

Design and Technology

General Certificate of Secondary Education

Unit **A534**: Graphics: Technical Aspects of Designing and Making

Mark Scheme for June 2012

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

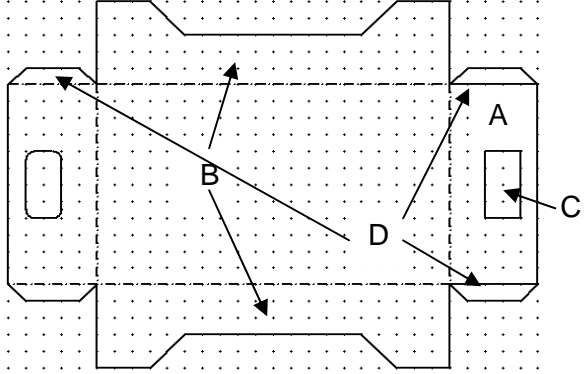
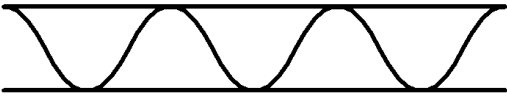
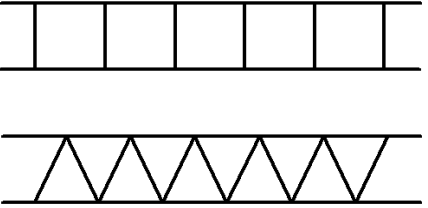
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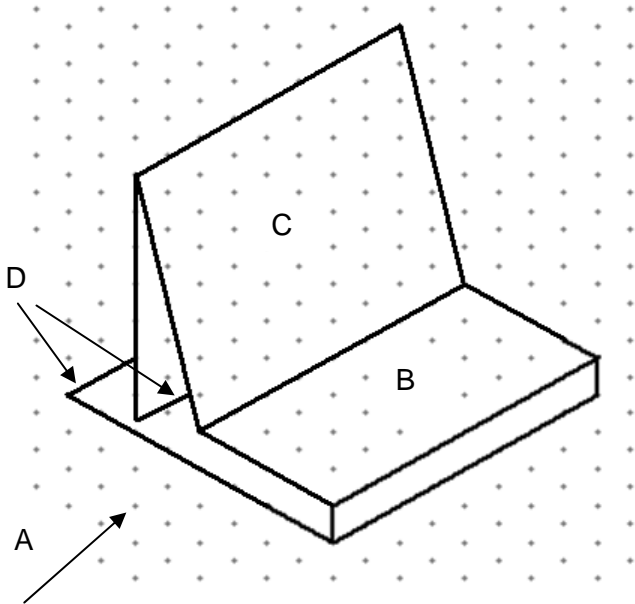
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| Question | Answer | Marks | Guidance |
|--------------|---|-------------------------------------|---|
| <p>1 (a)</p> | <p>Missing end, size, shape & position (A)</p> <p>Both sides correctly added (size, shape & position) - (B)</p> <p>Handle Hole correct size & position on end (C)</p> <p>Three missing glue tabs correctly added (D)</p>  | <p>1</p> <p>1</p> <p>1</p> <p>1</p> | <p>Acceptable answers may be freehand or drawn with a ruler.</p> <p>The last mark glue tabs can be awarded for incorrect sized solutions. Do not award these marks unless three sides have been added. Fold lines do not need to be dotted.</p> <p>Note – if end is drawn over the base ‘0’ mark but sides drawn to candidates solution ie correct depth (5 units) but too short 1 mark)</p> <p>Both sides must be correct shape (include the sloped edges) and be identical.</p> |
| <p>(b)</p> | <p>Award one mark for the upper and bottom layers of card being shown</p> <p>Award one mark for the inner construction (must be waves not zig zag or straight)</p>  | <p>1</p> <p>1</p> | <p>Do not accept:</p>  |
| <p>(c)</p> | <p>A physical property is something such as strength or impact resistance</p> <p>An aesthetic property is concerned with the appearance of the material</p> | <p>1</p> <p>1</p> | <p>Strong, will not tear easily, lightweight, durable, sturdy. rigid, can be folded/bent to shape</p> <p>Accept answers relating to colour, texture, surface finish. eg smooth/rough, easy to print on, can be coloured, looks dull/matt Do not accept any colour other than ‘brown’.</p> |

| Question | | | Answer | Marks | Guidance |
|----------|-----|------|--|-----------|---|
| | (d) | (i) | Cyan Magenta Yellow | 1 | Award one mark for all three colours |
| | | | Key (black) | 1 | Award one mark for 'Key' or 'Key Black' No marks for Black on its own. |
| | | (ii) | Colours are printed one at a time on top of each other | 1 | Accept variations which make it clear that the 3 colours are applied separately (do not accept mixed) |
| | | | Black is added last | 1 | Award second mark for stating that black is added last (not mixed) |
| | | | Total | 12 | |

| Question | | Answer | Marks | Guidance |
|----------|---------|--|------------------|--|
| 2 | (a) |  | 1 1 1 1 | <p>Left hand profile completed (A)</p> <p>Front horizontal face (B)</p> <p>Sloping face (C)</p> <p>Two lines (D)</p> <p>Acceptable answers may be freehand or drawn with a ruler.</p> <p>Vertical line must stop short of the base for last mark to be awarded</p> |
| | (b) (i) | Polypropylene, polyethylene, polyvinyl chloride, acrylic, polystyrene, PVC, HIPS. | 1 | <p>Award the mark for and specifically name thermoplastic.</p> <p>Do not accept any other plastics or acronyms</p> |
| | (ii) | Strip Heater, line bender, hot wire bender/strip heater | 1 | <p>No other answers are acceptable.</p> <p>Do not accept hot wire on it's own</p> |

| Question | | Answer | Marks | Guidance | |
|----------|------|--|-----------|----------|---|
| | | | | Content | Levels of response |
| | (c*) | <p>To be discussed: Choice and preparation of materials considering:</p> <ul style="list-style-type: none"> • economics and cost, • sustainability, • environmental issues • moral and cultural issues <p>Planning production to make best use of:</p> <ul style="list-style-type: none"> • materials • components • equipment • resources (including fuel, energy, and time) • Staffing, training, capability & availability • Quality control • Health and Safety <p><u>Annotation</u></p> <p>Add L1, L2, L3 and add appropriate marks, or for no marks add 'SEEN' and add '0' in box</p> | 6 | | <p>When marking 'level of response' questions, if answers are presented as a list of bullet points then award level 1 maximum and specific mark 0,1 or 2 dependent on quality of list. Do not apply ticks or annotations to 'level of response' questions. mark these by reading all of the answer, decide on an appropriate level then a specific mark.</p> <p>Level 3 (5-6 marks) Thorough discussion, showing detailed understanding of the issues faced by the manufacturer. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.</p> <p>Level 2 (3-4 marks) Identifies and discusses some basic issues. There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured format. There may be occasional errors in spelling, grammar and punctuation.</p> <p>Level 1 (1-2 marks) Discussion shows limited understanding of any issues needing consideration by the manufacturer. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised. Errors of grammar, punctuation and spelling may be intrusive.</p> |
| | | Total | 12 | | |

| Question | | Answer | Marks | Guidance | |
|----------|-----|---|--|--|--|
| 3 | (a) | Minute hand: 100 – 200 | 1 | Allow answers in cm if stated | |
| | | Hour hand: must be shorter than the minute | 1 | | |
| | (b) | Sketch shows a method of joining the Corriflute together | 1 | Split pin type paper fastener, plastic rivet, plastic nut and bolt (not metal), etc. For nut and bolt answer do not overtighten to allow hands to move. | |
| | | Will clearly rotate | 1 | | |
| | (c) | Design of numbers drawn on a CAD package. | 1 | Do not accept Laser cutter | |
| | | Size, style or font of numbers set appropriately | 1 | | |
| | | Coloured vinyl loaded into cutting machine | 1 | | |
| | | A suitable CAM machine named (eg vinyl cutter, Roland CAMM 1, CX34, Stikka or 'plotter cutter') | 1 | | |
| | (d) | Advantages: waterproof, hardwearing, durable, strong, rigid, available in different colours, lightweight. | 1 | Accept variations on these but do not award marks for answers relating to cost or recycling. Do not accept 'easily damaged'. | |
| | | Disadvantages: difficult to cut, put hole in, difficult to re-colour, only strong/bends in one direction, difficult to repair if broken | 1 | | |
| | (e) | (i) | Smaller | 1 | This is the only correct answer |
| | | (ii) | NanoComposites, NanoCrystals, NanoClays, NanoStructured materials, NanoParticles, NanoTubes, glues, packaging, paints, coatings, displays and fabrics, computer chip, health care products | 1 | Award mark for naming the nanotechnology or the product it is used in. |
| | | | Total | 12 | |

| Question | | Answer | Marks | Guidance |
|--------------|---------|---|------------|---|
| 4 | (a) | Made from card | 1 | Made from card |
| | | Forms a star shape | 1 | Package forms a star (4 or more points) |
| | | Clearly shows the word ' <i>SPACE</i> ' on it | 1 | The word is clearly visible |
| | | Closes securely | 2 | Any tab, slot, magnetic strip or Velcro – one mark Locking slot, tab – second mark |
| | | Safely encloses the DVD inside | 1 | The design fully encloses the DVD. (it is fully covered) |
| | (b) | Foil Application, Hot foil, foil printing | 1 | These are the only acceptable answers |
| | (c) | Embossing, Spot Varnishing/spot coating | 1 | These are the only acceptable answers. Do not accept laminating or varnishing on it's own. |
| | (d) (i) | SPACE | 1 | This is the only acceptable answer |
| | (ii) | Others are medieval / script styles which give an old or traditional theme. Most space age looking, easiest for children to read. | 1 | Accept variations providing they state a valid reason for their choice. Award no marks for 'clear' without justification. |
| | (e) | By copyrighting image, this prevents other companies from using the image without the express permission from the DVD manufacturers. Legal action can be brought if the image is used without permission. By copyrighting image the image cannot be used Unless permission is granted by DVD manufacturer | 1 1 | For first mark accept variations so long as copyright is stated and they have made it clear that this protects the image. For second mark accept variations so long as answer shows that using image without permission from DVD manufacturer is then illegal. |
| Total | | | 12 | |

| Question | | Answer | Marks | Guidance |
|----------|-----|---|------------|---|
| 5 | (a) | Weight, instructions, recycling information, barcode, manufacturers address/web address, ingredients, safety warnings, company name, product name, | 2 | Accept any reasonable answer providing it is information. Do not accept symbols with no justification eg e-mark, logo Do not accept 'Price', use by date / sell by date |
| | (b) | To allow the user to see how much of the contents are left, see how much has been used, to see how full the box is. | 1 | Accept variations that focus on seeing how much of the contents remain. Do not accept to show the product inside |
| | (c) | Hot glue gun, contact adhesive, superglue, epoxy glue | 1 | |
| | (d) | The user will have to separate the plastic from the card and place in separate recycling bins. An issue caused by this. eg this makes it difficult to be recycled, the process is made more difficult, the plastic is harder to recycle than the card, some plastics cannot be recycled. | 1 1 | One mark for separating material One mark for the issue detailed or the reason why they need to be separated. |
| | | Total | 12 | |

| Question | | Answer | Marks | Guidance | |
|----------|------|---|-----------|----------|---|
| | | | | Content | Levels of response |
| | (e*) | <p>Key issues to be discussed:</p> <ul style="list-style-type: none"> • User needs – ease of use, suitability. • Display – how will item be displayed in shop. size, weight, shape • Safety – could it be dangerous if dropped / damaged or dangerous to children/animals when disposed of. • Aesthetics – shelf appeal, will it attract buyers, target users. Surface graphics, fonts • Cost – keeping packaging cost as low as possible without loss of quality. • Materials – suitability, durability, properties etc • Environmental – sustainability, recyclability etc • Safety information and other information to be included by law • Transportation • Manufacturing considerations • Ethical, social, cultural issues <p><u>Annotation</u></p> <p>Add L1, L2, L3 and add appropriate marks, or for no marks add 'SEEN' and add '0' in box</p> | 6 | | <p>When marking 'level of response' questions, if answers are presented as a list of bullet points then award level 1 maximum and specific mark 0,1 or 2 dependent on quality of list. Do not apply ticks or annotations to 'level of response' questions. mark these by reading all of the answer, decide on an appropriate level then a specific mark.</p> <p>Level 3 (5-6 marks) Thorough discussion, showing detailed understanding of the issues faced by the designer. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.</p> <p>Level 2 (3-4 marks) Discussion identifies and discusses some basic issues. There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured format. There may be occasional errors in spelling, grammar and punctuation</p> <p>Level 1 (1-2 marks) Discussion shows limited understanding of any issues needing consideration by the designer. There will be little or no use of specialist terms. Answers may be ambiguous or disorganised. Errors of grammar, punctuation and spelling may be intrusive.</p> |
| | | Total | 12 | | |

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