3.4 BUILDING CONSTRUCTION (446)

The Building Construction for the year 2021 consisted of two papers namely Paper 1 (Theory) and Paper 2 (Practical Project). 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 in the previous years.

3.4.1 Candidates General Performance

The table below shows candidates' overall performance for the six-year period, from 2016 to 2021.

Table 10: Candidates overall performance in the years 2016, 2017, 2018, 2019, 2020 and 2021

Year	Paper	Candidature	Maximum scores	Mean Score	Standard Deviation
2016	1		60	34.34	9.88
	2		40	22.88	4.55
	Overall	***232***	***100***	***57.22***	***13.46***
2017	1		60	44.25	8.55
	2		40	29.51	4.28
	Overall	***281***	***100***	***73.65***	***12.21***
2018	1		60	41.49	8.37
	2		40	27.7	4.55
	Overall	***291***	***100***	***69.19***	***12.27***
2019	1		60	39.99	9.50
	2		40	26.61	4.10
	Overall	***430***	***100***	***66.51***	***12.80***
2020	1		60	41.81	8.74
	2		40	27.91	4.29
	Overall	***610***	***100***	***69.72***	***12.25***
2021	1		60	37.09	9.94
	2		40	24.67	4.92
	Overall	***756***	***100***	***61.60***	***14.18***

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

(i) The candidature increased from 610 in the year 2020 to 756 in 2021. It is important to note that the candidature has been improving steadily since 2016.

(ii) However, the mean score dropped from 69.72 in 2020 to 61.60.

(iii) However, the standard deviation increased from 12.25 in 2020 to 14.18 in 2021.

3.4.2 Building Construction Paper 1 (446/1)

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 need to be taken in order to improve performance in future. The questions for discussions include 6, 8, 12 (a), 13 (a) and 15 (a).

Question 6

State **two** advantages of the 3:4:5 method of setting out.

Weakness
Most candidates gave the procedure of using the method for setting out instead of giving the advantages as the question asked.

Advice to teachers
Teachers are advised to explain to the students clearly to follow instructions thus answer the question as asked and not assume anything.

Expected responses
Advantages of the 3:4:5
- It is simple to use
- Can easily be applied for large buildings
- Adjustment is simple and quick in the event of an error

Question 8

(a) **Figure 1** shows a door frame.

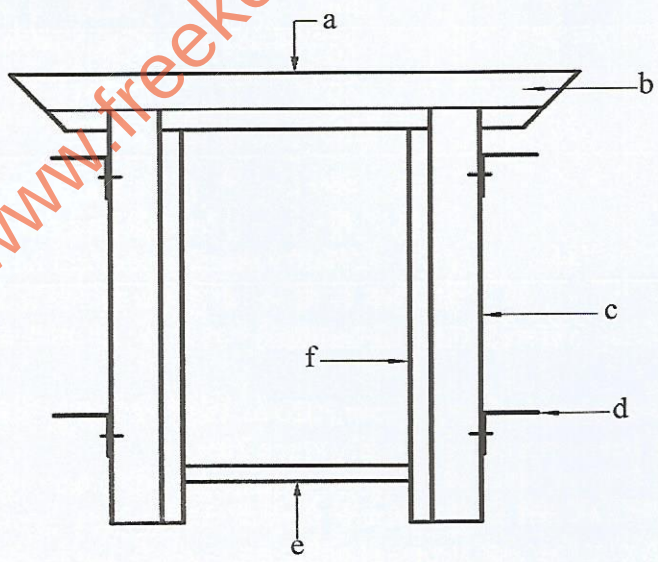


Figure 1

Name the parts labelled a, b, c, d, e and f. (3 marks)

Weakness
Some candidates were unable to identify different parts of a door frame.

Advice to teachers
Teachers are advised to cover the syllabus adequately and explain to the students details of all the components that make a building.

Expected response
Names of parts of a door
a-head
b-horn
c- jamb or post
d- metal anchor (hold fast)
e- temporary steady
f- rebate

Question 12 (a)

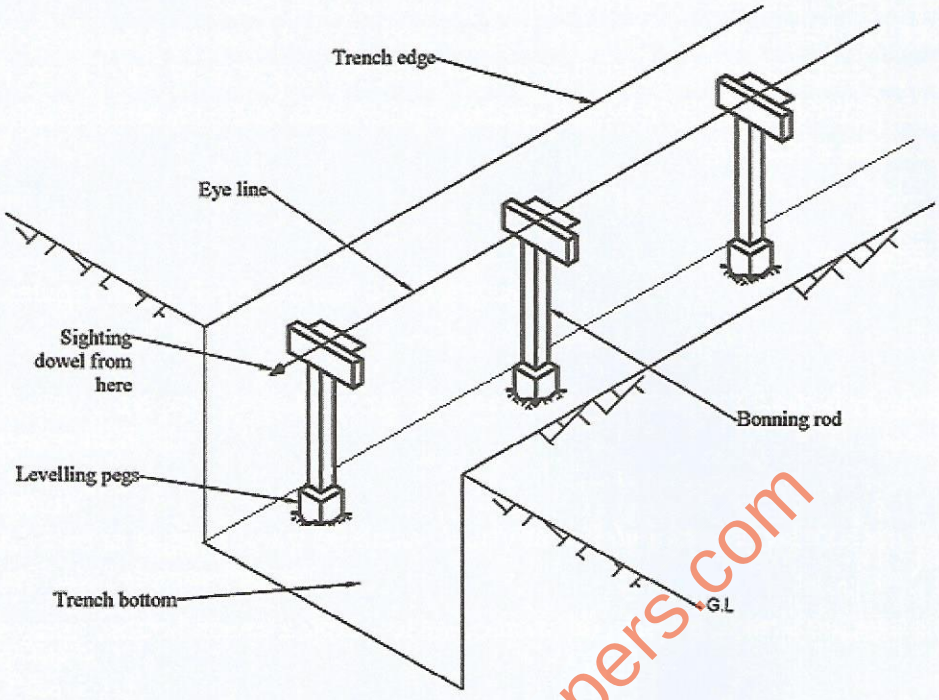
With the aid of a labelled sketch, explain the method of levelling a trench bottom using a boning rod.

Weakness
Some candidates could not sketch to show how a boning rod is used to level a trench bottom.

Advice to teachers
Teachers are advised to adequately cover the syllabus and explain all the procedures in building works by using sketches to illustrate.

Expected responses

Leveling the trench bottom using boning rods:
Leveling the trench bottom using boning rods, start by digging the trench to the required depth. Once the desired depth is reached, make the trench bottom base roughly level. Drive the first peg to the approximate depth required, fix a boning rod on top and move to the far end and fix another peg and using a sighting line, then fix the last peg to the required depth. Fill in the middle peg through the sighting line to produce its required depth in readiness to pour in the concrete to attain heights in order to produce the concrete depth necessary for the concrete bed.



- Explanation - 3 marks
- Correct sketch - 3 marks
- Labels Any 4 x ½ - 2 marks

8 marks

Question 13 (a)

Explain three differences between a turning piece and a centre piece.

Weakness

Some candidates could not differentiate between a turning piece and a centre piece.

Advice to teachers

Teachers are advised to involve the students in a lot of practicals for them to internalize the skills in construction works including how to make openings in walls.

Expected response

Difference between a turning piece and a center piece:

Turning piece is a single piece of timber used to bridge an opening when forming an arch. It is formed in the shape of the arch required. It uses less material compared to the center piece thus cheaper in cost and takes a shorter time to prepare.

Centre piece is a two ribbed member which is stronger than the turning piece. The two ribs are joined by laggings. It is therefore bigger and heavier than the turning piece. It is more difficult to make and more costly as it requires more materials and skilled personnel to make.

Question 15 (a)

(i) Explain the term "pitch" as used in roof work.

Weakness

Some candidates could not explain the term "pitch".

Advice to teachers

Teachers are advised to explain clearly to the students the different terms used in building and use realia to show them the actual details.

Expected response

- Pitch refers to the slope or inclination which drains off water from the roof.

3.4.3 Building Construction Paper 2 (446/2)

Like in the previous years, the council designed a suitable project for this level together with a comprehensive marking scheme. The subject teacher used the working drawings to supervise the fabrication of the project and the scoring guide to mark the candidate's projects. The marks were then uploaded onto the KNEC portal within the specified time as per the instructions given after revision due to the Covid 2019 pandemic.