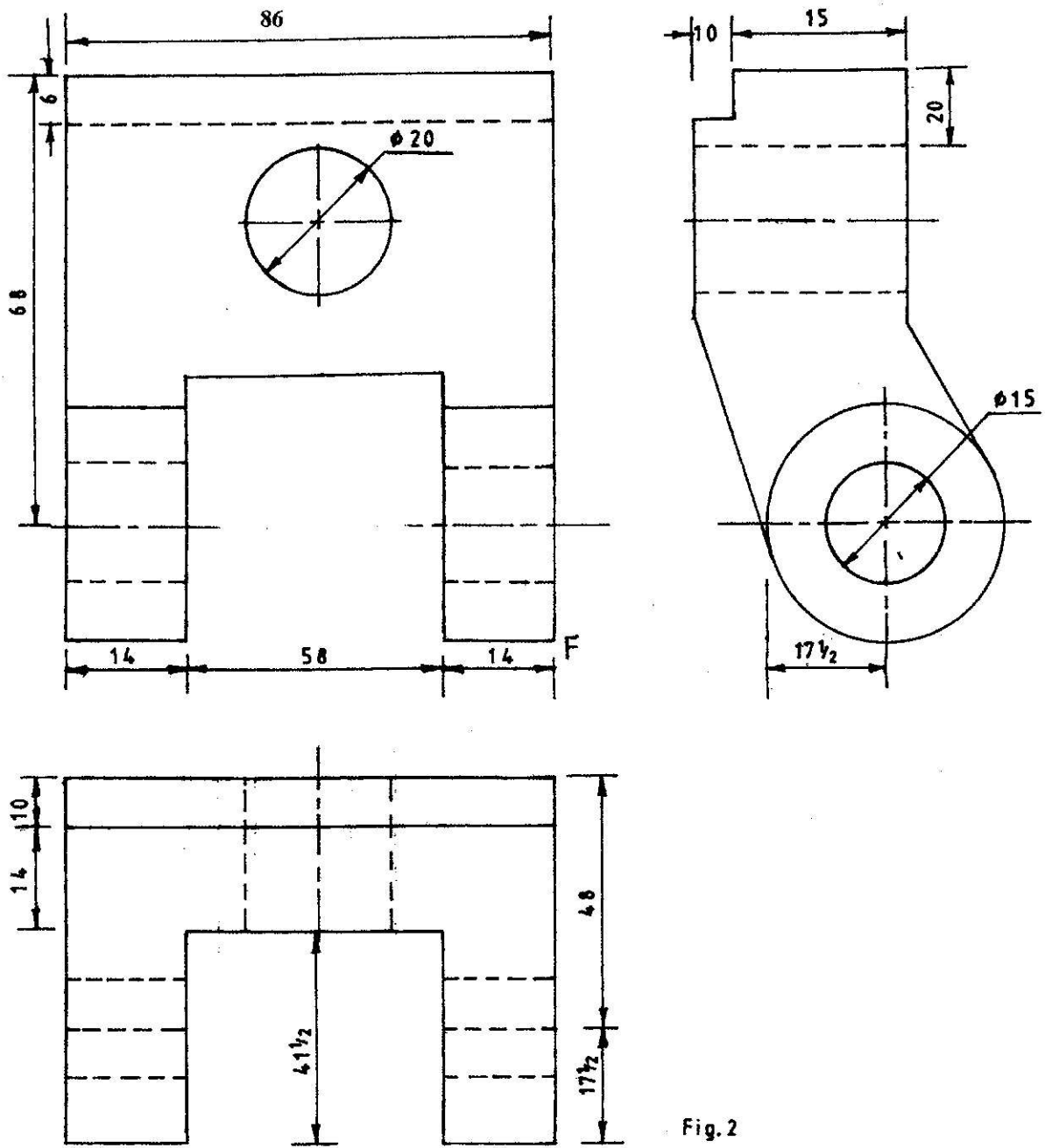
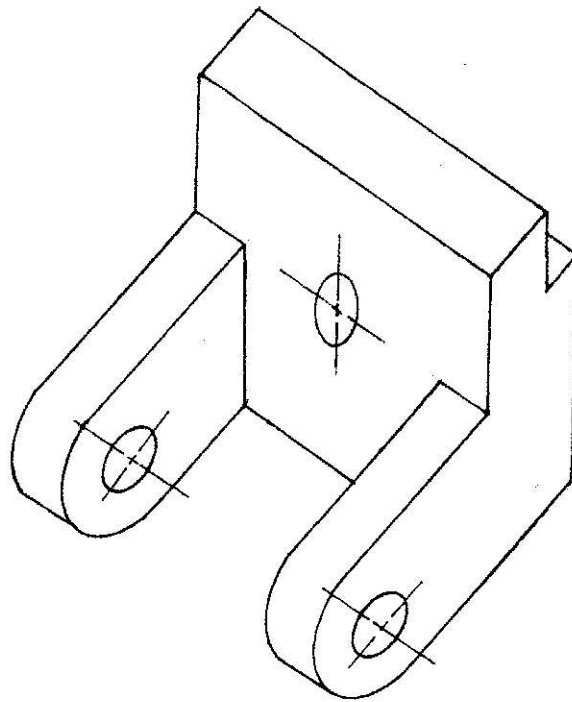


Fig. 2

The candidates were required to draw an isometric drawing from the three given orthographic views.

Most of the candidates could not interpret the given orthographic views so as to come up with the isometric drawing.

Expected response



Faces (7 x 1)	8
Isometric Projection	= $\frac{1}{2}$
Isometric Circles	3 x 2 = 6
Accuracy	= 1
Neatness	$\frac{1}{2}$
Total	15

24.3 Paper 2 (450/2)

This practical paper comprised 10 equally weighted exercises which were compulsory. The various practical skills tested in this paper included the following:

- Making an isometric drawing of an actual bracket provided.
- Making a locking dowel from a given figure
- Identification of materials, defects and areas likely for defects to occur.
- Identification and reading of aircraft instruments
- Experiments on bimetallic strip
- Measurements using various tools
- Trouble shooting an electrical system.
- Identification of propeller stations, defects and precautions to be taken to avoid them

- Gearing of set up fittings, operation, identification of piston, sprocket gears, rating ratio and relating to the A/C system.

Advice to Teachers

Teachers should ensure that all the practical aspects in the syllabus are adequately covered. The list of tools and equipment at the back of the syllabus should be used as a check list to ascertain that students are familiar with what they are expected to handle during the examination.

Students are expected to know aviation tools parts, materials etc by the correct names. The correct handling of tools, parts, materials etc. should also be emphasized during training.

Students should be proactive in carrying out various experiments, inspecting and evaluating various aircraft components and also in setting and adjusting various parts of an aircraft.