FORMS 1 & 2  DESIGN & TECHNOLOGY  TIME: 2 hours

Name: _____________________________________      Class: _______________      Set: _____

-----------------------------Note for students of Form 1: -------------------------
You are required to answer all questions in sections A, B and C only.

-----------------------------Note for students of Form 2: -------------------------
You are required to answer all questions in sections A and any other two sections.

FOR TEACHERS' USE ONLY

DISTRIBUTION OF MARKS

<table>
<thead>
<tr>
<th>Areas corrected</th>
<th>Total for Written Exam.</th>
<th>FINAL MARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>RM</td>
<td>E</td>
</tr>
<tr>
<td>Max. Marks</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>Student’s mark</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Enter student’s mark obtained in the areas of study taken in the above table.

D for Design, RM for Resistant Materials, E for Electronics, T for Textiles technology and F for Food technology
1. Which TWO logos are drawn in 3-D?

   Logo (A)  Logo (B)  Logo (C)  Logo (D)

   ![Logos](image1)

   Answer: Logo _______ and Logo _______

   3 marks x 2 = 6 marks

2. Give TWO methods by which we can communicate our ideas for a project to other persons.

   ________________________ and ________________________

   2 marks x 2 = 4 marks

3. Give the meaning of the pictograms shown below.

   (i) __________________________________________________________
   (ii) _________________________________________________________
   (iii) _________________________________________________________
   (iv) _________________________________________________________

   2 marks x 4 = 8 marks

4. Use the following words to fill in the missing stages of the Design Process.

   - Chosen Idea   - Specification   - Development   - Design Brief

<table>
<thead>
<tr>
<th>DESIGN PROCESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

   2 marks x 4 = 8 marks
5. State TWO sources, from where you can get information when doing research for a project.

___________________________ and ________________________

2 marks x 2 = 4 marks

6. Underline the keywords in the following design brief.

Design Brief:
DESIGN AND MAKE A PLASTIC CASE TO PROTECT A MOBILE PHONE WHEN GOING ON A BEACH.

1 mark x 3 = 3 marks

7. Mention TWO factors that a mobile phone needs to be protected from, when you are on the beach.

___________________________________________________ __________________________

___________________________________________________ __________________________

3 marks x 2 = 6 marks

8. Give TWO reasons why the above design brief is asking for the mobile phone case to be made out of plastic.

___________________________________________________ __________________________

___________________________________________________ __________________________

3 marks x 2 = 6 marks

9. Use the given words to fill in correctly, the blank spaces of the following statements.

• research • environment • solve • ideas • safety

a) In a design process, the situation presents a problem which we will try to _____________.

b) One way of doing ________________ is by using the internet.

c) Good designers consider the effects on the ________________ when designing a product.

d) In D&T laboratories we should obey ________________ signs and instructions.

e) After research we look for ________________ to see how a problem can be solved.

1 mark x 5 = 5 marks

------------------------- END OF SECTION ‘A’ ----------------------------
10. Name TWO types of manufactured (man-made) boards.
   ___________________________ and ___________________________
   2 marks x 2 = 4 marks

11. List TWO safety precautions that should be observed when using a bench drill.
   _____________________________________________________________
   _____________________________________________________________
   2 marks x 2 = 4 marks

12. Give the name of each tool shown below.
   a) _______________________________ 
   b) _______________________________
   c) _______________________________
   d) _______________________________
   1 mark x 4 = 4 marks

13. Name TWO types of finish used on wood.
   ___________________________ and _____________________________
   2 marks x 2 = 4 marks

14. Finish off the following statements.
   An alloy is a ___________________________ of metals to form a new metal.
   One type of non-ferrous metal is ____________________________.
   Brass is made up by a mixture of copper and __________________________.
   Plastics that are formed only once are called __________________________.
   Plastics like Acrylic, Polystyrene and PET are all types of _____________________.
   1 mark x 5 = 5 marks
15. Mention ONE type of glue used to join wood.

____________________________________

2 marks

16. What type of glue is used to join PVC?

____________________________________

2 marks
17. State the tool required for each of the following tasks.

<table>
<thead>
<tr>
<th>Job description</th>
<th>Tool required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting wire terminals to the required length</td>
<td></td>
</tr>
<tr>
<td>Stripping end of wires for soldering</td>
<td></td>
</tr>
</tbody>
</table>

2 marks x 2 = 4 marks

18. List TWO safety precautions that should be taken when soldering electronic components.

_____________________________________________________________________________________

_____________________________________________________________________________________

2 marks x 2 = 4 marks

19. a) Name TWO materials that are good electrical conductors.

________________________________________ and _________________________

1 mark x 2 = 2 marks

b) Name TWO materials that are good electrical insulators.

________________________________________ and _________________________

1 mark x 2 = 2 marks

20. Draw the symbol of each of the following components.

<table>
<thead>
<tr>
<th>Component</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
<td></td>
</tr>
<tr>
<td>Fixed Resistor</td>
<td></td>
</tr>
</tbody>
</table>

1 mark x 2 = 2 marks

21. The diagram on the right shows an LED.

Mark on the diagram which terminal is positive and which terminal is negative.

1 mark x 2 = 2 marks
22. Draw the symbol of the following switches.

<table>
<thead>
<tr>
<th>Switch</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single pole single throw switch</td>
<td></td>
</tr>
<tr>
<td>Push to make switch</td>
<td></td>
</tr>
</tbody>
</table>

1 mark x 2 = 2 marks

23. Three resistors are connected in series as shown below. Calculate the total resistance in ohms.

\[
\begin{align*}
(R_1) & \quad 350 \, \Omega \\
(R_2) & \quad 1000 \, \Omega \\
(R_3) & \quad 1000 \, \Omega
\end{align*}
\]

Total Resistance = _________________ ohms

2 marks

24. Draw the circuit diagram for two lamps connected in series to a 6 volt battery.

Use a ruler for drawing your lines straight.

5 marks
25. For which foods are the following chopping boards used?
   a) Green chopping board: _____________________________
   b) Red chopping board: _____________________________
   c) White chopping board: ____________________________
   d) Blue chopping board: ____________________________

1 mark x 4 = 4 marks

26. List the FOUR main packaging materials used for packing food.

____________________________ ________________________
____________________________ ________________________

1 mark x 4 = 4 marks

27. Place the following system elements in their correct place.
   • INPUT   • OUTPUT   • PROCESS

| Ingredients | Cooking | Finished product |

1 mark x 3 = 3 marks

28. Draw arrows to match the following foods to their main nutrient.

CEREAL  
MINERALS  
VITAMINS  
CARBOHYDRATES  
FAT  
PROTEIN

1 mark x 5 = 5 marks
29. Fill in the table below with ONE appropriate sensory descriptor for each food characteristic.

<table>
<thead>
<tr>
<th>F O O D C H A R A C T E R I S T I C S</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPEARANCE</td>
</tr>
<tr>
<td>-------------</td>
</tr>
</tbody>
</table>

1 mark x 4 = 4 marks

30. How many daily servings should we eat from each food group?

- Oil, fats and sweets group: ........................................
- Meat and alternatives group: ......................................
- Fruit and vegetables group: .......................................  
- Dairy group: .........................................................
- Grain group: .......................................................  

1 mark x 5 = 5 marks

-------------------------- END OF SECTION ‘D’ --------------------------
31. Here is a list of several types of fibre used in textiles.

- Linen
- Wool
- Polyester
- Silk
- Cotton
- Nylon

a) Which fibres are derived from a plant source? _______________________________

b) Which fibres are derived from an animal source? _______________________________

c) Which fibres are synthetic? _______________________________

1 mark x 6 = 6 marks

32. Select THREE of the following pictures of tools or equipment used in a textiles workshop and state what they are used for.

A                         B                             C                             D                       E

Picture ____: Use: ____________________________________________

Picture ____: Use: ____________________________________________

Picture ____: Use: ____________________________________________

1 mark x 3 = 3 marks

33. a) Name TWO components normally used as fasteners on textile products.

________________________ and ____________________________

2 marks x 2 = 4 marks

b) Give TWO examples of a textiles product that is manufactured by the one-off production method.

_____________________________________________________

_____________________________________________________

2 marks x 2 = 4 marks
34. Give TWO examples of a textile product that is manufactured by the Batch production method.

________________________________________________________________________
________________________________________________________________________

2 marks x 2 = 4 marks

35. List TWO properties that cotton and linen fabrics have in common.

________________________________________________________________________
________________________________________________________________________

2 marks x 2 = 4 marks