



DEPARTMENT OF
EDUCATION

LOWER SECONDARY
SCHOOL CERTIFICATE
EXAMINATIONS

DESIGN AND
TECHNOLOGY

Wednesday

12 October 2011

Time allowed:

1 hour 30 minutes

Candidates are advised to
fully utilise the allocated
time

D & T

INSTRUCTIONS TO CANDIDATES:

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

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

The Examination is divided into two parts:

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

PART B: Short Answer Test (Questions 31 to 35)

PART C: Extended Response (Questions 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.

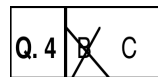
For each question in **PART A (Questions 1 to 30)** choose the best answer by writing the letter A or B or C or D in the space provided on the **ANSWER SHEET**.

For each question in **PART B and C (Questions 31 to 40)** 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.

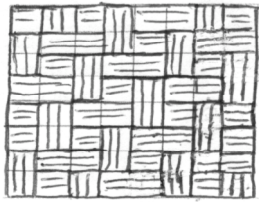
**DO NOT TURN OVER THIS PAGE AND DO NOT
WRITE UNTIL YOU ARE TOLD TO START.**

PART A: MULTIPLE CHOICE TEST

(QUESTIONS 1 to 20)

For Questions 1 to 20, choose the best answer by writing A or B or C or D or E in the space provided on your answer sheet.

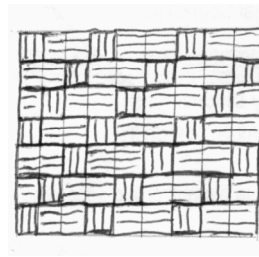
For Questions 1 – 3, refer to the diagrams of the four different weaves below.



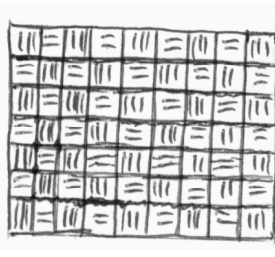
W



X



Y



Z

QUESTION 1

Which weave is known as ‘over 1 under 2’?

- A. W B. X C. Y D. Z

QUESTION 2

Which weave is known as ‘over 2 under 3’?

- A. Z B. Y C. X D. W

QUESTION 3

Weave ‘X’ is known as

- A. over 1 under 1. B. over 2 under 1.
C. over 2 under 1. D. over 3 under 1.

QUESTION 4

Which element of design do three-dimensional (3D) objects such as sphere or cube come under?

- A. Forms B. Shapes C. Tones D. Lines

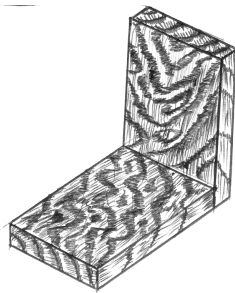
QUESTION 5

The design process has four major cyclic steps. Which appropriate step follows after the completion of a project?

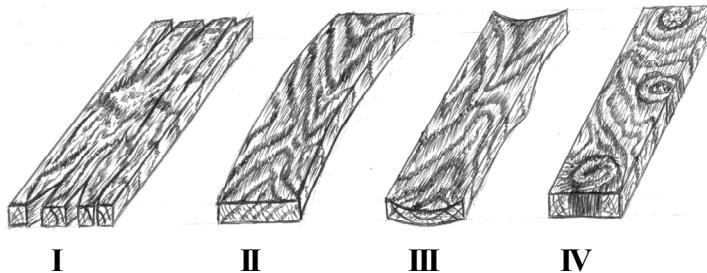
- A. 1 B. 2 C. 3 D. 4

For Question 6 – 8, refer to the following information and diagrams.

When designing a project it important to select the suitable materials for project. In order to construct a book end like the one below one must select suitable timbers.



Study the four pieces of timber below and answer the following questions.



QUESTION 6

The piece of timber that could possibly cause the nails to bend when used to construct the book end is _____.

- A. IV B. III C. II D. I

QUESTION 7

Which piece of timber would split easily when nailed together to make the book end?

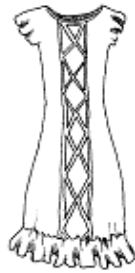
- A. IV B. III C. II D. I

QUESTION 8

Which two pieces of timber lack the flatness needed to make the book end?

- A. I and II B. I and III C. II and III D. II and IV

Study the two dress designs (T and Q) below and answer question 9.



T



Q

QUESTION 9

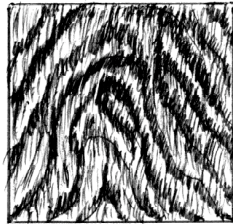
What element of design is illustrated on dress Q?

- A. Symmetrical balance
- B. Asymmetrical balance
- C. Shape or form
- D. Ergonomic

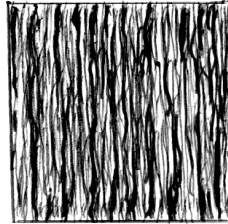
The diagrams below illustrate different textures. Use the diagrams to answer questions 10 to 12.



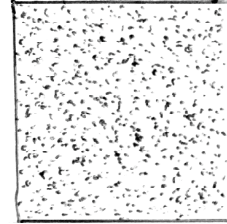
Q



R



S



T

QUESTION 10

Which texture is normally located on the **face** of a piece of timber?

- A. T
- B. S
- C. R
- D. Q

QUESTION 11

What is the texture of the **face edge** of a piece of timber?

- A. T
- B. S
- C. R
- D. Q

QUESTION 12

What is the texture of the **end grain** of a piece of timber?

- A. T
- B. S
- C. R
- D. Q

QUESTION 13

For clothing, traditionally people of PNG used bush _____ to make a variety of grass skirts.

- A. fibres
- B. ropes
- C. strings
- D. stripes

For Question 14, refer to the foot wears below

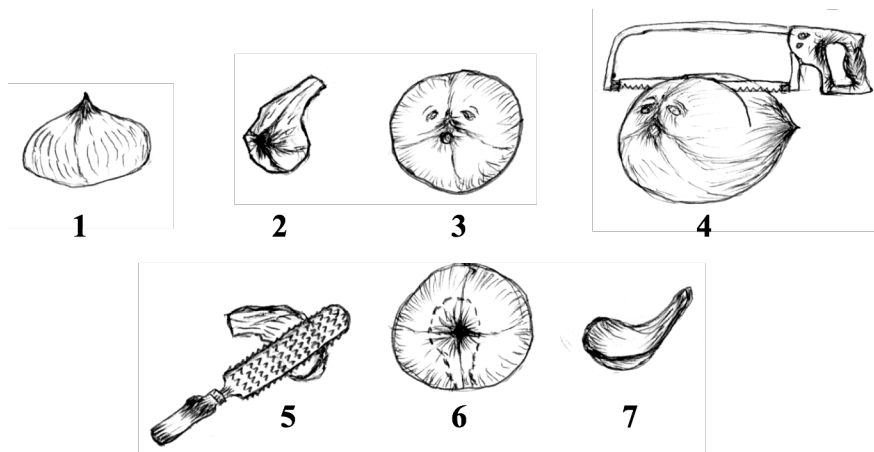


QUESTION 14

Which of the following footwear possibly **centres the weight** of the person wearing it on the smallest surface area?

- A. I B. II C. III D. IV

Study the procedures used to make the coconut shell spoon and answer the questions 15 and 16.



QUESTION 15

Which diagram in making the coconut shell spoon comes before Step '5'?

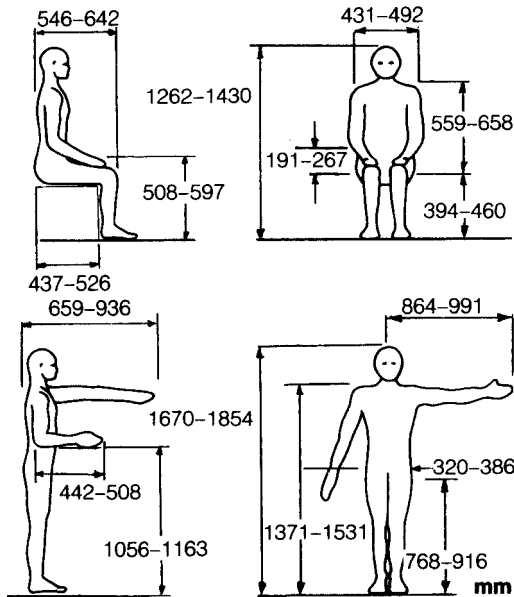
- A. 4 B. 3 C. 2 D. 1

QUESTION 16

Which diagram should **not** be included as part of the procedure to make the coconut shell spoon?

- A. 6 B. 5 C. 4 D. 3

Refer to the diagrams showing the Human body measurements for different standard types of furniture to answer Questions 17 to 19.



QUESTION 17

What ranges of measurements are for the standard height of a table?

- A. 508 - 597 mm
- B. 768 - 916 mm
- C. 1056 - 1163 mm
- D. 559 - 658 mm

QUESTION 18

What ranges of measurements are for the standard width of the chair seat?

- A. 320 - 386 mm
- B. 431 - 492 mm
- C. 437 - 526 mm
- D. 442 - 508 mm

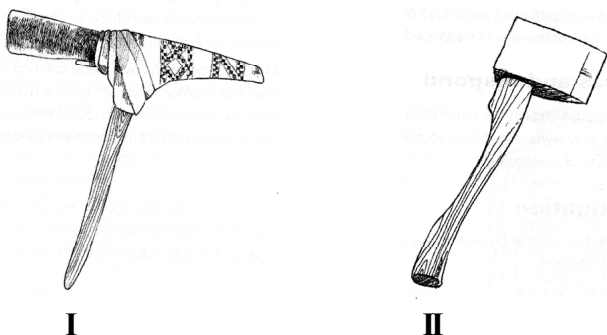
QUESTION 19

Which measurements are for a standard human reach?

- A. 659 - 936 mm
- B. 864 - 991 mm
- C. 1670 - 1854 mm
- D. 864 - 991 mm

For Question 20, refer to the information and the diagram below.

There is a major technological change in Axe II compared to Axe I.



QUESTION 20

The location of this significant change is in the

- A. handle.
- B. eye.
- C. wedge.
- D. head.

PART B: SHORT ANSWER TEST

(QUESTIONS 21 to 35)

For Questions 21 to 35, work out the answers for each question and write the answer in the space provided on the answer sheet.

QUESTION 21

State the **element of design** that deals with the life span of a product.

Use the list of basic drawing tools and equipment below, to select the answer for question 22.

Pencil, pencil sharpener, eraser, ruler, compass, set-squares, paper

QUESTION 22

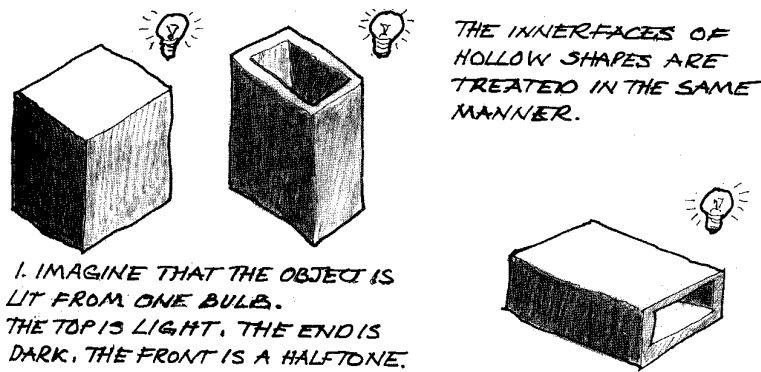
Which basic drawing tools or equipment is used to draw accurate angles?

QUESTION 23

Which drawing provides the **best** single view in appearance of three sides of an object?

QUESTION 24

What element of design is illustrated by the diagrams below?



For questions 25 and 26, refer to the information below.

Properties of Materials

Strength, Toughness, Hardness, Ductility, Elasticity, Plasticity, Conductivity

QUESTION 25

Which property of materials allows the materials to be **shaped**?

QUESTION 26

State the property of materials that **prevents** the material from wearing or scratched.

Use the information below to select the appropriate answers for questions 27 to 29.

When someone is organizing the details during the stages of planning and designing, one approach could be to use the following headings;

Time limit, Materials, Function, Ergonomics, Aesthetic, Personal safety, Design consequences, Construction

QUESTION 27

A question such, ‘What finish could you give to your project?’ would come under _____?

QUESTION 28

Under which heading, would you classify the standard measurements to use to construct a table?

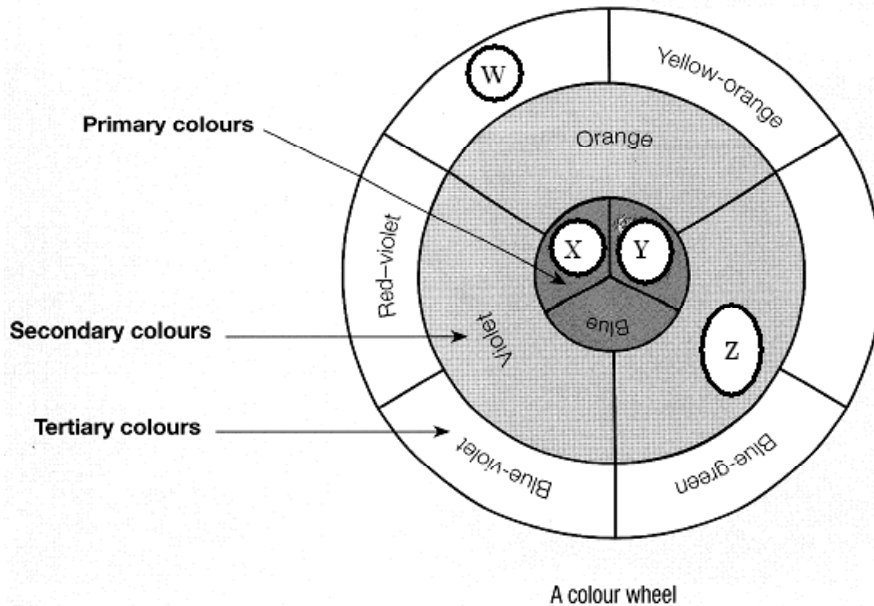
QUESTION 29

The question such as, ‘Do you have the skills, knowledge and equipment needed to make it?’ would be considered under which heading?

QUESTION 30

What drawing is referred to as the ‘Working drawing’?

Use the diagram below of the colour wheel to answer Question 31 and 32.



Question 31

What colour is represented by letter ‘W’?

Question 32

Letter ‘Z’ represents _____ colour.

Use the information below on types of materials to answer Questions 33 and 34.

Group 1	Group 2	Group 3	Group 4
iron	PVC	mahogany	brass
ABS	copper	steel	ebony
bronze	balsa	Perspex	aluminum

QUESTION 33

Which group contains a **popular** soft wood?

QUESTION 34

Name the group that contains the **metal** that is used to make soft drink cans?

Question 35

The early stages of the design process are done through rough drawings and scribbles known as _____.

PART C: EXTENDED RESPONSE**(QUESTION 36)****5 marks**

For Question 36, write the answer in the space provided on the ANSWER SHEET.

Study the design brief below and answer questions (i, ii, iii, iv, v). Answer the questions by writing only the letters **J, K, L M and N**.

Design brief – a high chair for toddlers

Many young children of toddler age like to sit at the dining table with their families. Parents find this difficult when the child is too big for a high chair and yet too small for the family's dining chairs. There is a need for a toddler seating system that can be used at a dining table.

Design and make a seating system that can be used at a dining table and enables children to sit and eat comfortably from the dining table.

The design will be aimed at 3–5 year old children, be attractive, fun, safe to use, durable, easily stored and portable.

The diagram shows five arrows pointing from letters J, K, L, M, and N to specific parts of the design brief text:

- J** points to the first sentence: "Many young children of toddler age like to sit at the dining table with their families. Parents find this difficult when the child is too big for a high chair and yet too small for the family's dining chairs."
- K** points to the second sentence: "There is a need for a toddler seating system that can be used at a dining table."
- L** points to the third sentence: "Design and make a seating system that can be used at a dining table and enables children to sit and eat comfortably from the dining table."
- M** points to the fourth sentence: "The design will be aimed at 3–5 year old children, be attractive, fun, safe to use, durable, easily stored and portable."
- N** points to the word "portable" in the fourth sentence.

QUESTION 36

- i. What letter indicates the conditions that must apply?
- ii. What letter shows the need that arises from the stated problem?
- iii. Which letter indicates where the problem occurs?
- iv. Which letter illustrates who will use your design?
- v. What letter shows the type of solution you expect to design?

END OF EXAMINATION

**SCHOOL CERTIFICATE EXAMINATION – 2011
DESIGN & TECHNOLOGY – ANSWER SHEET**



MARKER 1

YEAR		PROV.		SCHOOL			CAND No.		
1	1								
NAME									
SCHOOL									

PART A: (Questions 1 to 20)

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

1	
2	
3	
4	
5	

6	
7	
8	
9	
10	

11	
12	
13	
14	
15	

16	
17	
18	
19	
20	

PART B (Questions 21 to 35)

Write your answer next to each question below.

21	
22	
23	
24	
25	

26	
27	
28	
29	
30	

31	
32	
33	
34	
35	

PART C (Question 36)

Write your answer in the spaces below.

36	i	
	ii	
	iii	
	iv	
	v	



MARKER

2

DO NOT WRITE ON THIS PAGE

YOU MAY DO YOUR ROUGH WORK ON THIS PAGE

CAREFULLY TEAR ALONG THIS PERFORATION

YOU MAY DO YOUR ROUGH WORK ON THIS PAGE