

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

Section	Question	Maximum Score	Candidate's Score
<b>A</b>	<b>1-10</b>	<b>40</b>	
<b>B</b>	<b>11</b>	<b>15</b>	
	<b>12</b>	<b>15</b>	
	<b>13</b>	<b>15</b>	
	<b>14</b>	<b>15</b>	
	<b>15</b>	<b>15</b>	

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

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(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

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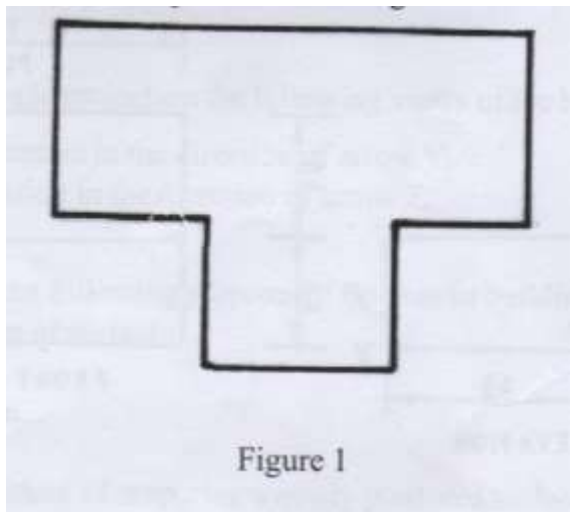
(b) Describe **two** ways through which moisture can penetrate a building. (1 mark)

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



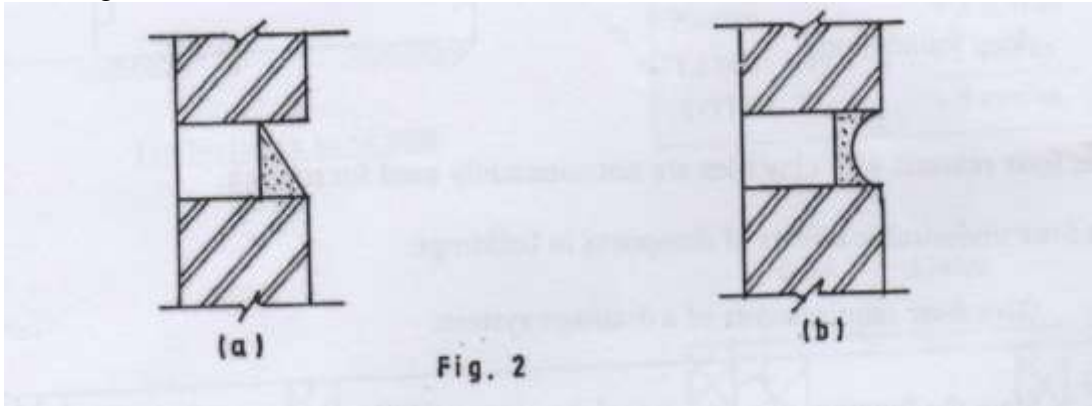
Make sketches to show the positions of the profile boards for setting out the building.

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:

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Advantage:

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(b) Name:

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Advantage:

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

(i) Concrete flat roof:

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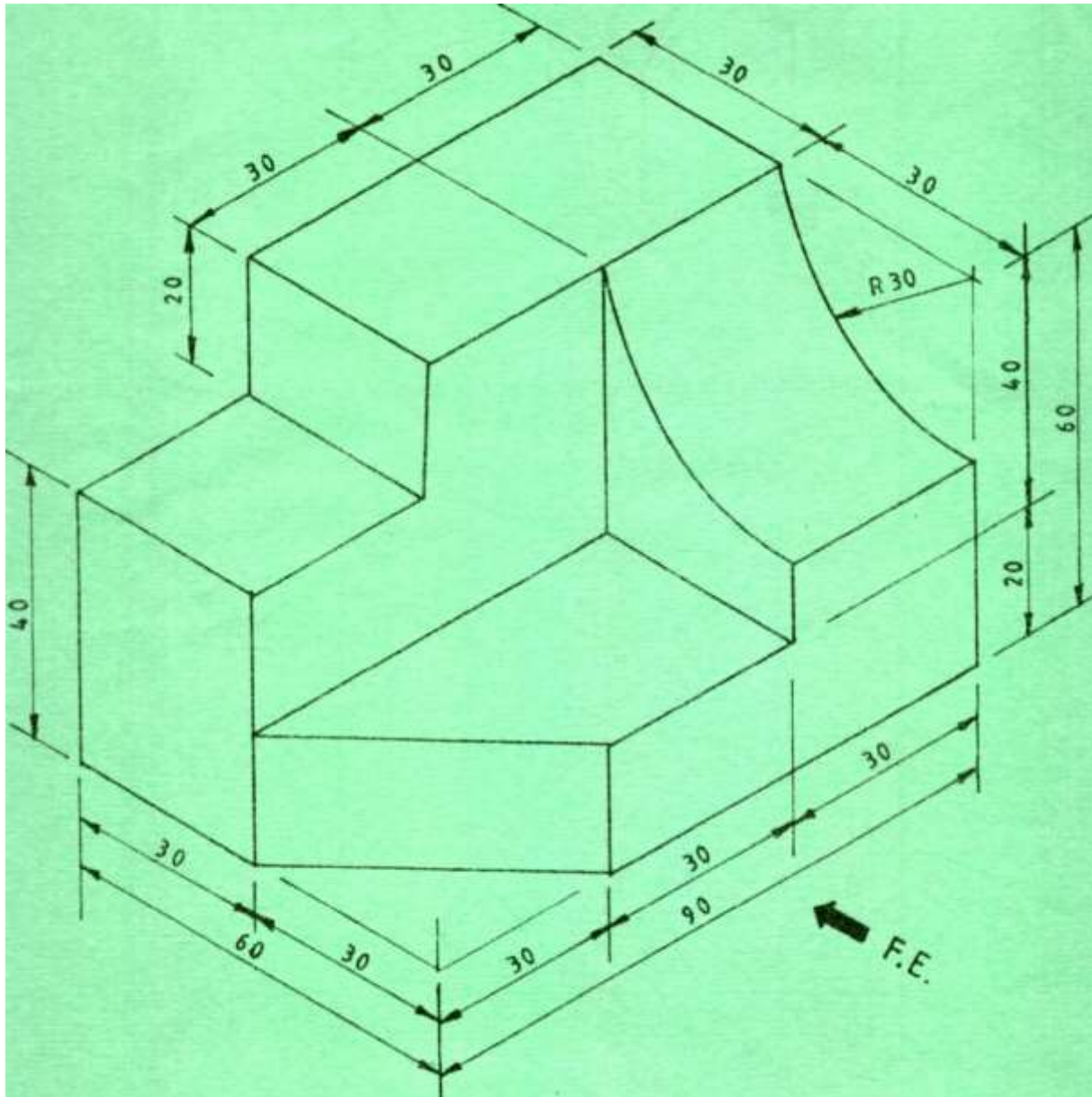
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10. Construct a triangle whose perimeter is 1160 mm and sides are in the ratio 4:5:6 (4 marks)

**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 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 3<sup>rd</sup> 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)