



**PAMIBIA UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

**FACULTY OF NATURAL RESOURCES AND SPATIAL SCIENCES**

**DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES SCIENCES**

<b>QUALIFICATION: BACHELOR OF NATURAL RESOURCE MANAGEMENT</b>	
<b>QUALIFICATION CODE: 07BNTC</b>	<b>LEVEL: 4</b>
<b>COURSE CODE: NCT420S</b>	<b>COURSE NAME: TECHNIQUES 1</b>
<b>SESSION: NOVEMBER 2019</b>	<b>PAPER: THEORY</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 150</b>

<b>FIRST OPPORTUNITY EXAMINATION QUESTION PAPER</b>	
<b>EXAMINER(S)</b>	Mr. H. Tjikurunda
<b>MODERATOR:</b>	MR. W. Adank

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer ALL the questions.</li><li>2. Write clearly and neatly.</li><li>3. Number the answers clearly.</li></ol>

**PERMISSIBLE MATERIALS**

1. All written work MUST be done in blue or black ink
2. No books, notes and other additional aids are allowed

**THIS QUESTION PAPER CONSISTS OF 5 PAGES** (excluding this front page)

**SECTION A: SAFETY IN THE WORKPLACE**

1. Define the term safety and discuss what it entails in terms of the workplace. [5]
2. Name and explain four (4) main types of workplace hazards. [8]
3. Briefly discuss the procedures on how to handle electrical equipment. [6]
4. Discuss the safety and precautionary measures to be taken during arc welding. [6]

**SECTION A: 25**

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**SECTION B: VEHICLE CARE AND MAINTENANCE**

1. Discuss the care and maintenance of vehicles in terms of the following; [17]
  - a) Battery care [3]
  - b) Cooling system [4]
  - c) Tyre care [2]
  - d) Engine oil [2]
  - e) Air filter [2]
  - f) Transmission oil [2]
  - g) Fan belt [2]

**SECTION B: 17**

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**SECTION C: ALTERNATIVE ENERGY**

1. Solar and wind energy are some examples of alternative energy sources. Discuss each in terms of the following; [30]
  - a) How it works [6]
  - b) Advantages and disadvantages [24]

**SECTION C: 30**

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**SECTION D: BASIC ARC WELDING**

1. Provide a definition for arc welding. [6]
  
2. Most important factor in arc welding is the selection of the correct current. Discuss the statement by referring to what happens when, [8]
  - a) Current is too low (4)
  - b) Current is too excessive (4)
  
3. Copy the Table below in your answer book and complete column B with the recommended current for the provided electrode sizes in column A. [5]

Electrode size (A)	Recommended current (Amperes) (B)
2.0 mm	
2.5 mm	
3.15 mm	
4.0 mm	
5.0 mm	

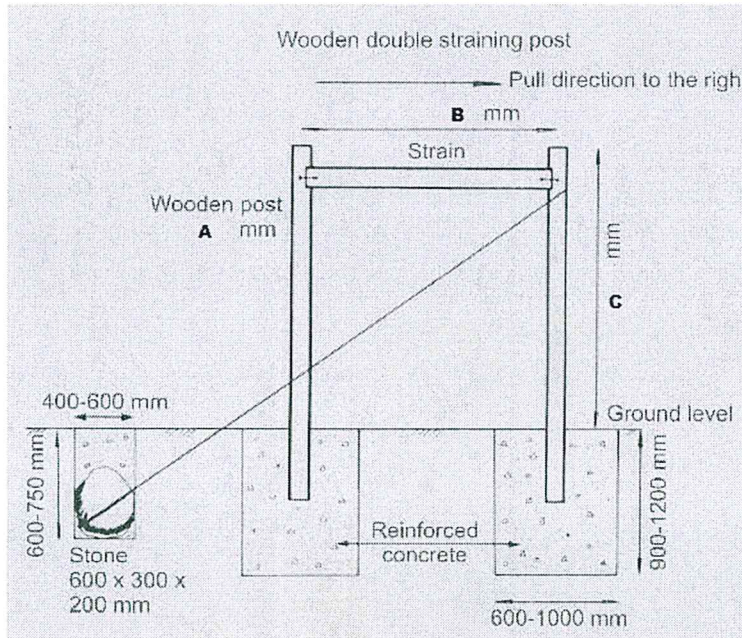
4. In a Table format, state the causes of the following arc welding defects and briefly discuss how they can be corrected. [12]
  - a) Undercut (6)
  - b) Slag inclusion (6)

SECTION D: 31

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**SECTION E: FENCES**

- 1. Provide the measurements applicable for the following; [5]
  - 1.1. Minimum height of a stock proof-fence. (1)
  - 1.2. Maximum distance between posts, where 5 (five) droppers are used. (1)
  - 1.3. Minimum length of line post used in standards stock-proof fencing. (1)
  - 1.4. Maximum distance allowed between straining posts. (1)
  - 1.5. The <sup>HIGHT</sup> size of a gate for stock-proof fence. (1)
  
- 2. Study the diagram below and provide the missing measurements in A, B and C. [3]



**SECTION E: 8**

## SECTION F: CONCRETE TECHNOLOGY

1. Define the following terms as used in concrete technology. [6]
  - 1.1. Curing (1)
  - 1.2. Plastic state (1)
  - 1.3. Setting state (1)
  - 1.4. Cohesiveness (1)
  - 1.5. Workability (1)
  - 1.6. Proportioning (1)
  
2. Discuss curing in concrete by stating the following; [7]
  - 2.1. When to cure (1)
  - 2.2. Why cure (3)
  - 2.3. How to cure (2)
  - 2.4. How long to cure (1)
  
3. Storing your materials properly is important to ensure quality and workability. Briefly state how the following materials should be stored; [5]
  - a) Cement (3)
  - b) Aggregate (2)
  
4. Various factors can affect the workability of your concrete and therefore its strength. Briefly, discuss what can be done to improve workability of concrete. [4]

SECTION F: 22

**SECTION G: WATER INSTALLATIONS**

1. There are various drivers for pumps to supply water to wildlife. Name four (4). [4]
2. Briefly discuss the importance of artificially supplying water to game. [4]
3. Discuss the procedures to be followed when pulling and replacing pipes (galvanized steel pipes) from a borehole. [9]

**SECTION G: 17**

**PAPER TOTAL: 150**

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