

23.0 DRAWING AND DESIGN (449)



The Drawing and Design examination for 2010 consists of a theory and a practical paper. The former constituted 60% of the total marks while the latter constituted 40% of the final mark. This report outlines the candidates' performance in Drawing and design in the year 2010.

23.1 CANDIDATES' OVERALL PERFORMANCE

Table 29 below shows Candidates' Overall performance in Drawing and Design for the Years 2008, 2009 and 2010.

Year	Paper	Candidature	Max. Score	Mean Score	Standard Deviation
2008	1		60	20.42	10.51
	2		40	26.16	5.87
	Overall	19	100	46.58	15.44
2009	1		60	26.31	13.12
	2		40	20.44	7.53
	Overall	313	100	46.75	18.49
2010	1		60	27.93	12.09
	2		40	22.22	6.49
	Overall	307	100	50.15	14.79

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

23.1.1 The number of candidates dropped slightly from 313 in 2009 to 307 in 2010.

23.1.2 Although the mean score for 2010 showed some improvement, there was a slight drop in the standard deviation from 18.49 to 14.79

23.2 PAPER 1 (449/1)

The following analysis examines individual questions where poor performance was recorded in the paper. The questions include 2(b), 3(a), 7, 8,9,10 & 13.

Question 2

(a) Distinguish between a salary and a wage.

(b) State:

- i. the meaning of the term design;
- ii. two factors considered when designing.

The candidate's knowledge on various types of payments made to labours and workers on projects was tested in part (a) of the question. In part (b) (i) & (ii) of the question, candidates were requested to recognize and define terms used in Design paper 449/2.

Weakness

Most students did not have the knowledge of salary & wages differences.

Expected response

- (a) Salary is payment made after a predetermined period/duration and is taxable.
Wage is payment to short term worker usually daily or weekly
- (b) DESIGN: a-process of converting an idea into pictorial or drawing form

Factors to consider -function
 -aesthetics

Question 3

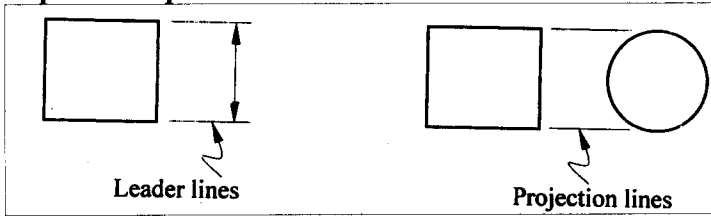
- (a) Use sketches to show the difference between a leader line and a projection line.
- (b) Define each of the following properties of materials:
 - I. Plasticity
 - II. Elasticity

Candidates were expected to show clearly the difference between a leader line and a projection line in part (a). In part (b) the candidates were expected to use the theory knowledge of materials in design paper 449/2 to answer correctly.

Weakness

Most candidates confused leader lines with dimension lines.

Expected responses



Question 7

Figure 4 shows three views of a block drawn in first angle projection.

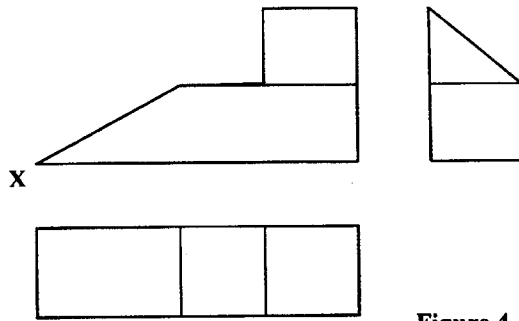


Figure 4

Sketch the isometric view of the block taking X as the lowest point.

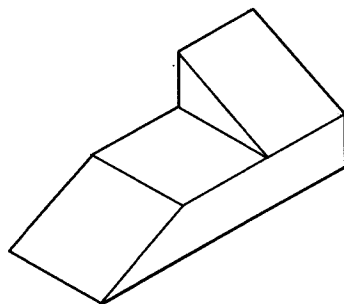
(3 marks)

Candidates were expected to make a sketch in Isometric of the given block when given 1st Angle orthographic projections.

Weakness

Candidates were not able to interpret the lowest point 'X' when making the sketch.

Expected responses



Question 8

Figure 5 shows two orthographic views of a block.

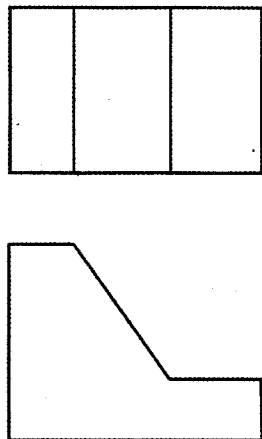


Figure 5

From the two views, sketch the oblique views in:

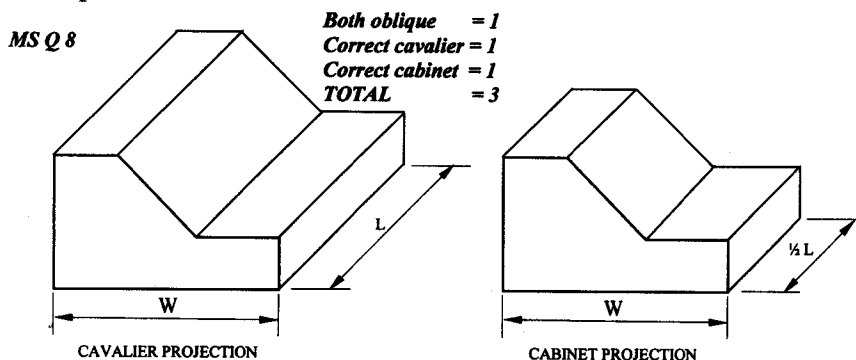
- I. cavalier
- II. cabinet

The candidates were expected to make sketches in oblique pictorial drawing (i.e.) in cavalier and cabinet given the orthographic 3rd Angle projection views.

Weakness

Candidates confused the types of oblique pictorial drawings this shows that they lack mastery in the area.

Expected Responses



Question 9

Sketch and show the following features in a one – point perspective drawing:

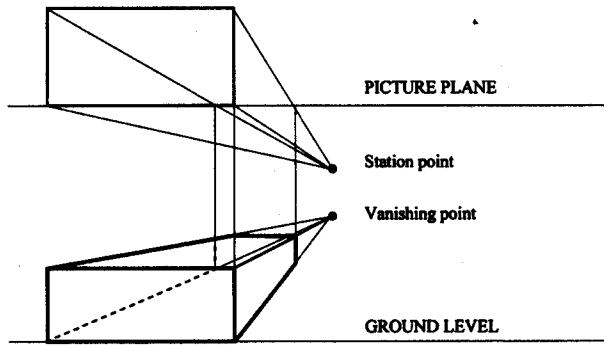
- a) picture plane
- b) station point
- c) Vanishing point
- d) Ground level

Candidates were expected to show various features in one-point perspective drawings.

Weakness

Candidates mixed features of two-point and one-point perspective showing clearly that they also lacked mastery in perspective drawing.

Expected Responses



GROUND LEVEL
The sketch could vary but the concept should be correct

Question 10

Figure 6 shows a pictorial view of a block.

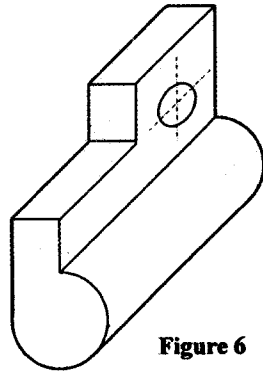


Figure 6

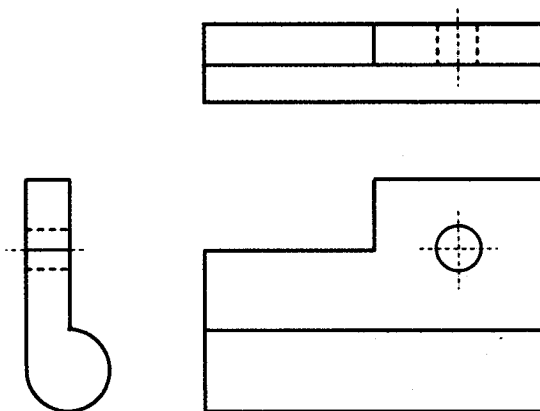
Sketch the three orthographic views of the block in third angle projection.

Candidates were expected to sketch orthographic views in third angle given the pictorial view of the Block.

Weakness

Candidates were expected to sketch orthographic projections hence most candidates mixed the views.

Expected Responses



Question 13

Figure 9 shows a square pyramid truncated along X-X and Y-Y.

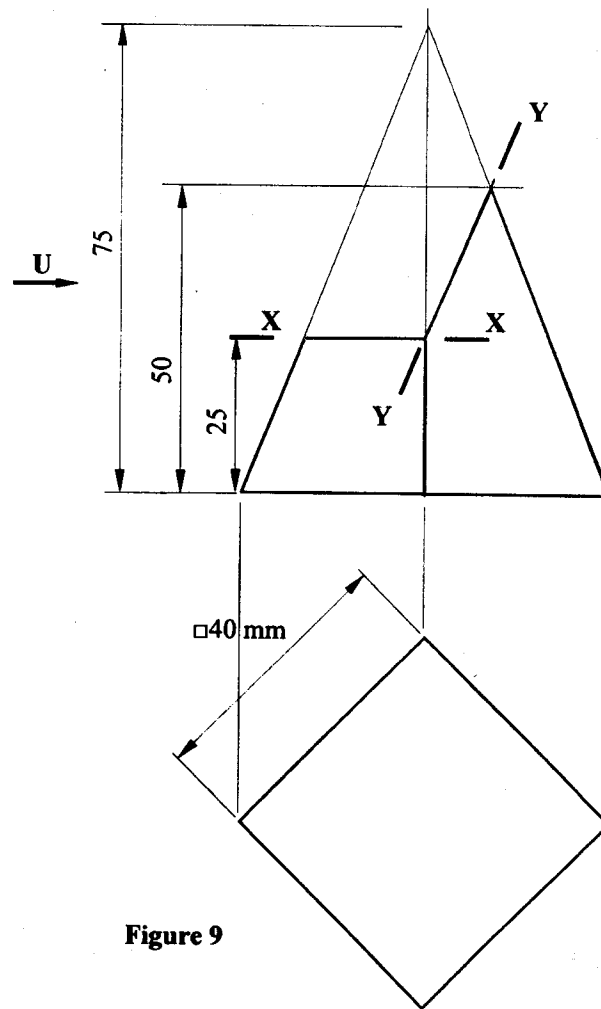


Figure 9

Copy the given front elevation, complete the plan and draw the end elevation in the direction of arrow U.

(15 marks)

Copy the given front elevation; complete the plan and the end elevation in the direction of arrow U
Candidates were requested to complete plan and project end elevation of the given truncated square pyramid.

Weakness

Three main weakness portrayed in the candidate's responses were poor or wrong projection of views, poor and untidy line work and lacked subject mastery in truncated solid geometry.

Expected Responses

The candidates should have observed:

- Use one of the conventional methods in orthographic projection.
- Each view to be detected including out wise and hatched areas.
- Concert line work with correct use of like work.
- Neatness in each view presented.

23.3 PAPER 2 (449/2)

This paper is always composed of one design question which must be attempted by all the candidates. In the year 2010, the question required the candidates to design a device for a physically challenged patient with partial walking difficulties. The device should help the patient walk and also be used as a seat when necessary with the following features:

- It should be used to assist in walking with ease.
- It can be used as a seat.
- It can be adjusted to desired heights.
- It can be folded and stored when not in use.
- It should have a suitable braking system.

In their responses, the candidates were expected to present rough sketches of two possible designs. In the second requirement, the candidates were to select one of the two possible designs and refine it into a pictorial drawing. The third requirement called for the candidates to make detailed sketches of suitable mechanisms to cater for each feature cited above.

Weaknesses

The following weaknesses were observed in candidate's work.

- **Wrong** interpretation of the design problem.
- **Inability** to sketch neat, proportional and appropriate drawing to represent specific features.
- **Failure** to present clear and detailed mechanisms.
- **Limited** skills to present ideas in exploded form
- **Inability** to identify appropriate materials and joints required to assemble various part of the ironing board.

23.4 Advice to Teachers

23.4.1 Candidates require a lot of practice in sketching and presenting various ideas in drawing form.

23.4.2 Candidates also need sufficient exposure to various designs in order to develop the desired concepts.

23.4.3 Teachers should insist on neatness and proportionality in all the drawing assignments given to their students.

23.4.4 Teachers should also ensure that the entire syllabus is covered including topics like materials and joining methods.