

20.0 BUILDING CONSTRUCTION (446)



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.

20.1 CANDIDATE'S GENERAL PERFORMANCE

Table 26: Candidates' Overall Performance in Woodwork for the Years, 2004, 2005, 2008, 2009 and 2010.

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2004	1	661	60	21.71	11.50
	2		40	30.35	4.07
	Overall		100	51.30	14.00
2005	1	629	60	24.90	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
2010	1	225	60	26.26	9.80
	2		40	17.53	4.88
	Overall		100	43.79	13.70

From the table, it is to be observed that:

- 20.1.1 The candidature increased from **195** in **2009** to **225** in **2010**
- 20.1.2 Performance in the theory paper improved from a mean of **18.77** in **2009** to **26.26** in **2010**;
- 20.1.3 Performance in the project decreased from a mean mark of **31.13** in **2009** to **17.53** in **2010**;
- 20.1.4 Overall performance decreased from a mean of **49.74** in **2009** to a mean mark of **43.79** in **2010**.
However, the standard deviation went up from **10.85** in **2009** to **13.70** in **2010**

Questions which were poorly performed are discussed below:

20.2 PAPER 1 (446/1)

Question No 4

- (a) List **FOUR** factors that influence the choice of pipe for installing water in a domestic house.
- (b) Explain **TWO** reasons for planting flowers around a building.

Weaknesses

- Candidates did confuse the facts about domestic water installation and drainage disposal.
- Lack of information on why we plant flowers around the building which include creating an aroma and a nice scene to attract birds or insect collections.

Expected Responses

- (a)
 - Cost factor
 - Durability – not easy to damage
 - Maintenance costs
 - Individual preference
 - Size of bore
 - Where to be used.

- (b) (i) **Beauty**
 - Should create beauty (enhance beauty)
 - Be attractive to the eye.
 - Should be welcoming and pleasant.
- (ii) **Create aroma**
 - Should develop some kind of aroma (nice smell).
 - At different times of the day should be releasing some kind of nice smell.
- (iii) **Create scene which may bring collection of birds and insects**
 - Bring insects such as butterflies which are nice to look at.
 - Bring about birds that will fly around sourcing for nectar.

Advice to Teachers

- Use suitable sketches to illustrate the proper difference between domestic water supply both cold water and hot water from the drainage disposal outlay.
- Cover the syllabus to include surface/ground treatment around the building once it is complete. This includes surface drainage works, walk ways, pavements and gardening.

Question 5

Explain TWO core areas covered by the Factories Act as applied in the construction industry.

Weaknesses

Candidates lacked coverage of facts and principles of the Factories Act.

Expected Responses

- (a)
 - (i) To protect the welfare interests that lead to the wellbeing of the workers in the construction industry in areas such as clothing where to eat e.g. site canteen, where to bathe and help themselves and their entire wellbeing.
 - (ii) Enhance work safety: This deals with their attire, proper work ethics and how they maneuver with their duties on site.
 - (iii) Health: The wellbeing of the workers in terms of first aid kits, helmets, hand gloves, goggles.
- (b)
 - Mix ratio
 - Water – connects layers to standards
 - Grading of aggregate (particle size)
 - Mixing surface (to be water-tight).

Advice to Teachers

- Identify the relevant section(s) of the Factories Act that deals with Construction Workers and cover it fully.
- Make copies of relevant parts of the Factories Act and give it to the students to read at their own free time.
- Organize site visits for candidates to see for themselves what the Factory Act stipulates and how it is adhered to in the industry.

Question 6

State the functions of each of the following components of a metal scaffold

- (i) *Double coupler*
- (ii) *Swivel coupler*

Weaknesses

- Lack of detailed information on each component of a scaffold.
- Lack of sketching techniques to visualize how the components work.

Expected Responses

- a) Functions of scaffold components.

- Double coupler – connects layers to standards
- Swivel coupler – connects cross braces/braces to standards.

Question 7

(a) Figure 2 shows the elevation of a stepped foundation at the change of ground level.

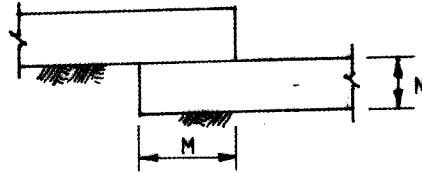


FIGURE 2

State the building code requirements for the maximum dimensions allowed for the lengths marked M and N. (1 mark)

(b) State **four** activities that are carried out to even out a trench bottom. (2 marks)

Candidates were expected to remember the Kenya Building Code requirements which states that M should be higher than the following values, N or 300 mm minimum; whichever is higher.

Expected Responses

(a) **Building code requirement**

M – Should be the higher of the following values, N or 300mm minimum whichever is higher.

(b) **The activities carried out during leveling the bottom of trench are:**

- cutting
- filling
- Ram/consolidation
- Check for level.

Question 10

Figure 3 shows a circle of radius 10mm and a point P, 50mm from the centre of the circle.

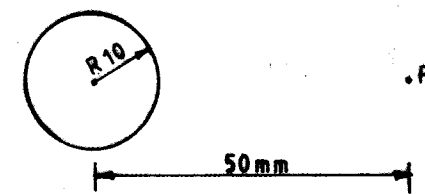


FIGURE 3

Draw the circle and construct a tangent from point P. (3 marks)

Candidates were required to draw a tangent to the given circle from point P.

Weaknesses

Candidates did not have the information of drawing a tangent.

Advice to Teachers

Practice tangent construction with the students. The principle is to join the centre point of the circle with point P. Bisect the line and draw a semi-circle; where it touches the circle draw the tangent.

Question 15

- (a) Outline the procedure of marking out and erecting a one course foundation wall on a strip foundation at the corner of a building. (7 marks)
- (b) Figure 5 shows the plan of a one brick thick wall with a pier and a T junction built in English bond.

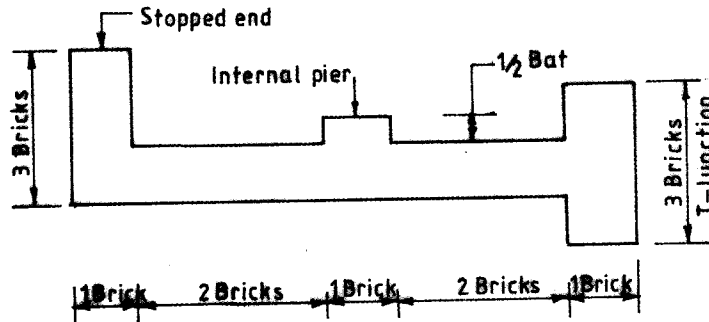


FIGURE 5

Sketch plans of alternate courses of the wall showing the bonding details.

(8 marks)

Candidates were required to come up with two alternate plan courses showing the bonding details of the wall which included the L and T junction with a pier one brick thick well in English bond.

Weaknesses

Candidates could not bond the wall and provide the alternate bonding details as required.

Advice to Teachers

Practice bonding details in both English and Flemish bonds upto one brick thick wall at quoins, T-junctions and piers.

Expected Response

- (a)
- Sketch lines between the corner profiles forming right angles.
 - Place mortar of the foundation slab.
 - Transfer the walls thickness on either side using a plumb bob.
 - Mark the corner of the wall on the mortar.
 - Mark another line from the second string to form a right angle.
 - Place the blocks aligned to the mark and check the blocks for plumbness, straightness and levelness.
 - Fill the vertical joint with mortar.

7 marks

