

**054/2 & 1 AKWAABA MOCK**

July 2020

**BASIC DESIGN AND  
TECHNOLOGY**

(PRE-TECH. SKILLS)

**Essay and Objective**

1 hours 55 minutes

**2&1**

Name:.....

Index Number:.....

## **YOUR STEP ASSESSMENT CONSULT**

### **AKWAABA MOCK**

July 2020

**BASIC DESIGN AND TECHNOLOGY**

1 hour 55 minutes

(PRE-TECH. SKILLS 2 &1)

[100 marks]

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

*This booklet consist 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.*

## Essay

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

1. (a) Pupils of Flagstaff House Basic School finds it difficult to keep their materials such as pencils, erasers, clips and sharpeners during graphic communication.

- i. Write a design brief on the situation above.
- ii. State two analysis questions each on the following
  - a. Function
  - b. Materials
- iii. State two ways by which data obtained can be recorded.
- iv. Write two specifications each on the following
  - a. Economics
  - b. Ergonomics
- v. Draw your final solution in isometric form

(b)

- i. Explain the term principles of design.
- ii. List six career opportunities in Visual Communication
- iii. List the colours of the spectrum.

(c)

- i. Define food spoilage
- ii. List the three main causes of food spoilage.
- iii. Give two methods of storing food
- iv. Define food preservation.
- v. Identify two ways of drying food as a method of preservation.

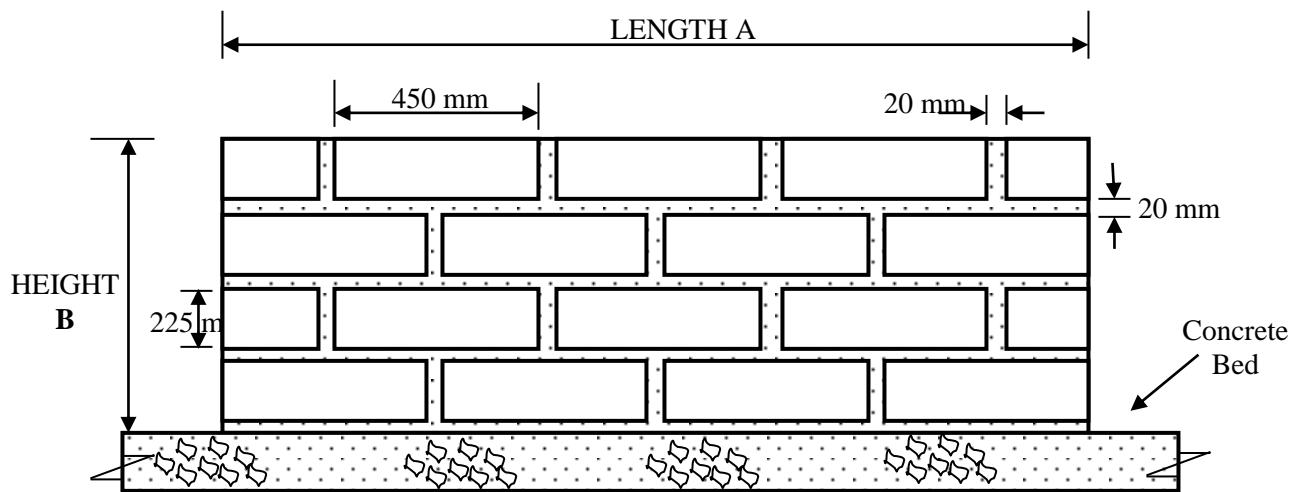
## SECTION B

[50 marks]

*Answer **two** questions **only** from this section.**All questions carry equal marks.*

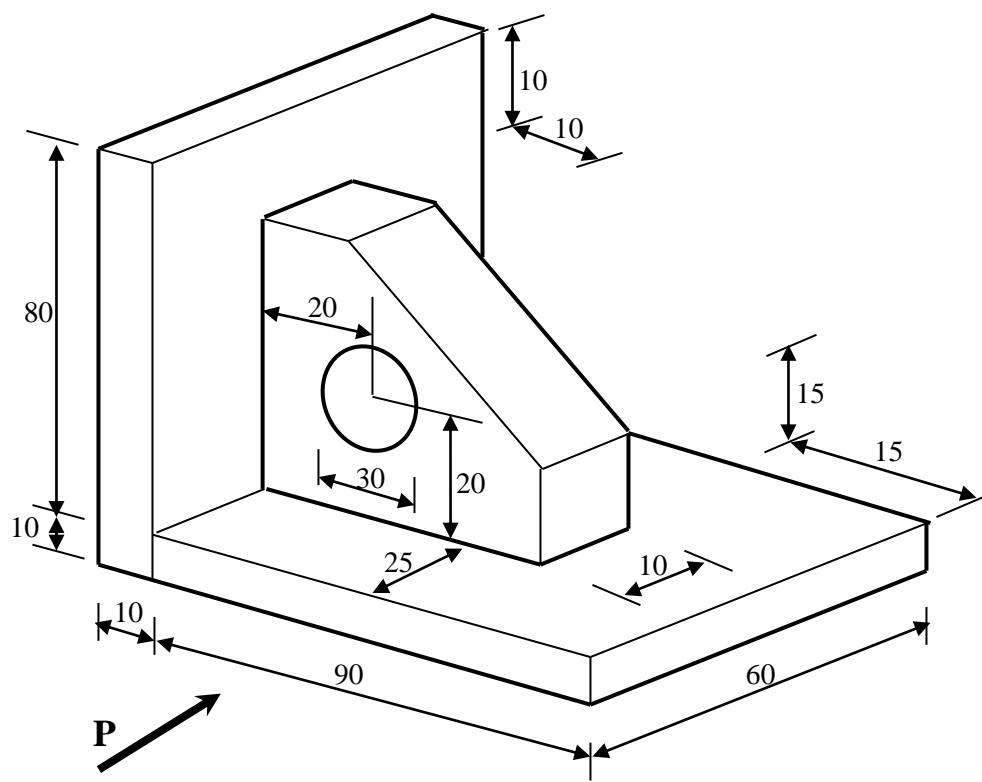
2.

The sketch below shows a block wall built on a concrete bed.



- (a) State **six** steps involved in building the first course of the wall in the school practical shop.
- (b) Name **four** laying tools used for building the wall.
- (c) Calculate:
  - i. Length **A** of the wall
  - ii. Height **B** of the wall
  - iii. Total area of the wall
- (d) Make a pictorial sketch of the tool used for picking and spreading mortar and label it.

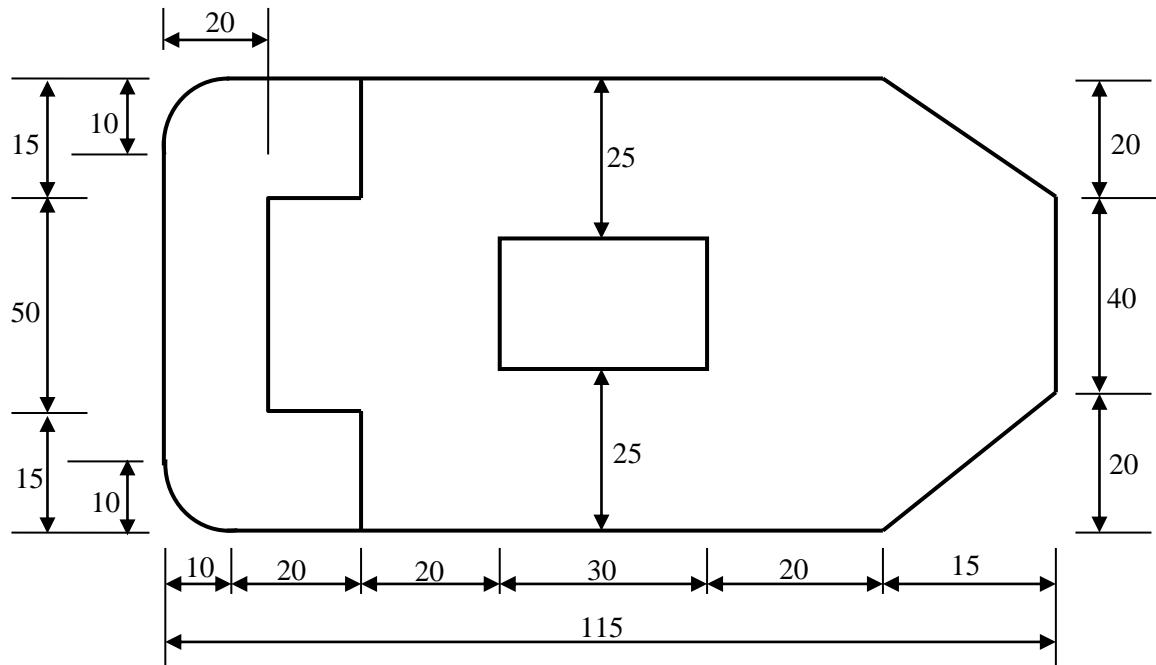
3. The sketch below shows a sketch of a typical wooden block.



- (a) Draw full size, the front elevation in the direction of arrow P.
- (b)
  - i. Mention four tools needed to make the artefact.
  - ii. List two suitable joints that can be used in making the unit.
- (c) List four steps involved to repair weak joints of a wooden furniture.
- (d)
  - i. Make a free hand pictorial sketch of a firmer chisel.
  - ii. Label any two parts of the tool mention above in 3di.

4. (a) i. Make a free hand sketch of a *cold chisel*.  
 ii. Label any **two** parts of the sketch in 4ai.

(b) The figure below shows a template to be produced from 3mm thick mild steel in the workshop.



i. Draw the given figure in full size  
 ii. *Rearrange the following steps in sequential order for making the template*

- I. Remove all burrs
- II. Dot punch all marked lines
- III. Coat the surface of the work piece
- IV. Mark out the shape of template
- V. Mark out datum line and dot punch it
- VI. Cut all unwanted parts and file to size

(c) i. State **two** tools required in making-out the shape  
 ii. Name **two** tools used to cut to size and shape.

(d) i. State **two** ways of detecting electrical faults.  
 ii. List **two** tools for repairing faults on electrical appliances

**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 Objective Answer Sheet, write the following details all **correctly**;  
Your **surname** followed by **other names**, *Subject Name*, your *Index Number*, *Centre Number* and *Paper Code*.
3. In the boxes marked *Candidate Number*, *Centre Number* and *Paper Code*, shade each of the numbers correspondingly.
4. An example is given below. This is for a candidate whose name is Farouq Sessah Mensah. His *index number* is 0301019042 and he is writing the examination at *Centre Number* 30106. He is offering *Pre-Tech Skills 1* and the *Paper Code* is 0542.

## YOUR STEP ASSESSMENT CONSULT OBJECTIVE ANSWER SHEET

CANDIDATE NAME: MENSAH SESSAH FAROUQ	SUBJECT: PRE-TEC SKILLS 1
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1. Use 2B Pencil, Press firmly.
2. Answer each question by choosing one letter and then, shade through the letter chosen like this **C****A** **B** **C** **D** **E**
3. If you want to change an answer, erase
4. If only four alternative answers are given for each question, ignore the letter E.
5. Your question paper may have fewer than 60 questions.

CANDIDATE NUMBER									
0	3	0	1	0	1	9	0	4	2
■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■
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c1	c1	c1	c1	c1	c1	c1	c1	c1	c1
c2	c2	c2	c2	c2	c2	c2	c2	c2	c2
c3	c3	c3	c3	c3	c3	c3	c3	c3	c3
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c5	c5	c5	c5	c5	c5	c5	c5	c5	c5
c6	c6	c6	c6	c6	c6	c6	c6	c6	c6
c7	c7	c7	c7	c7	c7	c7	c7	c7	c7
c8	c8	c8	c8	c8	c8	c8	c8	c8	c8
c9	c9	c9	c9	c9	c9	c9	c9	c9	c9

CENTRE NUMBER					
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PAPER CODE				
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c6	c6	c6	c6	
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c8	c8	c8	c8	
c9	c9	c9	c9	

For  
Supervisors  
Only  
  
If  
candidate  
is absent  
shade  
this  
space



*Answer all 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 edge
- 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.*

<p>1. The part of a tree where timber is obtained is known as</p> <ul style="list-style-type: none"> <li>A. crown</li> <li>B. root</li> <li>C. trunk</li> <li>D. sapwood</li> </ul>	<p>4. The type of line used for irregular boundary lines is called.....</p> <ul style="list-style-type: none"> <li>A. short dashes</li> <li>B. wavy lines</li> <li>C. hatching lines</li> <li>D. centre lines</li> </ul>
<p>2. Finishes can be classified according to the following, <i>except</i></p> <ul style="list-style-type: none"> <li>A. abrasive coating</li> <li>B. opaque coating</li> <li>C. clear coating</li> <li>D. penetrating coating</li> </ul>	<p>5. The blast furnace is used to produce.....</p> <ul style="list-style-type: none"> <li>A. iron ore</li> <li>B. cast iron</li> <li>C. steel</li> <li>D. pig iron</li> </ul>
<p>3. One of the following is a method used for recording data.</p> <ul style="list-style-type: none"> <li>A. literature searching</li> <li>B. taking note</li> <li>C. visiting the workshop</li> <li>D. observation</li> </ul>	<p>6. What is worn to protect the hand against poisonous substances?</p> <ul style="list-style-type: none"> <li>A. stout shoe</li> <li>B. goggles</li> <li>C. helmet</li> <li>D. gloves</li> </ul>

7. Name the tool used for turning bolt and nuts

- spanner
- pincers
- crowbar
- screw drives

8. The way of ensuring that equipment is protected from being damaged is termed as.....

- seasoning
- crowbar
- safety
- evaluate

9. Which of the following solids is an example of a pyramid?

- cuboid
- cone
- cube
- cylinder

10. Which of the following hammers is used for striking and removing nails?

- claw hammer
- crowbar
- Warrington hammer
- ball pein hammer

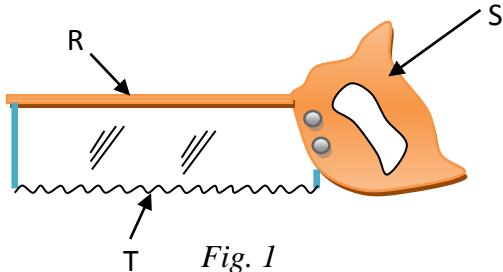
11. Which of the following is a/an thermosetting plastic?

- cistern
- suitcase
- watch face
- plug

12. The standard unit for measuring distances is

- grammes
- litre
- degree
- metre

Use Fig 1 below to answer questions 13 – 15



13. The tool in fig 1 shows

- hacksaw
- ripsaw
- backsaw
- bow saw

14. The part labelled **R** is called.....

- back rail
- back stiffener
- cutting edge
- straight back

15. The part labelled **T** is made of.....

- teeth
- handle
- nuts
- edge

16. Copper is obtained from.....

- galena
- pyrites
- bauxites
- tinstone

17. Which of the following stages in the designing process requires working?

- generating solution
- specification
- evaluation
- presenting find solution

18. The centre of a tree is known as.....

- bark
- bast
- pith
- cambium layer

19. An alloy of tin, lead and antimony produce....

- paint
- flux
- P.V.A
- solder

20. The process of assessing worth of an existing artifact is termed as.....

- realization
- specification
- evaluation
- investigation

21. For a designer to take into consideration the cost of materials for intended artifact he/she should consider.

- ergonomics
- construction
- aesthetics
- economic

22. The observation PVA means

- Polyvitae acetate
- polyvitamin action
- polyvinyl acetate
- polyvinyl chloride

23. A disorder of the body resulting from an incorrect or less intake of the required nutrients is known as

- anorexia
- under nutrition
- malnutrition
- illness

24. Proteins that have a high biological value are called.....

- amino acids
- complementary proteins
- vegetable proteins
- complete proteins

25. All the following are fat soluble vitamins *except*.....

- B and C
- D and E
- K and D
- A and K

26. Which of these mineral elements is found in toothpaste?

- fluorine
- folic acid
- magnesium
- potassium

Use the figure below to answer Questions 27 and 28.

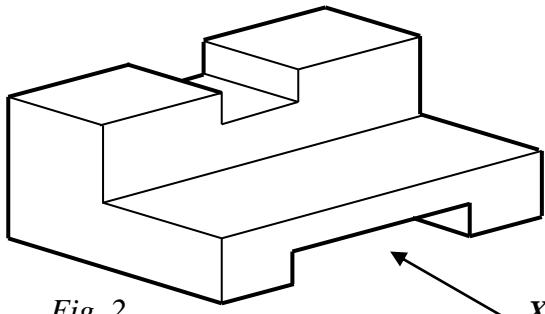
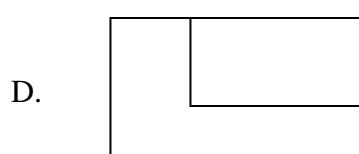
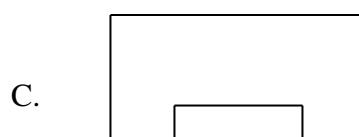
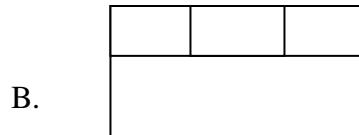
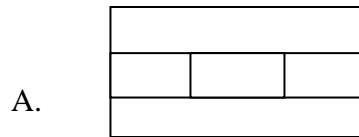


Fig. 2

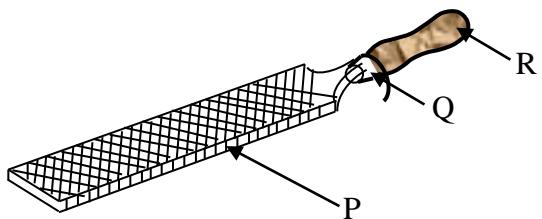
27. The object in fig 2 is drawn in

- pictorial form
- orthographic form
- sectional view
- surface development

28. Which of the following represents the plan of the looking in the direction of X.



Use the figure below to answer Questions 29 and 30.



29. The part arrowed **P** in fig 3 is known as

- A. edge
- B. ferrule
- C. handle
- D. tang

30. The part in fig 3 above labelled **Q** is the

- A. ferrule
- B. shank
- C. teeth
- D. handle

**END OF PAPER**