



DEPARTMENT OF  
EDUCATION

LOWER SECONDARY  
SCHOOL  
CERTIFICATE  
EXAMINATIONS  
(LSSCE)

DESIGN AND  
TECHNOLOGY

Wednesday  
09<sup>th</sup> October 2013

Time allowed: 1 hour 30  
minutes

Candidates are advised to  
fully use the time allocated

D&T

### INSTRUCTIONS TO CANDIDATES:

*(To be read out by the external invigilator before the start of the examination)*

There are **36** questions worth **40** marks in this paper. Attempt **ALL** questions even if you are not so sure of some of the answers.

The Examination is divided into three parts:

**PART A: Multiple Choice (Questions 1 to 20)**

**PART B: Short Answer (Questions 21 to 35)**

**PART C: Extended Response (Question 36)**

The Answer Sheet is part of the Examination Booklet. Take out the middle pages and remove the Answer Sheet by tearing along the perforation. You may use the blank sheet for rough work.

Write your candidate number, name and school name in the space provided on the Answer Sheet.

For each question in **PART A**, choose the best answer by writing the letter A, B, C or D in the space provided on the **ANSWER SHEET**.

For each question in **PART B** and **C** work out the answer and write the answer in the space provided on the **ANSWER SHEET**.

If you find a question very difficult, do not spend too much time thinking about it. Skip the question and go on with the rest of the paper. If you have time in the end, return to the difficult questions and think about them more carefully.

Write your answers in **BLUE** or **BLACK** ink (pen or biro).

If you decide to change an answer, make your correction as shown below so that it is clear to the markers what your final answer is. Do **NOT** use correction fluid on your answer sheet.



Hand in **BOTH** the Answer Sheet and the papers used for rough work at the end of the examination.

**Extra time will NOT be allowed to complete the examination under any circumstances.**

**Penalty for cheating or assisting to cheat in national examinations is non-certification.**

**DO NOT TURN OVER THIS PAGE AND DO NOT  
WRITE UNTIL YOU ARE TOLD TO START.**

**PART A: MULTIPLE CHOICE**

**(QUESTIONS 1 to 20)**

**20 MARKS**

For each question, choose the correct answer and write A, B, C, or D in the space provided on the ANSWER SHEET.

For questions 1 and 2, refer diagrams below.

The diagram below is a flow chart representing the transition of the simple clay pot.



**QUESTION 1**

The recent rice cooker is an example of undergoing a design process.

It is because of

- A. the design brief.
- B. analysing the problem.
- C. continuous testing and evaluation.
- D. manufacturing the item.

**QUESTION 2**

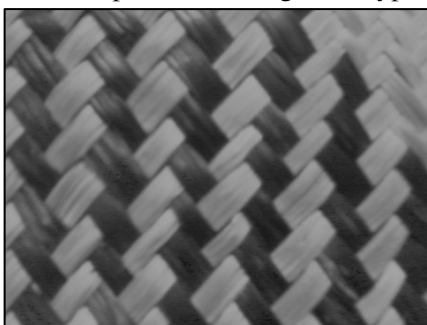
Which statement below is not true about the flow chart?

Technology has \_\_\_\_\_ through the design process.

- A. evolved over time
- B. made men lazy
- C. improved lives
- D. made men efficient

**QUESTION 3**

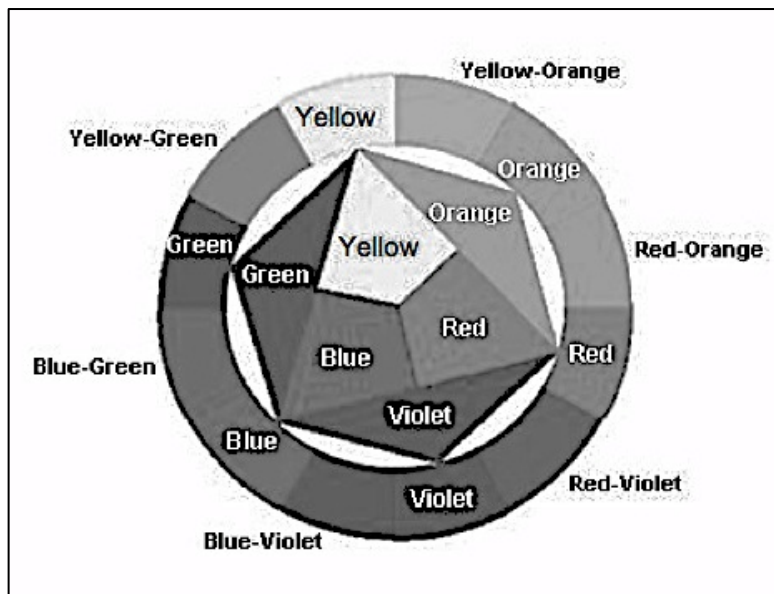
Below is a particular design of a type of weave.



This design of weaving can be described as over \_\_\_\_, under \_\_\_\_.

- A. 1,3
- B. 2,2
- C. 2,1
- D. 1,2

For questions 4 and 5, study the colour wheel below.



#### QUESTION 4

Which list of alternatives below contains secondary colours?

- A. Blue, Red, Violet
- B. Blue, Red, Yellow
- C. Violet, Green, Orange
- D. Red, Yellow, Orange

#### QUESTION 5

The colour yellow-orange on the colour wheel is achieved by adding more

- A. yellow to the orange.
- B. red to the orange.
- C. yellow to the red.
- D. orange to the yellow.

#### QUESTION 6

Below are the three steps involved in the MS Word Document design principles.

- I. Text Presentation – same fonts and same font sizes
- II. Document Design – simplicity: limit fonts, decorative elements and pictures.
  - consistency: size of heading, spacing between paragraphs, sentences and indent measurements, and bullet design.
- III. Picture placement – leads the reader's eye across the page, enhancing readability and making information easier to digest. Logos or crests are placed alongside for immediate identification, or in the bottom-right corner.

Which of the following list contains a combination of the three steps?

- A. Arial, consistency and Courier
- B. PNG crest, company logos and contrast
- C. Times New Roman, simplicity and logos
- D. Contrast, Calibri and simplicity



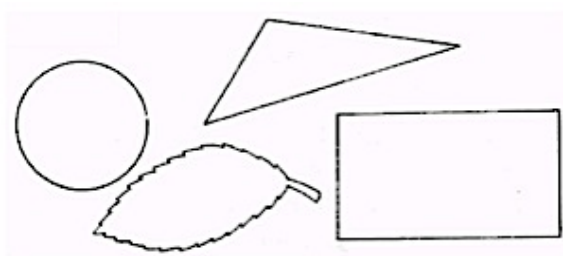
**QUESTION 11**

Which of the figures are good examples of asymmetrical objects?

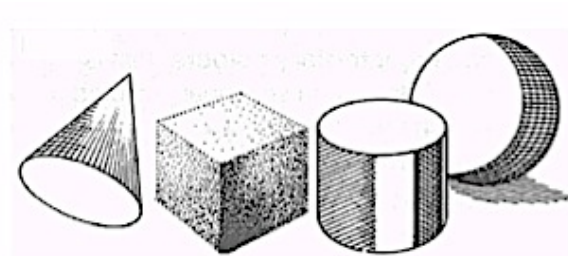
- A. Glass and jug  
 B. Jug and teapot  
 C. Tea pot and Ying-yang  
 D. Ying-yang and Glass

For questions 12 and 13, study the following diagrams below.

Elements of design illustrate that points, lines, colour, tone shape, texture and form give an item its visual appeal in a sketch.



(I)



(II)

**QUESTION 12**

Which element of design would diagram (I) illustrate in definition?

- A. Tone  
 B. Shape  
 C. Lines  
 D. Texture

**QUESTION 13**

The creative use of lines and dots creates an element of design called tone. Tone indicates to the observer (person) that this object has \_\_\_\_\_ and texture.

- A. shape  
 B. form  
 C. colour  
 D. line

**QUESTION 14**

Below is an old design of a common tool.

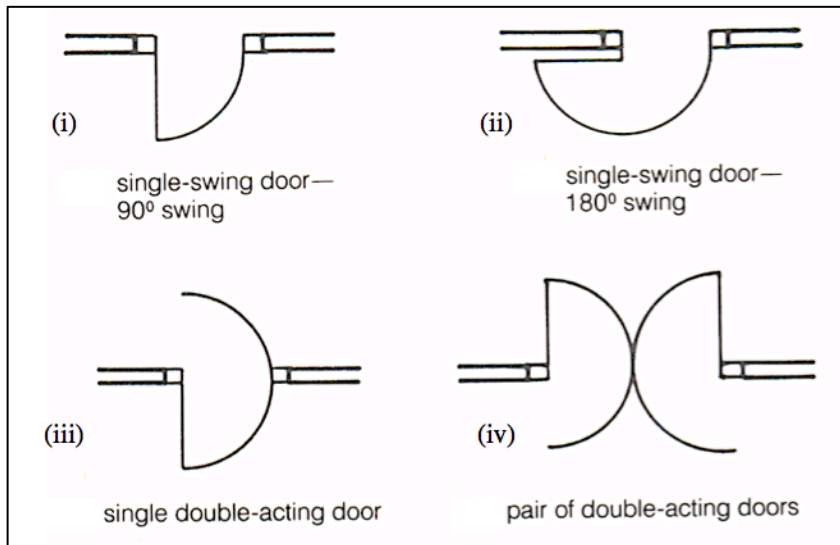


What other common tool used these days best resembles similar cutting action as this tool?

- A. Chisel  
 B. Hand saw  
 C. Surform  
 D. Plane



For questions 18 and 19, refer to the door designs below.



### QUESTION 18

Which door design is suitable for the front door of a common house?

- A. (i)                      B. (ii)  
C. (iii)                     D. (iv)

### QUESTION 19

Which door design is the perfect one for a screen door that is the exit and entrance to a house?

- A. (i)                      B. (ii)  
C. (iii)                     D. (iv)

### QUESTION 20

Although a design needs to function effectively, it is important for it to be visually pleasing.

Which term best describes this factor?

- A. Shape                      B. Proportion                      C. Aesthetic                      D. Colour

**PART B: SHORT ANSWERS**

**(QUESTIONS 21 to 35)**

**5 MARKS**

For each question, write the correct answer in the space provided on the answer sheet.

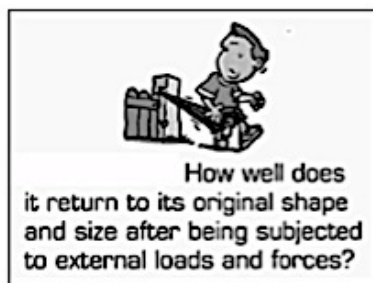
For questions 21 and 22, use the information below.

The words describe the properties/characteristics of materials that are considered for a specific application.

Density	Strength	Flammability
Conductivity	Elasticity	Malleability
Hardness	Durability	Toughness



**Fig. Q**



**Fig. R**

**QUESTION 21**

Which term is described by the illustration and its description in Fig. Q?

**QUESTION 22**

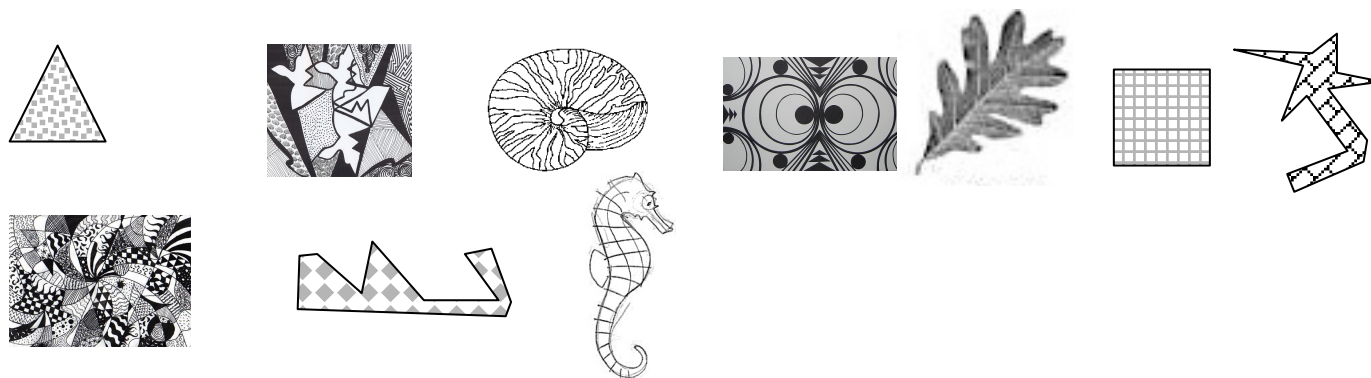
What is the term illustrated by the cartoon and its description in Fig. R?

For questions 23 and 24, use the information on the elements of design below.

One of the elements of design in fashion design is shape. This includes the non-objective shapes. These are neither geometric nor natural and are generally referred to as human-made shapes and accidental shapes.

The natural shapes are found in nature and living things. They are usually curved and organic and have random appearance.

Some examples of the different shape types are;



**QUESTION 23**

How many of the above shapes are non-objective shapes?

**QUESTION 24**

What is the total number of natural shapes?



**For questions 25 and 26, use the information below.**

Three important words are used to describe certain people in the design process. They are - *Thinkers, technologist* and *artist*. This people play a very important part in every stage of the design process.

**QUESTION 25**

Which word best describes the person that chooses the most appropriate materials and ensures that the construction is strong enough to stand up to regular use?

**QUESTION 26**

Which word describes the person who takes into consideration the visual aspects of design such as shapes, textures and colours to produce appealing objects?

**For questions 27 and 28, use the information below on fashion design.**

In fashion design, texture refers to the nature of the surface of fabrics and trimming used in a garment. Texture falls into four categories. These create different moods that suggest things about the wearer. The four categories are:

- |                                   |                       |
|-----------------------------------|-----------------------|
| i. Rough and Matt (not glossy)    | ii. Rough and Glossy  |
| iii. Smooth and Matt (not glossy) | iv. Smooth and Glossy |

**QUESTION 27**

Which of these categories describes the texture of fabrics associated with young people? (*Write only the Roman numeral as your answer.*)

**QUESTION 28**

Which category describes the texture of the fabrics associated with casual wear? (*Write only the Roman numeral as your answer.*)

**QUESTION 29**



The roofs of the Sydney Opera House building are designed to resemble the \_\_\_\_\_ of sailing boats.

For questions 30 and 31, use the diagrams of the modern and ancient cutting edge tools below.



I II III IV V VI

Modern Tools



Front & Side views

Ancient Tool

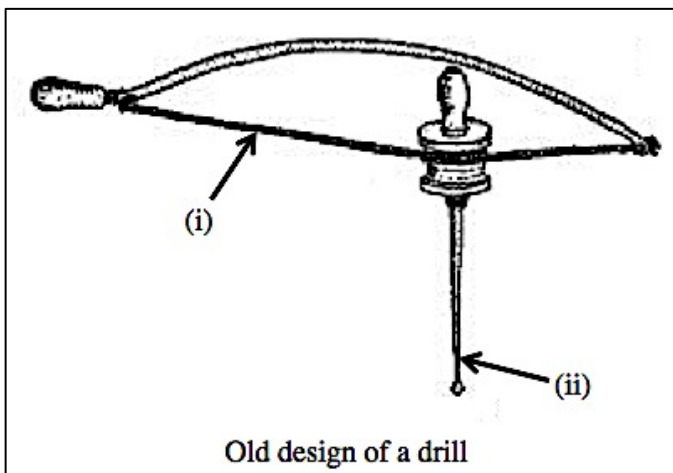
**QUESTION 30**

Which modern tool (I, II, III, IV, V, VI) has a similar cutting edge design to that of the ancient tool?

**QUESTION 31**

What modern tool number is designed to cut like a chisel?

For questions 32 and 33, consider the diagram below.



Old design of a drill

**QUESTION 32**

The part of the drill labelled (i) is used to \_\_\_\_\_ the drill bit.

**QUESTION 33**

The part of the drill labelled (ii) \_\_\_\_\_ into the wood.

For questions 34 and 35, use the diagram below.



**QUESTION 34**

How many dead knots are showed in the diagram?

**QUESTION 35**

Just before the tree was cut into timber it had a number of live branches as illustrated in the diagram.

How many branches did it have?

**PART C: EXTENDED RESPONSE****5 MARKS**

Work out the answer for each question and write the answer in the space provided on the answer sheet.

Refer to the information below to answer the question that follows.

**QUESTION 36**

Anthropometry and ergonomics are two very important factors that must be considered when designing anything to meet peoples' needs. Anthropometry is the science that deals with human body measurements for different sexes and different age groups, while ergonomics is the study of people in relation to their home, work or leisure environment. This includes the consideration of space, lighting and layout.

State whether each situation is a design process of *Anthropometry* or *Ergonomics*.

A student was asked to construct:

- I. A coconut scrapper
- II. Crutches for a small boy who broke a leg
- III. Desk for a grade four student
- IV. A small platform under the mango tree
- V. A coffee table

**END OF EXAMINATION**

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**LOWER SECONDARY SCHOOL EXAMINATION – 2013  
DESIGN & TECHNOLOGY SUBJECT FIELD**

**SUBJECT – DESIGN AND TECHNOLOGY – ANSWER SHEET**



**MARKER 1**

YEAR		PROV.		SCHOOL			CAND No.		
<b>1</b>	<b>3</b>								
<b>NAME</b>									
<b>SCHOOL</b>									

**PART A: (Questions 1 to 20)**

Write the letter of your answer next to each question below.

<b>1</b>	
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>5</b>	

<b>6</b>	
<b>7</b>	
<b>8</b>	
<b>9</b>	
<b>10</b>	

<b>11</b>	
<b>12</b>	
<b>13</b>	
<b>14</b>	
<b>15</b>	

<b>16</b>	
<b>17</b>	
<b>18</b>	
<b>19</b>	
<b>20</b>	

**PART B (Questions 21 to 35)**

Write your answer next to each question below.

<b>21</b>	
<b>22</b>	
<b>23</b>	
<b>24</b>	
<b>25</b>	

<b>26</b>	
<b>27</b>	
<b>28</b>	
<b>29</b>	
<b>30</b>	

<b>31</b>	
<b>32</b>	
<b>33</b>	
<b>34</b>	
<b>35</b>	

**PART C (Question 36)**

Write your answer in the spaces below.

<b>36</b>	<b>I</b>	
	<b>II</b>	
	<b>III</b>	
	<b>IV</b>	
	<b>V</b>	



**MARKER 2**

**DO NOT WRITE ON THIS PAGE**

**THIS PAGE MAY BE USED FOR ROUGH WORK**

**CAREFULLY TEAR ALONG THIS PERFORATION**

**THIS PAGE MAY BE USED FOR ROUGH WORK**