

June 2016

## BASIC DESIGN AND TECHNOLOGY 1

### (Pre-Technical Skills 1)

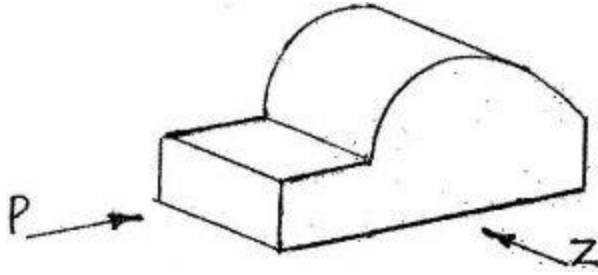
Objective Test

40 minutes

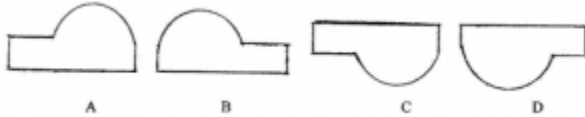
1. The basic stitch which starts all crocheted articles is
  - A. chain
  - B. cross
  - C. loop
  - D. stem
  
2. A glass is best used to serve
  - A. cream
  - B. drinks
  - C. ice-cream
  - D. yoghurt
  
3. Which of the following is inexpensive to use in the rural area?
  - A. Coal pot
  - B. Electric cooker
  - C. Gas cooker
  - D. Kerosene stove
  
4. The visitors book signed at exhibitions help the exhibitor to know
  - A. the number of people who came
  - B. how many works were sold
  - C. the number of people who showed interest
  - D. what people observed about the work
  
5. In drawing, objects nearer the viewer are in the
  - A. background
  - B. foreground
  - C. horizon
  - D. middle ground

Use the sketch in Figure 1 to answer Questions 6 and 7

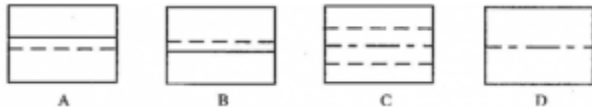
Figure 1



6. Which of the following represents the front elevation in the direction of arrow Z?



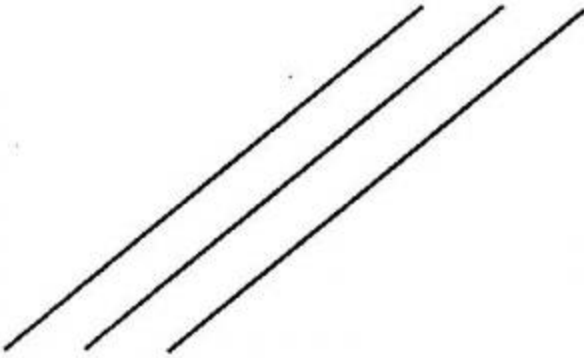
7. Which of the following represents the left end elevation in the direction of P?



8. Rhythm, balance and emphasis are

- A. design processes
- B. elements of art
- C. idea developments
- D. principles of design

9.



The lines drawn above are

- A. diagonal
- B. parallel
- C. vertical
- D. zigzag

10. The final stage of the design process is the

- A. evaluation
- B. possible solutions
- C. specification
- D. working drawings

11. Which of the following is not a method of recording a data for solving a design problem?

- A. Observation
- B. Photographs
- C. Sketches
- D. Write-up

12. Which of the following joints will be suitable for a chair to be dismantled and reassembled?

- A. Nail lap joint
- B. Glued butt joint
- C. Glued screw joint
- D. Bolt and nut

13.

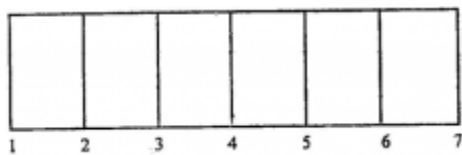


Figure 2

Figure 2 shows the surface development of a

- A. cylinder
- B. hexagonal prism
- C. hexagonal pyramid
- D. square prism

14. Select a shading style from the following options

- A. Glazing
- B. Hatching
- C. Sgraffito
- D. Sketching

15. A formal outlet for raising money to start a sewing business is

- A. a family member
- B. a rural bank
- C. money lenders
- D. the susuman

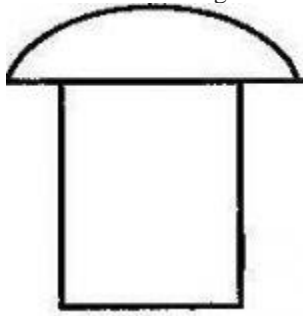
16. The tool for compacting mortar in a mould box is a

- A. gauge rod
- B. mallet
- C. rammer
- D. tamping rod

17. Which of the following tools is suitable for pairing in wood?

- A. Cross-cut chisel
- B. Firmer chisel
- C. Flat chisel
- D. Mortise chisel

18. The sketch in Figure 3 shows a rivet with



**Figure 3**

- A. countersunk head
- B. flat head
- C. pan head
- D. snap head

19. Which of the following plastics is most suitable for making insulators?

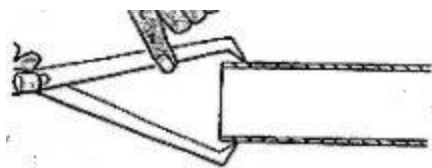
- A. Acrylic
- B. Polyester resin
- C. Polyvinyl chloride
- D. Nylon

20. The main difference between bricks and blocks is that

- A. bricks are smaller than blocks
- B. blocks are smaller than bricks
- C. bricks are made of clay
- D. blocks are made of laterite

21. Which of the following protective clothing is used to protect the eyes when grinding a cold chisel?

- A. Gloves
- B. Goggles
- C. Helmet
- D. Mask



**Figure 4**

Use the sketch in Figure 4 to answer questions 22 and 23

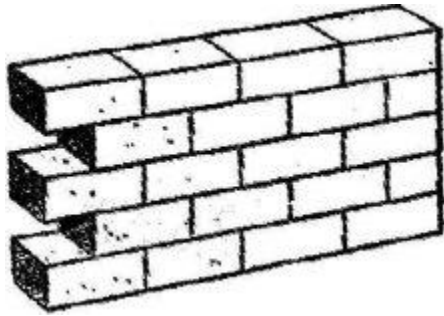
22. The figure shows the process of

- A. checking internal diameter of a workpiece
- B. checking external diameter of a workpiece.
- C. drawing a circle on a workpiece
- D. measuring the length of a workpiece.

23. The tool being used for the operation is

- A. inside calliper
- B. odd leg caliper

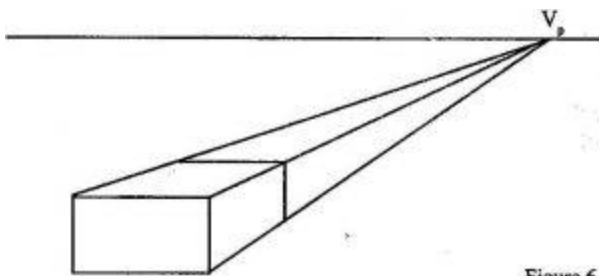
- C. outside caliper
- D. veneer caliper



**Figure 5**

Use the sketch in figure 5 to answer Questions 24 and 25

24. The sketch shows a
- A. 4 course wall
  - B. 5 course wall
  - C. 6 course wall
  - D. 7 course wall
25. The method for future continuation of the wall shown is
- A. block indent
  - B. bonding
  - C. racking back
  - D. toothing
26. Electrical parts are covered with plastic materials for
- A. insulating against shock
  - B. outside decoration of parts
  - C. protection against rust
  - D. improvement in conductivity
27. Turpentine is a type of
- A. abrasive
  - B. adhesive
  - C. aggregate
  - D. finish



**Figure 6**

28. The methods of drawing objects in pictorial form are
- I. Isometric
  - II. Oblique
  - III. Orthographic
- A. I and II only
  - B. I, II and III

- C. I and III only
- D. II and III only

29. The drawing shown in Figure 6 is a/an

- A. one-point perspective
- B. two-point perspective
- C. orthographic projection
- D. isometric projection

30. The soft solder is an alloy of

- A. lead and zinc
- B. lead and tin
- C. tin and zinc
- D. zinc and copper

# BASIC DESIGN AND TECHNOLOGY 2

## (Pre-Technical Skills 2)

### Essay

1 hour 15 minutes

#### SECTION A

(CORE SKILLS)

[20 marks]

#### Answer question 1 [COMPULSORY]

1. (a) List **four** stitches that can be used for neatening as well as embroidery work.  
[4 marks]
- (b) List **four** dishes which are easily contaminated [2 marks]
- (c)(i) List **three** sources where information can be obtained to solve design problems [3 marks]
- (ii) List **two** methods of drawing objects in pictorial views. [2 marks]
- (iii) List **two** causes of weaknesses in wooden chairs. [2 marks]
- (d)(i) State **one** use of **each** of the elements listed below in a design
  1. Shape:
  2. Colour
  3. Space:
  4. Texture:[4 marks]
- (ii) Explain what a sketch is. [2 marks]
- (iii) State **one** reason why it is necessary to use a sketch when producing an object [1 marks]

#### SECTION B

[50 marks]

Answer **two** questions **only** from this section

All questions carry equal marks

2. Figure 1 shows the front elevation and plan of an object made from a mild steel sheet.

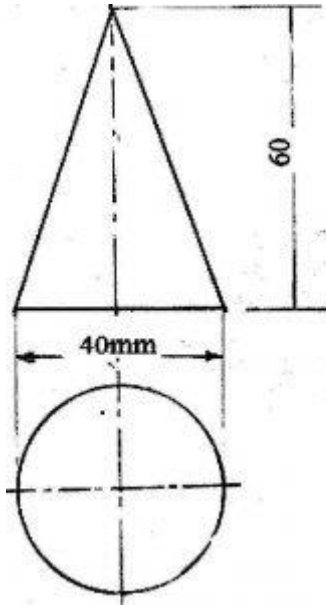


Figure 1

- Draw full size the following:
  - front elevation
  - plan
  - surface development
  
- (i) State the name of the object shown in Figure 1
- (ii) List **two** tools used for cutting the mild steel sheet.
  
- (i) Make a freehand pictorial sketch of a try square.
- (ii) Indicate and label any **two** parts of the try square sketched in question 2(c)(i) [25 marks]
  
- 3. (a) List **two** tools **each** used in carrying out the following operations in blockwork:
  - laying
  - setting out.
  
- (b) (i) Make a freehand pictorial sketch of a spade
- (ii) Indicate and label any two parts of the spade sketched in question 3b(i)
  
- (c) (i) State **one** use of the tenon saw.
- (ii) State **one** way of maintaining the tenon saw.
- (d) Sketch the representative symbol for **each** of the following electrical components:
  - (i) switch
  - (ii) battery.
  
- (e) Copy and complete the table below:

<i>Material</i>	<i>One Property</i>	<i>One use</i>
(i) Clay		

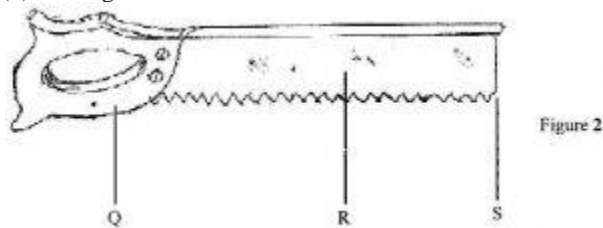
(ii) Wawa		
(iii) Aluminium		

[25 marks]

4. (a) Copy and complete the table below by supplying **one tool each** for **each** of the following operations

<i>Operation</i>	<i>Blockwork</i>	<i>Woodwork</i>	<i>Metalwork</i>
(i) Cutting			
(ii) Measuring			
(iii) Striking			

(b) Figure 2 shows the sketch of a handtool. Use it to answer the following questions:



- Write the name of the tool.
- State **one** use of the tool
- Identify the parts labelled **Q, R** and

(c) State **three** causes of accidents in the workshop

(d) State **one** reason for sprinkling water on sandcrete **blocks**. [25 marks]



Objective Test  
ANSWERS

1. A. chain
2. B. drinks
3. A. Coal pot
4. D. what people observed about the work
5. B. foreground
6. A
7. B
8. D. principles of design
9. B. parallel
10. A. evaluation
11. A. Observation
12. D. Bolt and nut
13. B. hexagonal prism
14. B. Hatching
15. B. a rural bank
16. D. tamping rod
17. B. Firmer chisel
18. D. snap head
19. C. Polyvinyl chloride
20. A. bricks are smaller than blocks
21. B. Goggles
22. B. checking external diameter of a workpiece
23. C. outside caliper
24. B. 5 course wall
25. D. tothing
26. A. insulating against shock
27. D. finish
28. A. I and II only
29. A. one-point perspective
30. B. lead and tin