

UNIVERSITY  
OF  
JOHANNESBURG

<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 SCIENCE AND TECHNOLOGY FOR THE INTERMEDIATE PHASE 2
<b><u>SEMESTER</u></b>	: First
<b><u>EXAM</u></b>	: June 2018

<b><u>DATE</u></b>	: June 2018	<b><u>SESSION</u></b>	: 00:30:00
<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 Briefly discuss the purpose and nature of Technology education. (4)
  - 1.2 Write a paragraph on the relationship between Science and Technology by referring to their unique characteristics. (4)
  - 1.3 Distinguish between Technology Education and Educational Technology by referring to examples of each. (4)
- [12]**

**QUESTION 2**

- 2.1 Two different methods were used to make the frame structures in the pictures below more rigid.
  - 2.1.1. Identify the method used to make the frame structure in Figure 1 more rigid, and give another example of an application of the same method. (3)



**Figure 1**

- 2.1.2. Identify the method used to make the frame structure in Figure 2 more rigid, and give another example of an application of the same method. (3)



**Figure 2**

- 2.2 Figure 3 shows a diagram depicting a frame structure. Analyse the picture and indicate whether each member is experiencing a compression, tension or bending force. Redraw the diagram in your exam book and indicate a C for compression, a T for tension or a B for bending force on each member. (7)

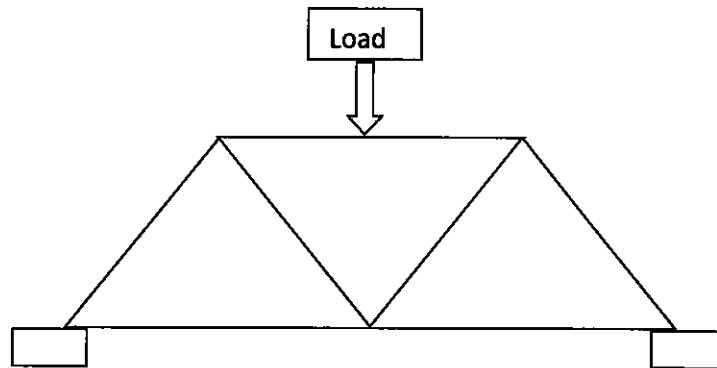


Figure 3

[13]

### QUESTION 3

- 3.1 Identify the transmission system used in Figure 4 and explain why it is used in this particular application. (4)

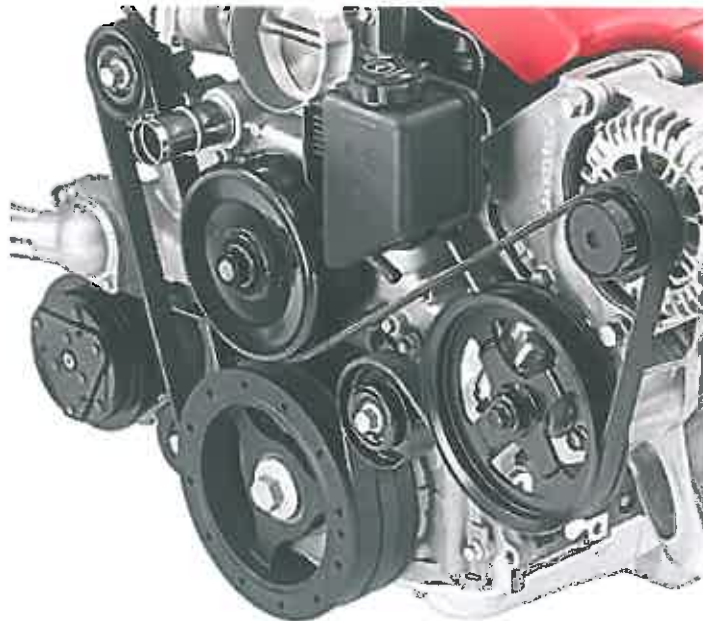


Figure 4

- 3.2 Identify the transmission system used in Figure 5 and briefly discuss its advantages and disadvantages by referring to an application. (4)



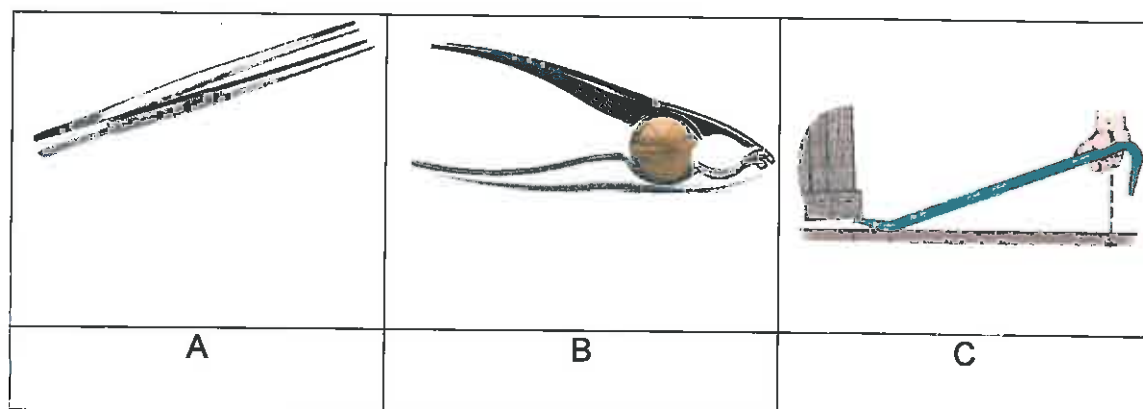
**Figure 5**

- 3.3 Identify the transmission system used in Figure 6 and briefly discuss its advantages and disadvantages by referring to an application. (4)



**Figure 6**

- 3.4 Figure 7 shows tools that represent levers. (4)



**Figure 7**

- 3.4.1 Analyse Figure 7 and classify each tool as a class 1, 2 or 3 lever. (3)
- 3.4.2 Make a freehand sketch of **A** and indicate the load, the fulcrum and the effort on the sketch. (3)
- 3.4.3 Make a freehand sketch of **B** and indicate the load, the fulcrum and the effort on the sketch. (3)
- 3.4.4 Make a freehand sketch of **C** and indicate the load, the fulcrum and the effort on the sketch. (3)

**[24]****QUESTION 4**

- 4.1 Differentiate between thermoplastics, thermo-setting plastics and elastomers by referring to their unique properties. (6)
- 4.2 Give an example of a product made from a thermoplastic and name the thermoplastic. (2)
- 4.3 Give an example of a product made from a thermo-setting plastic and name the thermo-setting plastic. (2)
- 4.3 Give an example of a product made from an elastomer and name the elastomer. (2)

**[12]****QUESTION 5**

- 5.1 Briefly explain what is meant by fibre blending in textiles and why it is done by referring to an example. (6)
- 5.2 Provide the meaning of the clothes care labels below.

5.2.1  (1)

5.2.2  (1)

5.2.3  (1)

5.2.4  (1)

- 5.3 Explain why it is necessary to preserve food and briefly describe two methods used to accomplish this. (4)

[14]

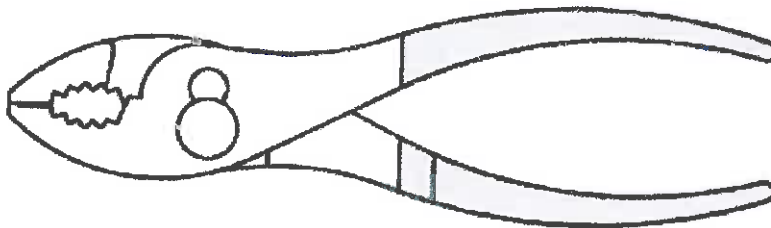
#### QUESTION 6

- 6.1 Differentiate between mild steel, medium carbon steel, high carbon steel and stainless steel by referring to their unique properties and referring to a product made from each. (12)
- 6.2 What kind of material is concrete classified as? (1)
- 6.3 Briefly motivate your answer for 6.2. (2)

[15]

#### QUESTION 7

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



[10]

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TOTAL: 100