

# **BASIC DESIGN AND TECHNOLOGY (BDT)**

## **VISUAL ART PAPER 2**

### 1. **GENERAL COMMENTS**

The standard of the paper compares favourably with that of the previous years. The questions have been drawn from the prescribed syllabus. Generally, performance was high especially in candidates who could read and write. They scored high marks. However, candidates who cannot read resorted to answering all questions especially the questions which had the fill in the blank spaces.

### 2. **A SUMMARY OF CANDIDATES' STRENGTHS**

The following are some strengths identified in candidates' work:

- Handwriting has generally improved in most candidates.
- Questions 9 and 10 on Fabric and Leather decoration were very well answered by most candidates.

### 3(a) **A SUMMARY OF CANDIDATES' WEAKNESSES**

The following are some weaknesses identified in candidates work:

- Some candidates who could not read and understand questions resorted to copying questions to fill answer spaces.
- Question on patching was poorly answered.
- Some candidates interchanged the answers for question 1c(ii) and (iii).
- Drawing was generally poorly done. Most candidates avoided questions which had aspects of drawing.
- Candidates demonstrated their inability to answer question 4 and 8.
- It is obvious that some candidates could not read and understand rubrics.
- Some candidates did not understand question 1 and 2 (Section A). They only attempted questions in Section B.

### (b) **SUGGESTED REMEDY FOR THE WEAKNESSES**

- Teachers should endeavour to cover all topics in the BDT syllabus. They should teach drawing seriously and give candidates a chance to draw more often.
- Candidates should be taught to read and understand rubrics.

#### 4. **DETAILED COMMENTS**

##### **Question 1(a) State functions of protein in the body.**

- for body building/growth
- for the repair of worn out tissues.
- for maintenance.
- for fluid balance.
- for energy giving.
- for the production of hormones.
- for the production of enzymes.
- for the production of antibodies.

##### **(b) Patching can be done by**

- (i) hand (ii) machine.

##### **(c)(i) Explain a design brief.**

- What the designer intends to design, make, realise, manufacture or produce.

##### **(ii) List three methods of carrying out design investigations.**

- Interviews - Observation - Literature review
- Reading of books/magazines - Brainstorming.
- Experiments - Opinion polls - Visits/field trips.
- Internet - Photographs - Questionnaire.

##### **(iii) State two factors to consider when selecting the best solution from the generated possible solutions in designing.**

- Function - Ergometrics - Weakness
- Cost (economics) - Safety - Construction.
- Material - Specification - Aesthetics (beauty)
- Strength.

##### **(d)(i) What is the colour spectrum?**

- A band/range of colours.
- Prismatic colours.
- Colours that reflect light when a beam of light is passed through a prism
- Colours of the rainbow – Red, Orange, Yellow, Green, Blue, Indigo and Violet

##### **(ii) List three primary colours of light.**

- Red, Blue, Green.

##### **(iii) Explain the term secondary colours.**

- Colours obtained by mixing any two primary colours i.e.

Red + Blue = Violet  
Blue + Yellow = Green  
Red + Yellow = Orange.

**Question 1(a).** Most candidates got the answer correct. Though there are several answers almost all candidates listed the first two answers in the marking scheme. It shows that they are not familiar with the other answers in the scheme.

**Question 1(b)** is the completion type and most candidates completed the statement with the word “stitching”

**Question 1(c).** Most candidates were able to answer this question correctly, however (cii) and (iii) were poorly answered. It looks as if the topic did not go down well. Candidates were notable to imbibe the knowledge.

**Question 1(d)(i)** Some candidates performed well. They were able to answer this question with reference to Isaac Newton’s work. However, others demonstrated their ignorance. This means that their teachers did not tackle this aspect of colour in their syllabus.

**Question d(ii)** Most candidates scored two out of three. It shows that they are not familiar with the primary colours of light. They only know about the pigments Red, Blue and Yellow.

**Question d(iii)** This question on secondary colours was very well answered. However, a few candidates got confused and rather explained primary colours.

**Question 2(a) List five career opportunities in visual Communication.**

- Graphic Designer, Signwriter, Commercial Artist, Cartoonist, Printer.
- Typesetter, Animator, Engraver, Set Designer, Illustrator.
- Designer, Layout Designer, Visualizer, Calligrapher.

**(b)(i) State a tool used for each of the following processes in Visual Communication.**

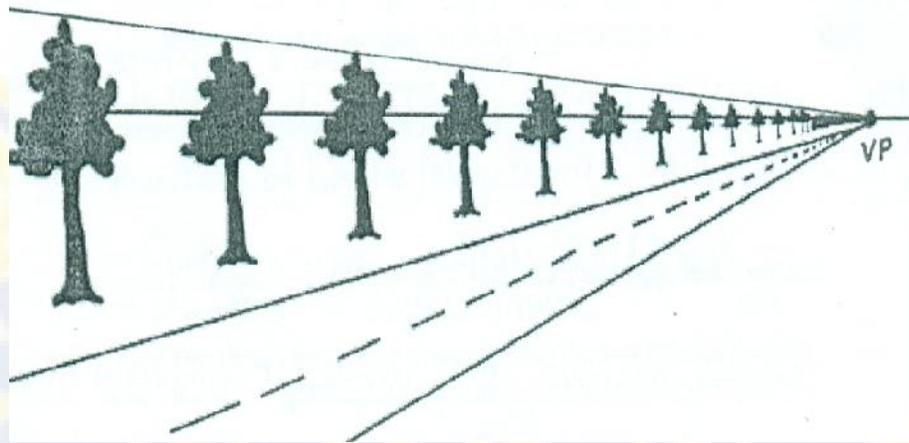
- Drawing: brush, pen, pencil, crayon, pastel, charcoal.
- Cutting: knife, scissors, blade, shears, guillotine.
- Painting: brush, airbrush, foam.

**(ii) State how each of the tools listed in (b)(i) is cared for and stored.**

- Brushes of all types - wash/clean, stand with bristles upright, - wash pen, dry and keep in container.
- Tools with metal parts e.g. palette knife, scissors, knife etc - wash, dry, apply oil and store in sheath, case, etc.
- Foam - should be squeezed to remove water and dried.

- Guillotine - remove bits of paper and apply oil, store pencils, crayons, charcoal insuitable containers.
- (c) **Draw tree in perspective; show the horizon and the vanishing point.**

**Diagram Here**



**(d)(i) Define Lettering.**

It is the art of writing, constructing, arranging alphabetical symbols/typefaces into words.

**(ii) State two types of Lettering used in designing.**

- Block e.g. Roman, Gothic, Italic.
- Freestyle, calligraphy.

Most candidates answered this question (2a) well while others could not relate the careers to Visual Communication. They just listed careers in general terms e.g. Nursing, Medical Officer, Dressmaker.

**2(b)(i)** was well answered. The only problem was that some candidates listed cutlass as a cutting tool in Visual Communication.

**2b(ii)** This question was not fully answered by most candidates. They paid more attention to the caring for than storing of tools.

**2(c)** It appears most candidates have never heard the term perspective. They have also not been drawing. Their level of drawing is as low as that of primary school children. However, few candidates demonstrated a clear understanding of perspective. They were able to indicate the vanishing point but not the horizon.

**2(d)(i) and (ii)** Candidates generally did well by defining and stating two types of Lettering. Most of them are more familiar with Block and Freestyle Lettering.

## **WEAVING AND STITCHING**

**Question 3(a)(i) Write down two reasons for acquiring knowledge and skills in weaving and stitching.**

- For job/employment opportunities in future.
- For hobby/pastime activities.
- For developing creativity.
- For the promotion, preservation and transmission of culture.

**3(a)(ii) State four Skills that can be acquired in Weaving and Stitching.**

- Skills in braiding, knotting, measuring, plaiting, tying, threading, wrapping, interlacing, twisting, hand spinning, sewing.

Most candidates were able to state two reasons. Others could state only one, however, most candidates performed badly in the 3a(ii). Most candidates could state only two out of the four skills the question demanded.

**(b)(i) Describe hand weaving.**

- Making or constructing by interlacing, looping, intertwining canes, twigs, yarns, etc. With the hands but not by mechanical means.
- Interworking/interlacing flexible strands by hand weaving and not machine.
- Crocheting, - looping, - netting, - knitting, interlacing, embroidery.

**(c) List two household items that can be produced by weaving and stitching.**

- Mat, fan, basket (shopping, laundry, fruit flowers etc.) napkins, tablecloth, chairback, rugs, blanket, towels etc.

**(d) Fill in the blank spaces with the words provided below to complete the passage on weaving.**

Interlacing, clothing, weaving, hides, material, off-loom, plain, threads, weft, shuttle.

**Question 3b(i)** was poorly answered. Most candidates had no idea what hand weaving is about. They were not aware that weaving can be done either by hand or machine. They could also not identify the techniques in hand weaving demanded in question 3(b)(i).

**3(c)(d)** were well answered by most candidates.

**Question 4(a) Complete the following descriptions with the correct terms, e.g**

**the interlacing decorative strands with each other is termed PLAITING.**

- (i) The process of using three weavers to weave is BRAIDING, WALING OR UPSETTING.
  - (ii) The process of passing a weaving of two spokes and under the next two is TWILL WEAVE.
  - (iii) The ornamental work made by knotting ropes or cords is MACRAMÉ.
  - (iv) The use of two weavers in weaving is PAIRING.
- (b) Describe in FIVE steps, how plantain stem is prepared for weaving.**
- (i) The bark/stem is soaked/beaten to release or separate fibres.
  - (ii) The fibres are washed to remove pulp/impurities.
  - (i) Fibres are spread out to dry
  - (ii) Fibres are dyed and dried.
  - (iii) The fibres are braided or plaited into ropes

**(c) In the box provided illustrate FITCHING using four stakes.**

**(d)(i) List two articles made by using the macramé technique.**

- bag, pot-holder, belt, wall-hanging, poncho, vest etc.

**(ii) State one article produced from interlacing and plaiting.**

- bag, belt, fan, mat, etc.

Generally, question four was unpopular. The few candidates who attempted it performed poorly. The processes in 4(a) were unfamiliar to most candidates. It is surprising that the simple preparation of plantain stem/bark was difficult for them. Only few candidates could come out with the major processes like soaking, beating, washing and drying.

4(c) Fitching was strange to almost all candidates.

4(d) Most candidates had both (i) and (ii) correct.

### **MODELLING, CASTING AND CARVING**

**Question 5(a)(i) List three vocations that can be acquired by studying modelling, casting and carving as a subject.**

- (i) Carving, fountain making, restorer of statues/monument, portrait making, puppets making, teaching, curator, tombstone making, stage designing, making of plaques, plates, bowls, etc.
- (ii) **List three materials that can be carved.**
  - Gourd, calabash, roots, stems, seeds, wood, plaster, stone, wax, soap, clay, ivory, horn, bone.

- (b) **Fill in the blank spaces to complete the following statements.**
- (i) GREASE or SOAP are applied to moulds before casting.
  - (ii) Statuetes/Figures are created in a HOLLOW mould by CASTING.
- (c)(i) **At what state can a modelled clay be decorated?**
- Leatherhard.
- (ii) **Identify three materials used in modelling.**  
Clay, sawdust, cement, plasticsine, P.O.P, papiermâché, fibre glass.
- (d) **Fill in the blank spaces with the words provided to complete the passage on classification of clay.**

With the exception of 5(b) and c(i), the rest of question 5 was well answered. Most candidates scored full marks for 5(a), (c ii) and (d).

**Question 6(a)(i) Describe in Five steps, how a face mask is made using papiermâché.**

- Model the face in clay - Prepare a mould.
- Prepare papiermâché (pulp and adhesive).
- Size the mould -Mould or press papiermâché into the mould to get the form.

(ii) **List two tools and two materials needed for the construction of the face mask in 6(a)(i).**

Tools: spatula, finger and suitable tools for cutting, scraping, joining.

Materials: starch, paper, oil.

(iii) **State two other uses of papiermâché apart from making masks.**

-Room decorations, toys, dolls, teaching/learning materials (TLMs).

(b) **In the table below, arrange the clay substances from the hardest to the softest from the list provided.**

- stoneware, biscuit, greenware, leatherhard, slip.

(c) **Identify two ways by which clay objects can be made durable.**

- firing, smoking, glazing.

(e) **In the table below, match the following functions with the appropriate tools provided.**

- chisel, knife, cutting wire, cutlass, mallet.

Candidates generally performed badly in this question.

Candidates have little or no knowledge about papiermâché and how it is used.

Most of them did not understand the word 'durable'. 6(b) and 6(d) were the most difficult for candidates. Most of them had no idea about the states of clay e.g. stoneware, biscuits, etc.

## **CONSTRUCTION AND ASSEMBLAGE**

### **Question 7(a)(i) What is paper?.**

- Material in the form of thin sheets used for writing on, drawing on, wrapping things with, etc.
- It is made from fibres of straw, wood, etc.

### **(ii) State two uses of paper.**

- used in industries, used for educational purposes i.e. books, magazines, used for communication, used for currencies, etc.

### **(b)(i) What is meant by recycling?**

- Process of making use of used materials by re-shaping them and reforming them to be used for different purpose.

### **(ii) State the purpose of book-binding.**

- make sheets of printed paper intact and secure.
- to repair worn out or torn books.
- for the protection of printed matter.
- to add value.

### **(iii) List three tools and two materials used for book-binding.**

- Tools: Ruler, scissors, pencil, knife, needle, brush.
- Materials: Paper, card, thread, glue.

### **(c) Explain why the following book-binding processes are important.**

- (i) Stitching: collated sheets of paper are linked together by sewing with needle.
- (ii) Trimming: makes books neat with straight edges and presentable.
- (iii) Cover decoration: adds value by making books more presentable and attractive.

### **(d) State three major steps in assembling objects to create a toy.**

- (i) Gathering and sorting of materials.
- (ii) Preparing by cutting, scraping, drilling, filing, etc.
- (iii) Joining by nailing, welding, tying, soldering, etc.

**Question 7** was generally well answered. The only difficult area was the steps in assembling objects to create a toy.

### **Question 8(a) Describe the following processes.**

- (i)** Assembling: Putting together found objects with pre-existing shapes by using suitable bonding techniques to form a sculpture.
- (ii)** Construction: This is like assemblage but in this case some of the found objects may be altered to suit one's own design.

- (b)(i) What are mobiles in construction and assemblage?**
- they are movable sculptures constructed from a variety of shapes/forms and moved by the action of the wind.
  - A hanging sculpture with balanced parts suspended on wire, thread etc.

- (ii) List three materials that can be used to construct mobiles.**
- wood, paper, metal, plastics, thread and scraps of all kinds.

- (c) In the table below, state the uses of the items provided e.g.**

Puppet	-	for entertainment.
Dolls	-	toys, playing.
Pencil case	-	storage/packaging
Jewellery box	-	storage/protection
Origami	-	decoration, play
Musical Instruments	-	entertainment
Mobiles	-	decoration

- (d) Fill in the blank spaces with the words provided below to complete the passage on tools and materials.**

- hand saw, techniques, pointed metal, locally, cleaned, scraps, corn shuck, assemblage, tools, drilling.

**Question 8** was poorly answered. Some candidates could not describe or show the difference between construction and assemblage. They discussed mobile phones instead of mobiles in Sculpture. They also did not know anything about origami. Most of them scored zero in 8(d). They could not make head or tail of the passage.

### **FABRIC AND LEATHER DECORATION**

- Question 9(a)(i) What is fabric - leather decoration?**

- The application of colour to fabric and leather using techniques of dying, printing, stitching and attaching trimmings, tassels, beads, sequins to make them more beautiful and functional.

- (ii) Give one reason each, why the study of fabric and leather decoration is important under the following areas.**

- Cultural: Used to promote the indigenous arts: used to preserve culture. Skills are transmitted to generations.
- Economic: For future apprenticeship and the world of work. Produce little items for sale to alleviate poverty.
- Social: For self-expression, making items for others and for sale.

- (iii) In the table below, describe the following techniques in fabric and leather decoration. E.g**

Appliqué: Stitching decorative patches on fabric or leather.

Dyeing: Applying colouring substance permanently to fabric/leather by immersing in a dye bath to change the colour.

Printing: Stamping/transferring design from one surface onto another e.g. using Adinkra stamps, block, screen etc.

Designing: The art of creating/arranging symbols/icons on a surface using elements and principles of design.

**(b)(i) What are leather off-cuts?**

- Pieces or remnants of leather that are left over after placing templates/patterns and cutting out.

**(ii) List two cases that can be made from leather off-cuts.**

- Spectacle case, knife sheath, comb case, pencil case.

**(c)(i) What is a thong?**

- A long, thin, strip of leather, plastic or rubber.

**(ii) List two uses of a thong in leather decoration.**

- Stitching, lacing, joining pieces of leather, edge fringing.

**(d) State three end products of fabric and leather decoration.**

- bag, belt, napkin, book maker, book jacket, chair back, mat, purse, footrest.

Candidates generally performed creditably in Question 9.

Question 9(a)(i) and (ii) were the only areas where few candidates could not grapple with.

**Question 10(a) Describe each of the following processes in fabric and leather decoration.**

**(i) Tanning**: The process of converting hides and skins into leather.

- treating hides to prevent putrefaction to make them permanent and workable

**(ii) Finishing**: Adding value to an item by trimming, polishing, burnishing, etc.

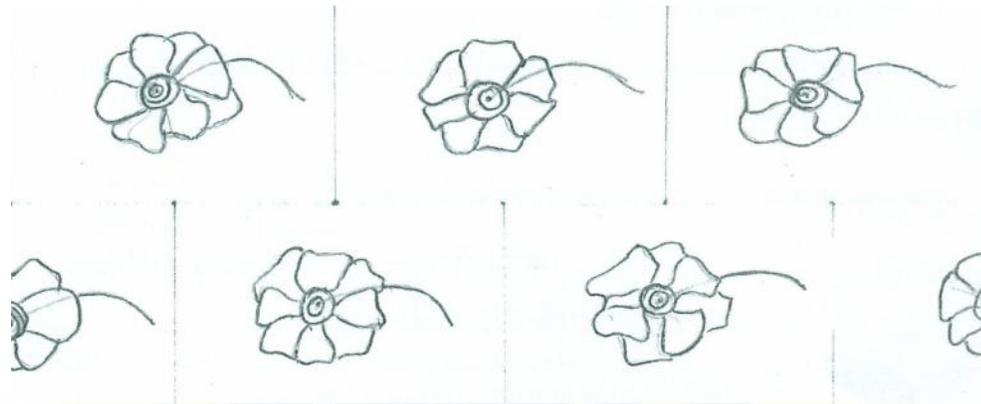
**(iii) Embroidery**: Using colourful threads to create patterns on material by stitching – ornamentation of fabric using needlework.

**(b) List three different ways of arranging motifs in a design.**

- Half-Drop, Full-Drop, Positive and negative/counterchange, Diamond, Ogee, All over or unit repeat or side by side.

**(a) In the space provided below, draw a flower motif and arrange it to repeat six times in half-drop pattern.**

**Diagram here**



- (d) Fill in the blank spaces with the appropriate words listed below to complete the passage on the resist dyeing techniques.
- waxed, dyebath, batik, immersed, design, methods, decorate, prevented, dye, dewaxing,

Generally candidates performed well. The only difficult area for some Candidates were the questions 10(b) and (c). It appears the aspect of motifs and their arrangement was not properly treated by their teachers.

## **PRE-TECHNICAL SKILLS**

### 1. **GENERAL COMMENTS**

The standard of the paper compared favourably with that of the previous year. The general performance of the candidates was quite good when compared to the previous years.

### 2. **A SUMMARY OF CANDIDATES' STRENGTHS**

- (1) Most candidates explained technical terms without any difficulty.
- (2) Candidates responses to the design and make question were correct and appropriate.
- (3) Majority of the candidates were able to draw to full size the given orthographic projections views.
- (4) Correct usage of equipments (drawing) were practised by most of the candidates.
- (5) Majority of the candidates attempted the three questions demanded by the rubrics.
- (6) Candidates presented neat and concise sketches and good handwriting.

### 3. **A SUMMARY OF CANDIDATES' WEAKNESSES**

- (1) Candidates were not brief in delivery their responses.
- (2) Candidates had poor draughtmanship skills.
- (3) Most of the candidates could not explain a design brief satisfactorily.

- (4) Most candidates wasted time by answering all the questions.

4. **SUGGESTED REMEDIES**

- (1) Schools should be provided with the appropriate documentation including the prescribed syllabus for the BDT (Pre-Technical Skills).
- (2) Candidates must be exposed to appropriate theory and practical skills training to improve upon their performance.
- (3) Teachers should teach candidates the skill of labelling sketches and drawings correctly.
- (4) Teachers should revise well all the topics in the syllabus before the examination.
- (5) Candidates are advised to restrict themselves to instructions demanded or required by the rubrics.
- (6) Teachers should encourage candidates to study in groups so that they can exchange ideas.

5. **DETAILED COMMENTS**

**QUESTION 1**

- (a) **State two functions of protein in the body.**
- (b) **List two ways by which patching can be done.**
- (c)
  - (i) **Explain a design brief.**
  - (ii) **List three methods of carrying out design investigation.**
  - (iii) **State two factors to consider when selecting the best solution from the generated possible solutions in designing.**
- (d)
  - (i) **What is the colour spectrum?**
  - (ii) **List the three primary colours of light.**
  - (iii) **Explain secondary colours.**

In Question 1(a), candidates were to state two functions of protein in the body, few candidates could not response to this part of the question.

This question was well attempted by most of the candidates except that some candidates could not differentiate between primary and secondary colours.

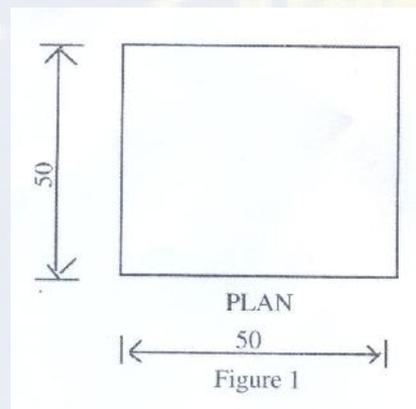
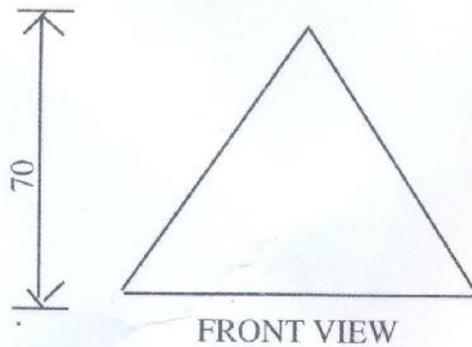
Definition of the colour spectrum was poorly done.

Most of the candidates could not define a design brief, some rather explained a situation. Majority of the candidates could list methods of carrying out design investigations even though this part of the question was not quite encouraging.

Candidates stated factors to consider when selecting the best solution from the generated possible solutions in designing. Candidates' performance was generally good.

## **QUESTION 2**

**Figure 1 shows two views of a solid to be produced with sheetmetal.**



- (a) **Draw full size the following:**
- (i) **front view;**
  - (ii) **plan;**
  - (iii) **surface development.**
- (b) **State the name of the solid in Figure 1.**
- (c) (i) **Make a freehand pictorial sketch of a marking gauge.**  
(ii) **Label any two parts of the tool you have sketched in (c)(i) above.**

Most candidates performed creditably well by producing the front view, plan and surface development using the projected true length, and stated the name of the solid as square based pyramid.

The marking gauge was well sketched by most of the candidates, however, in labelling the sketch, few of them were rather writing the names of the various parts under the sketch instead of labelling it on the sketches. Candidates' performance was fair.

### **QUESTION 3**

- (a) Using symbols, draw an electrical circuit diagram to show the following:
- (i) two bulbs in parallel;
  - (ii) a switch;
  - (iii) a cell.
- (b) State one function of a light emitting diode (LED) in an electrical circuit.
- (c) (i) Make a freehand sketch of a dot punch.  
(ii) Indicate the point angle on the tool you sketched in (c)(i) above.  
(iii) State one use of the tool sketched in (c)(i) above.
- (d) Copy and complete the table below.

ITEM	ONE SUITABLE MATERIAL FOR MAKING IT
Traditional oven	
Kitchen stool	
Bristle of tooth brush	
Garden rake	

- (e) State one reason each for carrying out the following operations:
- (i) levelling a wall;
  - (ii) applying flux when soldering.

Majority of the candidates ended up drawing the bulbs in series, instead of parallel connection, the switch was also placed at the wrong position in some few cases, however almost all the candidates who attempted this question drew the symbol for the cell correctly. Most candidates could not state the functions of the light emitting diode (LED) in an electric circuit.

The dot punch was well sketched by the candidates, few had problems with how to indicate the point angle of  $60^\circ$  correctly. Candidates in attempting to state one suitable material for the various items in the given table ended up writing general materials, instead of specific materials.

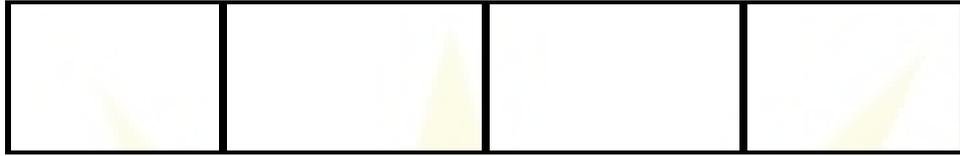
Majority of the candidates were able to state the reason for levelling a wall, but could not state the reason for applying flux when soldering. The general performance of the candidates was good.

### **QUESTION 4**

- (a) Explain the following:
- (i) ratio 1:4 for mortar mixture;
  - (ii) non-ferrous alloys.
- (b) (i) Make a freehand pictorial sketch a flat screwdriver.

- (ii) State one main use of the tool you sketched in (b)(i) above.

Figure 2 shows one course blockwall. Use it to answer Question 4 (c)



- (c) (i) Add three more courses to the wall in Figure 2.  
(ii) Show a tothing end on the wall.  
(iii) List two tools for laying the wall.  
(iv) State one reason for introducing a half-bat in the wall

Most candidates could not explain non-ferrous alloy because they could not use the word combination or mixture of two or more non-ferrous metals. Candidates were able to explain the ratio 1:4 in relation to mortar mix in various ways which were correct, thus they used different containers for the measurement. Example, 1 bag cement to 4 bags sand; 1 headpan cement to 4 headpans sand; 1 wheelbarrow cement to 4 wheelbarrows sand. Majority of the candidates were able to sketch the pictorial drawing of a screw driver correctly. This is an indication that students often saw artisans and teachers demonstrating the use of a screwdriver in everyday life.

Candidates were able to draw the four courses of the wall correctly, but few candidates drew continuous vertical joints which are not acceptable in bonding of walls. Few candidates could not differentiate between tothing end and raking back end.

Candidates listed the two tools used for laying a wall, but few candidates were able to state one reason for introducing the half-bat in the wall. Candidates' performance was generally good.

