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| <b><u>FACULTY</u></b>    | : EDUCATION   |
| <b><u>DEPARTMENT</u></b> | : CHILDHOOD EDUCATION   |
| <b><u>CAMPUS</u></b>     | : SWC   |
| <b><u>MODULE</u></b>     | : SATINA2<br>SCIENCE AND TECHNOLOGY FOR THE INTERMEDIATE<br>PHASE 2 |
| <b><u>SEMESTER</u></b>   | : First   |
| <b><u>EXAM</u></b>       | : July 2018   |

|                           |                    |                       |               |
|---------------------------|--------------------|-----------------------|---------------|
| <b><u>DATE</u></b>        | : July 2018        | <b><u>SESSION</u></b> | : OR 30-11-30 |
| <b><u>ASSESSOR(S)</u></b> | : MR W ENGELBRECHT |                       |               |
| <b><u>MODERATOR</u></b>   | : DR CF VAN AS     |                       |               |
| <b><u>DURATION</u></b>    | : 2 HOURS          | <b><u>MARKS</u></b>   | : 100         |

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NUMBER OF PAGES: 6 PAGES

INSTRUCTIONS:

1. Answer ALL THE QUESTIONS.
  2. Number your answers clearly
  3. Write neatly and legibly.
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**QUESTION 1:**

1.1 Discuss your understanding of technology by highlighting its most important characteristics. (7)

1.2 Differentiate between the natural world and the technological world. (6)

**[13]**

**QUESTION 2**

Copy the table below in your answer book. Give one unique property of each metal and an example of a product made from the specific metal.

|     | Metal           | Unique property | Product |     |
|-----|-----------------|-----------------|---------|-----|
| 2.1 | Mild steel      |                 |         | (2) |
| 2.2 | Cast iron       |                 |         | (2) |
| 2.3 | Stainless steel |                 |         | (2) |
| 2.4 | Aluminium       |                 |         | (2) |
| 2.5 | Copper          |                 |         | (2) |
| 2.6 | Brass           |                 |         | (2) |

**[12]**

**QUESTION 3**

3.1 Which four (4) aspects must be considered by a designer when choosing a material for a specific product? (4)

3.2 Briefly explain why it is necessary to fire clay products after it has been formed. (3)

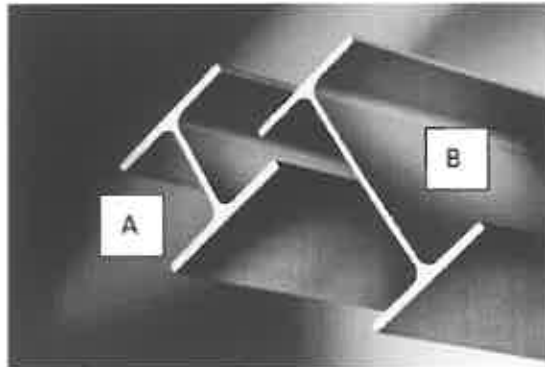
3.3 Briefly discuss the concept “composite material” by referring to an example. (3)

3.4 Briefly describe the process of curing concrete and explain why it is necessary. (4)

**[14]**

**QUESTION 4**

4.1 Figure 1 shows two different structural members. Identify the members. (2)



**Figure 1**

4.2 What material is the members in 4.1 usually made of? (2)

4.3 Compare the two members represented by the letters A and B and identify the strongest one. Motivate your answer. (3)

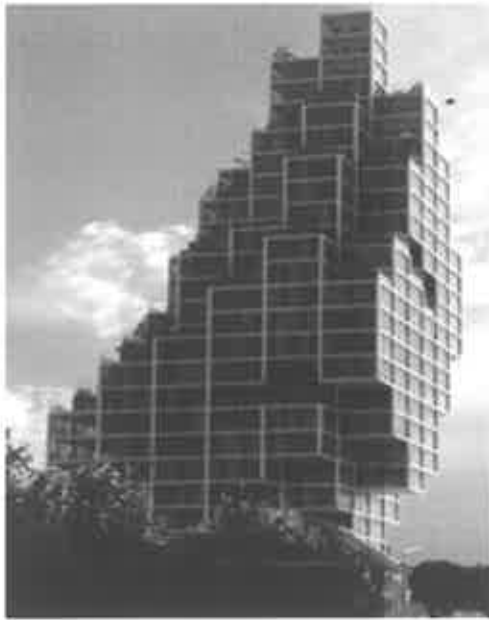
4.4 Figure 2 shows a structural member under load.



**Figure 2**

Sketch a similar structural member to the one in Figure 2 and indicate the three (3) forces that normally act on such a member under load. (5)

4.5 Figure 3 and Figure 4 shows different structures. Analyse the pictures and identify the most stable structure of the two. (2)



**Figure 3**



**Figure 4**

- 4.6 Motivate your answer to question 4.5 by referring to building design aspects that influence the stability of a structure. (4)

**[18]**

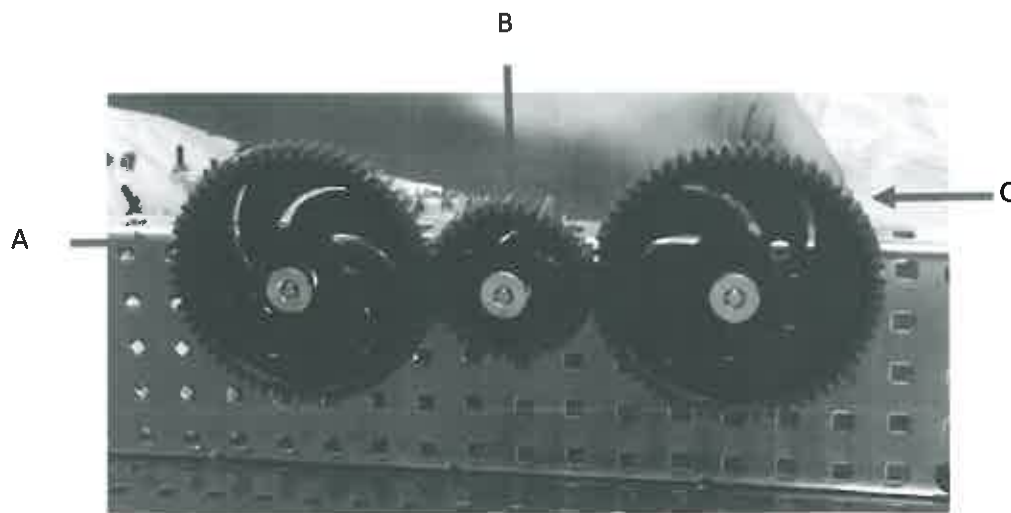
### QUESTION 5

- 5.1 Fibres used in textiles are obtained from different sources. Differentiate between the various sources of fibres by referring to an example of each. (6)
- 5.2 Write a short paragraph on the preservation of food by referring to two (2) examples. (4)

**[10]**

**QUESTION 6**

6.1.1 Identify the transmission mechanism in Figure 5 and justify its use. (3)



**Figure 5**

6.1.2 Sketch a similar mechanism to the one in Figure 5 and indicate the direction of rotation of "A", "B" and "C". (6)

6.1.3 What is the term used for part "B"? (1)

6.2 Identify the mechanism shown in Figure 6 and give an example of where it is typically used. (3)



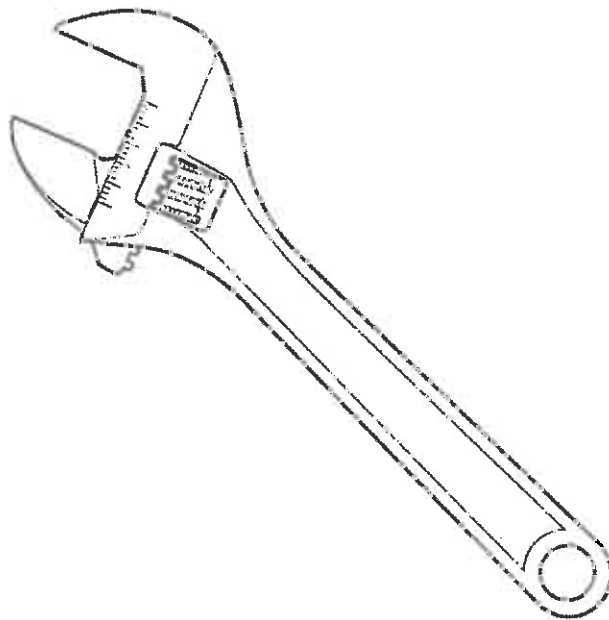
**Figure 6**

**QUESTION 7**

- 7.1 Your heater's element has a power rating of 2000 watt. You switch it on for **four** (4) hours to heat your room. The current rate for electric energy in your area is R1.50 per Kwh. Calculate how much it will cost you to heat your room. (6)
- 7.2 Differentiate between renewable and non-renewable energy sources by referring to an example of each. (4)

**[10]****QUESTION 8**

Apply the block method to draw a freehand sketch of the shifting spanner, twice the size of the drawing below.

**[10]**

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**TOTAL: 100**