FORM 3 (Year 1) DESIGN & TECHNOLOGY TIME: 2 hours

Name: ________________________________ Class: _____________ Set: _____

Note to student: You are required to answer all questions

FOR TEACHERS' USE ONLY

DISTRIBUTION OF MARKS

<table>
<thead>
<tr>
<th>Areas corrected</th>
<th>Marks for Written Exam.</th>
<th>Marks for Design Folio</th>
<th>TOTAL</th>
<th>FINAL MARK</th>
</tr>
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<tbody>
<tr>
<td>D</td>
<td>RM</td>
<td>E</td>
<td>T</td>
<td>F</td>
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<tr>
<td>Max. Marks</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Student’s mark</td>
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</tbody>
</table>

Enter student’s mark obtained in every area of study in the above table.
1. The two pictograms shown here can be seen on various packages. What do they mean?

(i) ________________________________          (ii) _______________________________

4 marks

2. List FOUR details that a working drawing for a project could show.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

4 marks

3. Use the following words to fill in the missing stages of the Design Process.
   • Testing   • Chosen Idea   • Specification   • Design Brief   • Making

<table>
<thead>
<tr>
<th></th>
<th>Situation</th>
<th></th>
<th>2</th>
<th></th>
<th>3</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>2</td>
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<td>3</td>
<td></td>
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<tr>
<td>4</td>
<td></td>
<td>5</td>
<td>Initial Ideas</td>
<td>6</td>
<td></td>
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<tr>
<td>7</td>
<td>Development</td>
<td>8</td>
<td>Planning</td>
<td>9</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td></td>
<td></td>
<td>and</td>
<td>10</td>
<td>and Evaluation</td>
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</tbody>
</table>

5 marks

4. Give ONE reason why designers need a list of specifications before they start to design a product.

________________________________________________________________________

3 marks

5. State TWO methods by which you can communicate ideas for a Design and Technology project to other persons, clearly and easily.

_________________________________________________________ and __________________________________________

2 marks
6. Give ONE example of a product manufactured by "ONE-OFF" production.
_____________________________________________________ 1 mark

7. Give ONE example of a product manufactured by "BATCH" production.
_____________________________________________________ 1 mark

SECTION B: RESISTANT MATERIALS

8. Name TWO types of manufactured boards (man made boards).
_____________________________________________________ and ____________________________________ 4 marks

9. List TWO safety precautions that should be observed when using a saw.
_____________________________________________________ ____________________________________
_____________________________________________________ ____________________________________ 4 marks

10. Draw a neat sketch of the following hand tools: (a) bradawl and (b) flat file.

   (a) Bradawl  (b) Flat file 4 marks

11. Name two types of finish used on wood.
_____________________________________________________ and ____________________________________ 4 marks

12. Finish off the following statements:
   An alloy is a ______________________ of metals to form a new metal.
   One type of non-ferrous metal is ______________________.
   Once formed, thermosetting plastics cannot be reshaped by ______________________.
   One type of thermoplastic plastic is ______________________. 4 marks
13. Draw the symbols of the PNP and NPN bipolar transistors.
   On each symbol indicate the Base, Collector and Emitter of each transistor.

```
| PNP transistor | NPN transistor |
```

6 marks

14. List THREE output devices which can be used in electronics. Indicate the output characteristic for each device. An example has been done for you.

```
<table>
<thead>
<tr>
<th>OUTPUT DEVICE</th>
<th>CHARACTERISTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bell</td>
<td>sound</td>
</tr>
</tbody>
</table>
```

6 marks

15. Give TWO important factors that should be considered when choosing a capacitor for an electronic circuit.

```
________________________________________
________________________________________
```

2 marks

16. Indicate by drawing, how a MULTI-METER should be connected to measure the VOLTAGE across the resistor (R₁) shown in the circuit below.

```
   +V
   |
   R₁
   |
   -V
```

4 marks
17. What unit is used to measure electric current? __________________ 1 mark

18. What unit is used to measure resistance? __________________ 1 mark

19. State TWO precautions related to hygiene before you start any food preparation.

________________________________________________________________________
________________________________________________________________________

4 marks

20. Fill in the blanks by choosing a correct word from the ones given in brackets.
   a) Always keep _____________ food and raw food apart. (cooked – fresh)
   b) Store raw meat and poultry on the _____________ shelf of the refrigerator. (top – bottom)
   c) Keep left over cooked food in the _____________ . (refrigerator – oven)
   d) Bacteria need _____________ and warm conditions to multiply. (dry – moist)

4 marks

21. State the name and use of the kitchen tools shown below.

   a) ![Kitchen tool]
   b) ![Kitchen tool]

<table>
<thead>
<tr>
<th>Name of tool</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
</tr>
</tbody>
</table>

3 marks
22. Tick with a ✓ to show whether the following statements are true or false.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro-organisms are used to produce biotechnological products.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>We can increase our iron intake by drinking milk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proteins regulate our body temperature.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamins and minerals give us energy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yoghurt and milk contains a lot of calcium.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canned fish such as sardines is good source of calcium.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3 marks

23. Fill in the table below to classify the following foods according to the main food group each belongs to.

- Yoghurt  - Fresh apple juice  - Bread  - Lemon squash  - Eggs

<table>
<thead>
<tr>
<th>Food group</th>
<th>Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain</td>
<td></td>
</tr>
<tr>
<td>Fruit and vegetables</td>
<td></td>
</tr>
<tr>
<td>Meat and alternatives</td>
<td></td>
</tr>
<tr>
<td>Dairy</td>
<td></td>
</tr>
<tr>
<td>Fats, oils and sugars</td>
<td></td>
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</tbody>
</table>

5 marks

SECTION E: TEXTILES

24. Many of the tools you use in a textiles workshop have sharp edges or points. State TWO safety precautions to avoid accidents from such tools.

________________________________________________________________________

________________________________________________________________________

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

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
</tr>
</tbody>
</table>

Picture ____: ____________________________________________________________

Picture ____: ____________________________________________________________

Picture ____: ____________________________________________________________

6 marks

26. Here is a list of several types of fibre used in textiles.

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

a) Which fibres are derived from an animal source?
   ____________________________________________________________

b) Which fibres are derived from a plant source?
   ____________________________________________________________

c) Which fibres are synthetic?
   ____________________________________________________________

6 marks

27. Suggest ONE method by which the edge of a fabric can be finished.
   ____________________________________________________________

3 marks

28. Mark the construction of a plain weave, using the checked diagram below.

3 marks