

19.0 BUILDING CONSTRUCTION (446)

This was the second time the subject was tested after it had been removed from the syllabus. The subject is tested using a theory paper and a project paper. The project is set by the KNEC but is administered and scored by the subject teachers.

19.1 CANDIDATE'S GENERAL PERFORMANCE

Candidate's overall performance in Building Construction for the years 2004, 2005, 2008 and 2009.

Table 24: Candidates' Overall Performance in Woodwork for the Years, 2004, 2005, 2008 and 2009.

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2004	1	661	60	21.72	11.50
	2		40	30.35	4.07
	Overall		100	51.30	14.00
2005	1	629	60	24.99	10.25
	2		40	30.52	4.07
	Overall		100	54.99	13.00
2008	1	18	60	15.78	5.36
	2		40	33.83	2.47
	Overall		100	49.61	5.98
2009	1	195	60	18.77	8.93
	2		40	31.13	3.86
	Overall		100	49.74	10.85

From the table, it is to be observed that:

19.1.1 The candidature increased from 18 in 2008 to 195 in 2009

19.1.2 Performance in the theory paper improved from a mean of 15.78 in 2008 to 18.77 in 2009;

19.1.3 Performance in the project improved slightly from a mean mark of 30.52 in 2008 to 31.13 in 2009.

19.1.4 Overall performance improved slightly from a mean of 49.61 in 2008 to a mean mark of 49.74 in 2009.

Questions which were poorly performed are discussed below:

19.2 PAPER 1 (446/1)

Question 1

- (a) With the aid of a plan sketch, explain the Kenya Building Code requirement For the projection of a strip foundation beyond a pier forming part of a wall.
- (b) State two situations where cantilever scaffolding may be used.

Candidates were expected to know the application of Kenya Building Code in design of strip foundations with attached piers.

They were also expected to know the types of scaffolds used in buildings.

Weaknesses

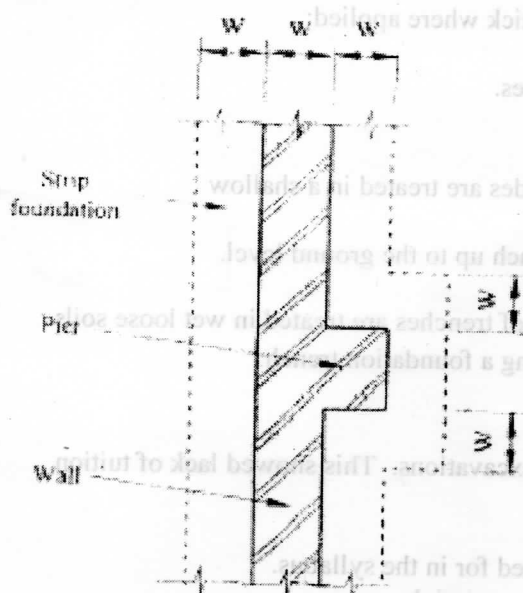
Candidates did not understand what was required hence general poor response. This could have been due to lack of syllabus coverage.

Advice to teachers

Teachers to ensure full coverage of syllabus topics with adequate depth of contents.

Expected Response

(a)



The foundation shall project beyond the Pier on all sides at least the same extent as they project beyond the wall.

- (b)
- For upper storeys of building or high rise building
 - on the side of a busy street where obstruction is not allowed.
 - where it is not possible to fix standards into the ground in the usual manner.

Question 2

- (a) With the aid of sketches, distinguish between struck joint and reverse struck joint.
- (b) Give **two** reasons why cow dung is used in walling when making traditional shelter.

Candidates were expected to know the difference between struck joint and reverse struck joint and be able to sketch the two. They were also expected to give reasons for using cow dung when making traditional shelter.

Weaknesses

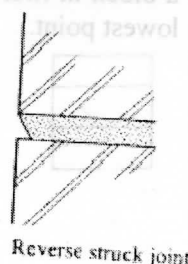
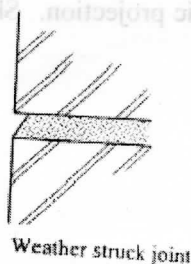
Candidates could not differentiate the two types of joints. This could have been because teachers do not cover syllabus topics adequately.

Advice to teachers

All topics in the syllabus are equally important. Ensure adequate coverage.

Expected Responses

(a)



- (b) Two reasons why cow dung is used in walling for making traditional shelter are:-

- i) Due to its plasticity, it can easily spread;
- ii) It acts as an adhesive hence able to stick where applied;
- iii) Takes time before it wears out.
- iv) Easily decorated for aesthetic purposes.

Question 4

- (a) With the aid of a labelled sketch, show how trench sides are treated in a shallow foundation in wet loose soils.
- (b) Outline the procedure of backfilling a foundation trench up to the ground level.

Candidates were expected to use sketches to show how sides of trenches are treated in wet loose soils. They were also expected to outline the procedure of backfilling a foundation trench.

Weaknesses

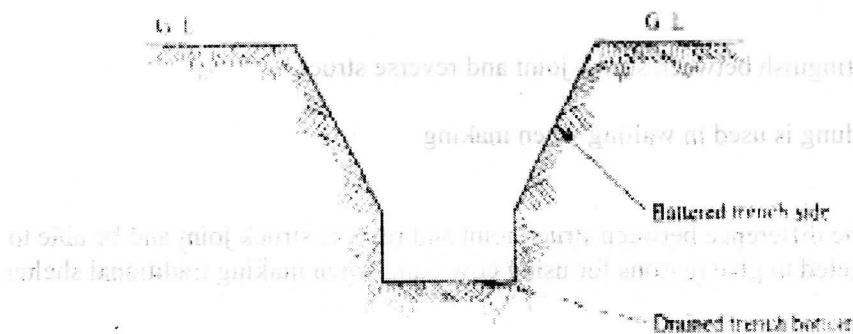
Wrong interpretation. Most responses were for deep trench excavations. This showed lack of tuition.

Advice to teachers

Teachers to cover all types of timbering to trenches as provided for in the syllabus. They should also adequately cover backfilling and backfilling materials.

Expected Responses

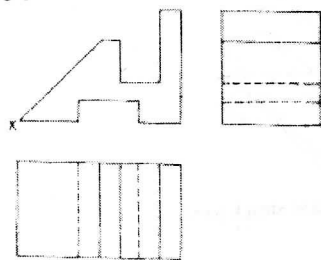
- (a) Method of treating to a shallow foundation trench in a wet loose soil.



- (b) Procedure of backfilling a foundation trench up to the ground level.
 - Source for granular material.
 - Pour the material into the position up to the first third
 - Compact fully.
 - Pour the next layer and compact leaving the last stage to allow for another third layer.
 - Pour the third layer and compact before pouring the concrete on top.

Question 10

Figure 2 shows three views of a block in first angle orthographic projection. Sketch an isometric projection of the block taking point X as the lowest point.



Candidates were expected to interpret the orthographic drawing and convert it into a pictorial isometric projection.

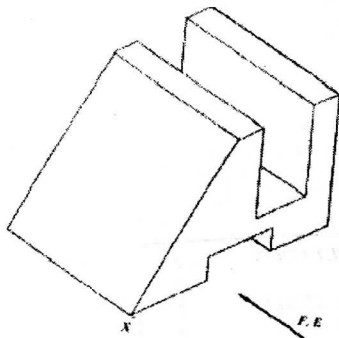
Weaknesses:

Although some candidates did not attempt this question, the ones who did got correct responses. Candidates may generally fear to tackle this question because of lack of proper training in conversion of views from one form to another.

Advice to Teachers

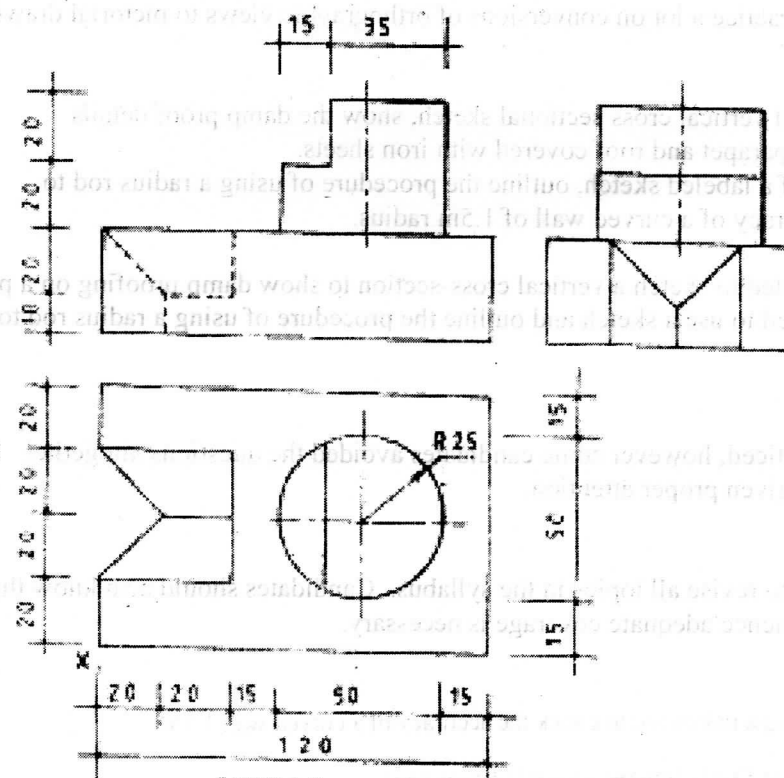
Drawing is the key that unlocks 'shapes'. Encourage candidates to develop interest in drawing by teaching syllabus content for drawing adequately.

Expected Responses



Question 11

Figure 3 shows three views of a block.



Draw full size an isometric projection of the block taking X as the lowest point and show six dimensions.

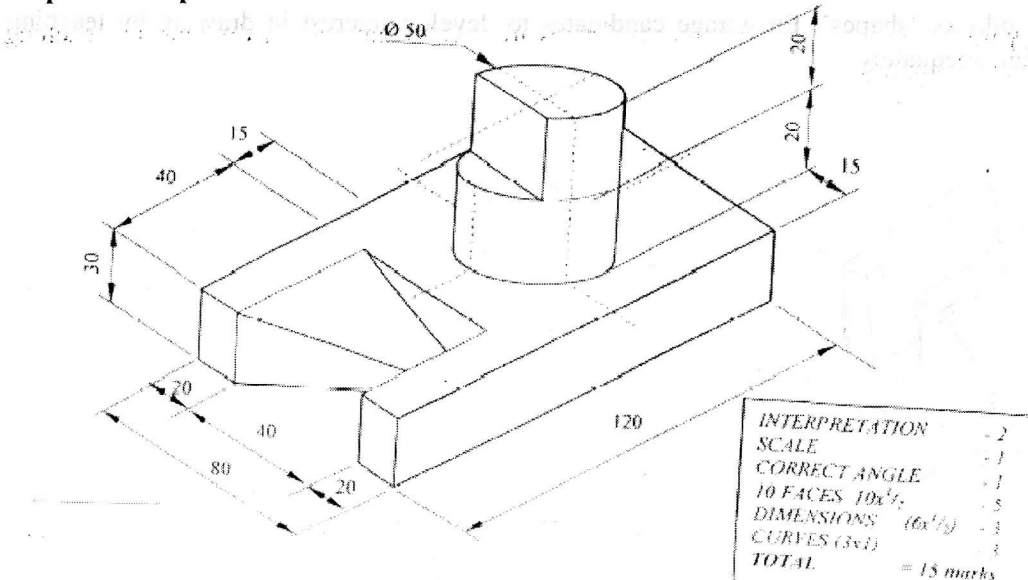
Candidates were expected to interpret the drawing and convert it into an isometric view and also to show six dimensions.

Weaknesses

Some candidates were not able to interpret the drawing correctly.

This could have resulted from too many formed shapes on the drawing and also a possible lack of tuition by the teachers.

Expected Response



Advice to Teachers

Make the candidates practice a lot on conversions of orthographic views to pictorial drawings and vice versa.

Question 13

- Using a labeled vertical cross sectional sketch, show the damp proof details provided on a parapet and roof covered with iron sheets.
- With the aid of a labeled sketch, outline the procedure of using a radius rod to check the accuracy of a curved wall of 1.5m radius.

Candidates were expected to sketch a vertical cross-section to show damp proofing on a parapet wall.

They were also expected to use a sketch and outline the procedure of using a radius rod to check accuracy of a curved wall.

Weaknesses

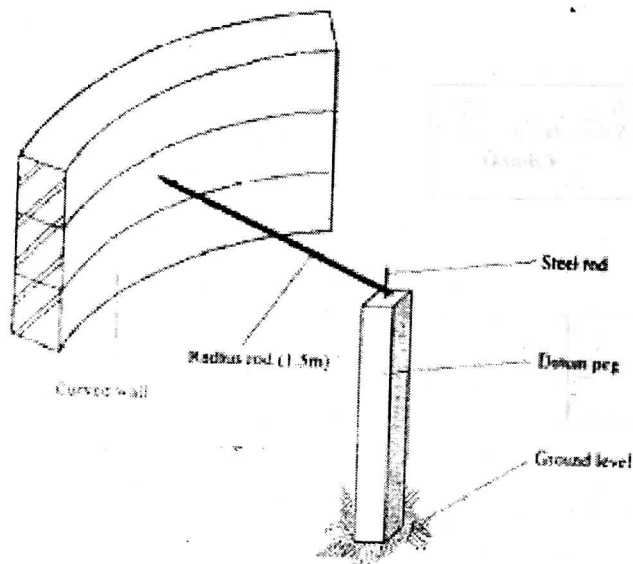
No major weakness noticed, however some candidates avoided the questions altogether. Perhaps this section of syllabus had not been given proper attention.

Advice to teachers

Encourage candidates to revise all topics in the syllabus. Candidates should also know that all topics in the syllabus can be tested hence adequate coverage is necessary.

Expected Responses:

- Procedure of using a radius rod to check the accuracy of a curved wall 1.5M radius.
 - Drive a peg firmly into the ground (datum peg).
 - Fix a piece of steel rod into the top of the peg and keep it plumb.
 - Fit the radius rod and cut it to the length of the given radius (1.5M).
 - Swing the radius rod in an arc against the built wall to ascertain the correct radius.



Question 15

- (a) Give two reasons for using each of the following types of oil based paints.
- Priming paint;
 - Undercoat paint.
- (b) Figure 4 shows an outline of a one brick thick wall to be built in Flemish bond.

- Candidates were expected to give reasons for using oil based priming paint and undercoating paint.
- They were also expected to sketch a bonding detail, Flemish bond, of a one brick wall.
- The last part of the question expected them to sketch tiling details of a double-lap roof tiles at the ridge of a roof.

Expected Responses:

- (a) Priming paints:
These are first coat paints used to seal the surface, protect the surface against Damp air, act as barrier to prevent any chemical action between the surface And the finishing coats and give smooth surface for the subsequent coats.
- Undercoat paints:
These are used to build up the protective side coating and provide the correct surface for the finishing coat(s). (2 x 2 = 4 marks)

