**Name:** ……………………………………………… … **Index No:** ………………………………..

 **Candidate’s signature**…………………………….. … **Date**……………………………………..

**BUNAMFAN CLUSTER EXAMINATION 2021**

**446/1**

**BUILDING CONSTRUCTION**

**PAPER 1**

**December 2021**

**Time: 2 ½ Hours**

**INSTRUCTIONS TO CANDIDATES**

 (a) Write your **name** and **index number** in the spaces provided above.

 (b) Sign and write the date of examination in the spaces provided above.

 (c) Candidates should have the following for this exam:.

- Drawing paper size A3

- Drawing instruments

-Dcientific calculator

(d) This paper consists of **two** **sections; A** and **B**.

(e) Answer **all** questions in **section A** in the spaces provided.

(f) From **section B**, answer **question 11** on **A3 paper** and any **other three questions** in the spaces provided.

(g) All dimensions are in **millimeters** unless otherwise stated.

(h) This paper consists of **10 printed pages**.

(i) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

(j) Candidates should answer the questions in English.

**For Examiner’s Use Only**

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| --- | --- | --- | --- |
| **Section** | **Question** | **Maximum Score** | **Candidate’s Score** |
|  **A** | **1-10** | **40** |  |
|   **B** | **11** | **15** |  |
| **12** | **15** |  |
| **13** | **15** |  |
| **14** | **15** |  |
| **15** | **15** |  |
|  |

 **Total Score**

**SECTION A** (40 marks)

*Answer* ***all*** *questions in this section in the spaces provided.*

1. (a) Define the term “shelter” (1 mark)

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 (b) Name **two** tools and two equipment used for setting out a right angle of a building. (2 marks)

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2. (a) Name **two** areas where a building line can be measured from. . (1 mark)

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 (b) Give **two** reasons why the current traditional houses are better than caves. (1 mark)

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3. (a) Give **two** components of a business plan. (2 marks)

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 (b) Outline **three** qualities of each of the following safety attire. (3 marks)

 (i) Boots

 ………………………………………………………………………………………………… …………………………………………………………………………………………………

 (ii) Helmet

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4. (a) Describe the following types of foundations and give **two** examples in each case. (4 marks)

 (i) Shallow foundation

 ………………………………………………………………………………………………… ………………………………………………………………………………………………… ………………………………………………………………………………………………… …………………………………………………………………………………………………

 (ii) Deep foundations

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 (b) State the function of a goose neck bend in a cold water service layout. (1 mark)

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5. (a) State **four** places where vertical damp proof courses are used. (2 marks)

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 (b) Describe **two** ways through which moisture can penetrate a building. (1 mark)

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6. **Figure 1** shows an outline of a floor plan of a building. (4 marks)

 

 Make sketches to show the positions of the profile boards for setting out the building.

7. (a) Use labeled sketches to show the following features on a wall: (3 marks)

 (i) Raking back

 (ii) Toothing.

(b) **Figure 2** shows masonry wall joints. Name the type of joints labeled (a) and (b) stating the advantage of each. (2 marks)

 

 (a) Name:

 ……………………………………………………………………………………

 Advantage: …………………………………………………………………………………………………

 (b) Name: …………………………………………………………………………………………………

 Advantage:

 …………………………………………………………………………………………………

8. (a) List **two** roof covering materials for each of the following types of flat roofs. (2 marks)

 (i) Concrete flat roof:

 ………………………………………………………………………………………………… …………………………………………………………………………………………………

 (ii) Timber flat roof:

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 (b) State **two** conditions necessary when installing pipes to convey hot water. (1 mark)

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9. (a) Explain the use of pipe fittings in a pipe installation. (Give two) (2 marks)

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 (b) State **two** factors to be considered when sitting a septic tank. (2 marks)

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10. Construct a triangle whose perimeter is 1160 mm and sides are in the ratio 4:5:6(4 marks)

**SECTION B (60 MARKS)**

*Answer* ***question******11*** *on the A3 paper provided and any other* ***THREE*** *questions from this section in the spaces provided. Candidates are advised to spend* ***not mope more than*** *25 minutes on*

***question 11****.*

11. Figure 4 shows a pictorial drawing of a shaped block.



Fig. 4

To a scale of 1:**1,** draw three orthographic views of the block in **3rd** angle projection. Insert six
dimensions. (15 marks)

12. (a) Give **two** advantages of twisted reinforcement bars over the round reinforcement bars when used in concrete. (2 marks)

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(b) Use labeled sketches to show the difference between a couple roof and a collar roof. (9 marks)

(c) State **four** methods of dropping concrete safely into a trench bottom more than 1.5 metres deep. (4 marks)

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 13. (a) Sketch and label an elevation of a gauged brick camber arch for a door opening. (7 marks)

 (b) State **four** functions of foundations in buildings. (4 marks)

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 (c) Illustrate the stages through which a standard eight leaver may undergo training up to the highest level in technical education. (4 marks)

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14. (a) Outline **two** reasons why concrete mixer needs a little amount of water before it’s operated. (2 marks)

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 (b) Give **four** functional requirements of centres for arches. (4 marks)

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 (c) Give **four** precautions to take when you store cement in site. (4 marks)

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(d) State **five** functional requirements of a solid floor. (5 marks)

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15. Illustrate using a neat sketch the direct cold water supply system. Label all the parts. (15 marks)