

054/2&1 BECE  
June 2022  
BASIC DESIGN AND  
TECHNOLOGY  
(PRE-TECH. SKILLS) **2&1**  
Essay and Objective  
1 hour 55 minutes

THE WEST AFRICAN EXAMINATIONS COUNCIL  
GHANA

Basic Education Certificate Examination

June 2022

BASIC DESIGN AND TECHNOLOGY  
(PRE-TECH. SKILLS 2&1)  
[100 marks]

1 hour 55 minutes

*Write your name and index number in ink in the spaces provided above.*

*This booklet consists of two papers. Paper 2 is in two sections: A and B. Answer three questions only: Question 1 in section A and two questions from section B.*

*Answer Paper 2 which comes first on the A3 drawing sheet provided. Both sides of the A3 drawing sheet may be used. All diagrams or drawings should be in pencil. Any other answer should be written in ink.*

*All dimensions on the drawing are in millimetres. Credit will be given for clarity of expression and orderly presentation of material.*

*Paper 2 will last 1 hour 15 minutes after which the drawing sheet(s) will be collected.*

*Answer Paper 1 on your Objective Test answer sheet.*

*Do not start Paper 1 until you are told to do so. Paper 1 will last 40 minutes.*

SECTION A  
CORE SKILLS  
[20 marks]*Answer Question 1*  
[COMPULSORY]

1. (a) State **two** ways fresh tomatoes are preserved. [2 marks]
- (b) (i) List **two** vegetable fibres. [2 marks]  
(ii) State **two** ways of finishing the edge of a plain seam. [2 marks]
- (c) (i) State **two** causes of faults in home furniture. [4 marks]  
(ii) List **three** design processes to be considered when making a kitchen stool for your sister. [3 marks]
- (d) (i) State the cool colours on the six point colour wheel. [3 marks]  
(ii) Give the symbolic meaning to the various lines stated below:  
( $\alpha$ ) Spiral;  
( $\beta$ ) Diagonal;  
( $\delta$ ) Vertical;  
( $\gamma$ ) Zig-Zag. [4 marks]

SECTION B  
[50 marks]

*Answer two questions only from this section.*

*All questions carry equal marks.*

2. (a) (i) Make a freehand pictorial sketch of a claw hammer and label any **two** parts on the sketch.  
(ii) State **one** use of the claw hammer.
- (b) Copy and complete the table below:

ACTIVITY	ONE REASON FOR CARRYING OUT THE ACTIVITY
(i) Wearing overcoat	
(ii) Adding water to mortar mix	
(iii) Using a file with handle	

- (c) Figure 1 shows the sketch of an operation being carried out in the workshop.

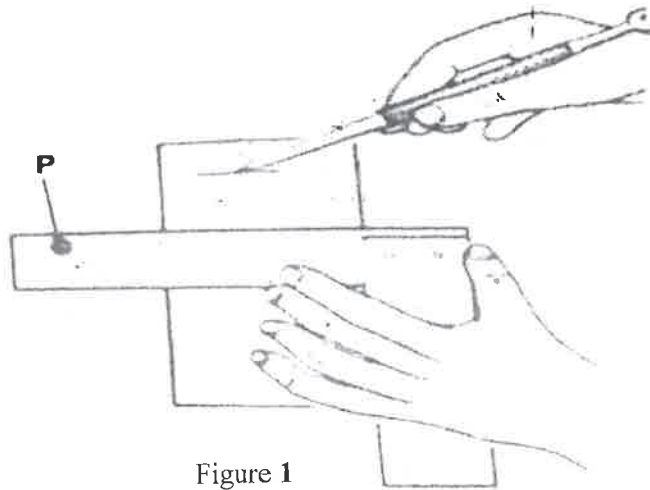


Figure 1

- (i) State the operation being carried out.
- (ii) Name the tool labelled P.
- (iii) State **one** reason for cleaning the tools after use.

[25 marks]

3. Figure 2 shows the isometric view of a wooden stand.  
Use it to answer questions 3(a) and 3(b).

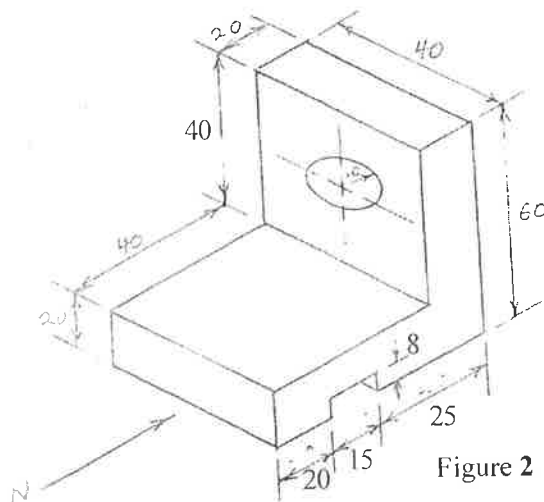


Figure 2

- (a)
  - (i) Draw a full size of the front view in First Angle Orthographic Projection in the direction of arrow N.
  - (ii) Draw full size, the plan.
- (b)
  - (i) List **two** types of timber that would be used to produce the stand.
  - (ii) List **two** tools to be used to perform **each** of the following operations:
    - (α) marking out the circular hole;
    - (β) cutting the circular hole.

[25 marks]

4. Figure 3 shows the sketch of a circuit diagram.  
Use it to answer question 4(a).

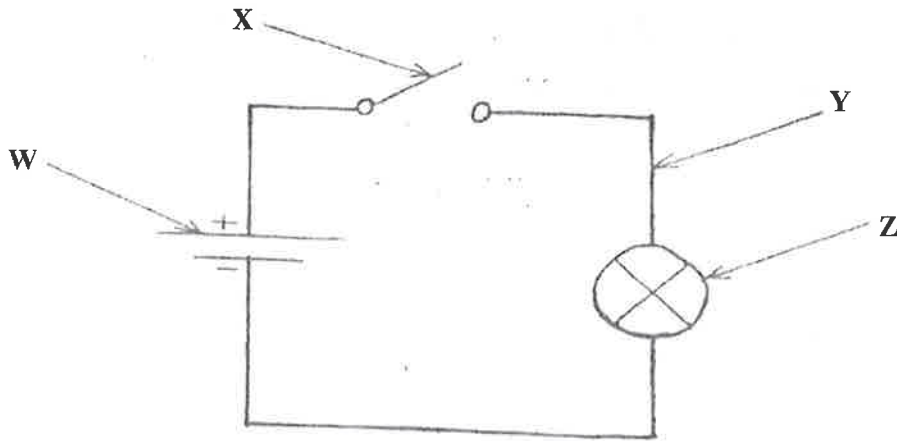


Figure 3

- (a) (i) Write the names of the components labelled **W**, **X**, **Y** and **Z**.  
(ii) State the uses of the components labelled **W** and **X**.
- (b) Make a freehand pictorial sketch of the round wire nail and label any **two** parts on the sketch.
- (c) State **two** reasons for using flux in a soldering process.
- (d) State any **two** ways of keeping the workshop tidy.

[25 marks]

***END OF ESSAY TEST***

# DO NOT TURN OVER THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

## YOU WILL BE PENALIZED SEVERELY IF YOU ARE FOUND LOOKING AT THE NEXT PAGE BEFORE YOU ARE TOLD TO DO SO.

PAPER 1  
OBJECTIVE TEST

40 minutes

Answer all the questions on your Objective Test answer sheet.

1. Use 2B pencil throughout.
2. On the pre-printed answer sheet, check that the following details are **correctly** printed:  
Your **surname** followed by your **other names**, the *Subject Name*, your *Index Number*, *Centre Number* and the *Paper Code*.
3. In the boxes marked *Candidate Number*, *Centre Number* and *Paper Code*, **reshade** each of the shaded spaces.
4. An example is given below. This is for a female candidate whose name is Dora Afi SULE. Her *index number* is 772384188 and she is writing the examination at *Centre Number* 77234. She is offering *Pre-Tech Skills 1* and the *Paper Code* is 0541.

### THE WEST AFRICAN EXAMINATIONS COUNCIL, GHANA BASIC EDUCATION CERTIFICATE EXAMINATION OBJECTIVE ANSWER SHEET

CANDIDATE NAME: <b>SULE DORA AFI</b>	SUBJECT NAME: <b>PRE-TECH SKILLS 1</b>
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- |   |   |
|---|---|
| 1. Use 2B pencil. Press firmly.   | 4. your first mark completely.  |
| 2. Answer each question by choosing one letter and then, shade through the letter chosen like this: A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> | 5. If only four alternative answers are given for each question, ignore the letter E. |
| 3. If you want to change an answer, erase   | Your question paper may have fewer than 60 questions.                                 |

CANDIDATE NUMBER	CENTRE NUMBER	PAPER CODE	For Supervisors only. If candidate is absent shade this space.
<b>7 7 2 3 8 4 1 8 8</b>	<b>7 7 2 3 4</b>	<b>0 5 4 1</b>	
0 0 0 0 0 0 0 0 0	0 0 0 0 0	0 0 0 0	
1 1 1 1 1 1 1 1 1	1 1 1 1 1	1 1 1 1	
2 2 2 2 2 2 2 2 2	2 2 2 2 2	2 2 2 2	
3 3 3 3 3 3 3 3 3	3 3 3 3 3	3 3 3 3	
4 4 4 4 4 4 4 4 4	4 4 4 4 4	4 4 4 4	
5 5 5 5 5 5 5 5 5	5 5 5 5 5	5 5 5 5	
6 6 6 6 6 6 6 6 6	6 6 6 6 6	6 6 6 6	
7 7 7 7 7 7 7 7 7	7 7 7 7 7	7 7 7 7	
8 8 8 8 8 8 8 8 8	8 8 8 8 8	8 8 8 8	
9 9 9 9 9 9 9 9 9	9 9 9 9 9	9 9 9 9	



Answer all the questions.

Each question is followed by four options lettered A to D. Find the **correct** option for each question and shade in **pencil** on your answer sheet the answer space which bears the same letter as the option you have chosen. Give only **one** answer to **each** question. An example is given below.

Tools are oiled after use to

- A. ensure they remain accurate.
- B. prevent them from rusting.
- C. preserve the cutting edges.
- D. maintain their attractiveness.

The correct answer is prevent them from rusting which is lettered B and therefore answer space B would be shaded.

A  B

C

D

Think carefully before you shade the answer spaces; erase completely any answer you wish to change.

Do all rough work on this question paper.

Now answer the following questions.

1. The **first** stage in problem identification in the design process is
  - A. analysis.
  - B. brief.
  - C. situation.
  - D. specification.
2. The statement, *the device should be produced in a day* is a design specification on
  - A. aesthetics.
  - B. construction.
  - C. economics.
  - D. ergonomics.
3. Ideas generated from which a designer selects the **best** idea to solve a design problem is
  - A. detailed drawings.
  - B. final solutions.
  - C. orthographic projections.
  - D. possible solutions.
4. Which of the following is **true** about a cylinder? It has
  - A. a diagonal.
  - B. a slant height.
  - C. a vertical height.
  - D. an apex.
5. It is not advisable to touch electrical appliances with wet hands because water is a
  - A. good conductor of electricity.
  - B. good conductor of heat.
  - C. poor conductor of electricity.
  - D. poor conductor of heat.
6. The electrical component that protects an appliance from high current is a
  - A. capacitor.
  - B. fuse.
  - C. LED.
  - D. resistor.
7. The **most** common method for preserving fish for sale throughout Ghana is
  - A. smoking.
  - B. freezing.
  - C. drying.
  - D. salting.
8. Grounded local material used to remove stains from the surface of kitchen equipment are termed
  - A. detergent.
  - B. abrasives.
  - C. bleaches.
  - D. cleaners.

9. Using portion control in meal service helps to
- improve table manners.
  - make meals appetizing.
  - prevent waste.
  - save time.
10. Fine sifted wood ash is used for removing stains from
- galvanized iron buckets.
  - aluminium saucepans.
  - wooden surface.
  - water jug.
11. An object is said to be below eye level when it is seen from the
- top.
  - bottom.
  - left.
  - right.
12. Shading is intended to make a drawing
- bigger.
  - flat.
  - neat.
  - real.
13. When a colour is mixed with white, it becomes
- neutral.
  - complementary.
  - shaded.
  - tinted.
14. Identify a design principle that suggests movement from the following options.
- Contrast
  - Balance
  - Rhythm
  - Unity
15. What are the **two major** types of exhibition?
- Open and Closed
  - Outdoor and Indoor
  - District and National
  - General and Specific
16. The type of drawing which uses vanishing points is
- isometric.
  - oblique.
  - orthographic.
  - perspective.
17. Which of the following materials helps to reduce shrinkage in mortar?
- Cement
  - Lime
  - Sand
  - Water
18. Which part of firmer chisel fits into the handle?
- Ferrule
  - Shoulder
  - Tang
  - Washer

Use, Figure 1 to answer, questions 19 and 20.

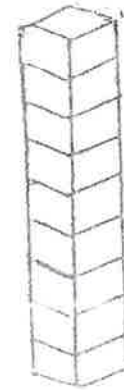


Figure 1

19. The tool is a
- folding rule.
  - gauge rod.
  - spirit level.
  - straight edge.
20. The tool is used for
- checking straightness of walls.
  - levelling walls.
  - measuring the courses of walls.
  - plumbing walls.

Use, Figure 2 to answer questions 21 and 22.

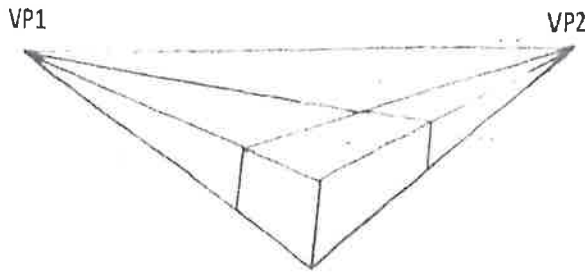


Figure 2

21. The object is sketched in
- isometric.
  - oblique.
  - one-point perspective.
  - two-point perspective.
22. The line joining VP1 and VP2 is called
- continuous thick.
  - horizon.
  - horizontal.
  - long chain.
23. The tool used to produce a circular hole in metal is a
- chisel.
  - drill.
  - scriber.
  - tap.
24. The brace is used for
- boring holes in wood.
  - drilling holes in bricks.
  - drilling holes in metals.
  - filing curves in wood.
25. Which of the following tools is used together with the club hammer to cut blocks?
- Bolster
  - Float
  - Mallet
  - Trowel
26. Which of the following metals is a ferrous material?
- Aluminium
  - Cast iron
  - Copper
  - Soft solder

27. The ratio 1 : 4 in mortar mix stands for
- 1 headpan of sand to 4 headpans of cement.
  - 1 headpan of water to 4 headpans of sand.
  - 1 headpan of cement to 4 headpans of water.
  - 1 headpan of cement to 4 headpans of sand.



Figure 3

28. The electrical symbol shown in Figure 3 is a
- battery.
  - bell.
  - cell.
  - switch.
29. In perspective drawing, objects that are nearer the viewer appear to be
- larger.
  - lighter.
  - narrower.
  - smaller.
30. A safety precaution to be observed when using an electronic appliance is
- overloading socket outlet.
  - plugging the appliance before cleaning.
  - switching off appliance after use.
  - using the appliance before reading instructions.

**END OF PAPER**