



EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

6902/03

Paper 3 Resistant Materials

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Confidential

MARK SCHEME

{6902/03}

MARKS: 50

This document consists of 5 printed pages

Section A

1. Leather gloves, goggles, apron [1]
2. **A** scribe (1)
B centre square (1) [2]
3. Completed drawing of a tee bridle joint
Award 1 mark for top, 1 mark for lower part, 1 mark for proportion of bottom part [3]
4. **(a)** Acrylic, 'Perspex', polystyrene, ABS [1]
(b) Two properties; easily moulded to shape, weather resistant, inherent colour,
durable, lightweight, transparent (2x1) [2]
5. **(a)** Dovetail nailing [1]
(b) For adding strength, more difficult to separate [1]
(c) Nail punch [1]
6. **(a)** Draw filling [1]
(b) Smoothing/finishing [1]
7. **(a)** Provides firm grip [1]
(b) Centre lathe [1]
Knurling tool/wheels [1]
(c) Dot punch, centre punch, scribe [1]
8. Completed drawing of a tee hinge
Award (0-2) depending on technical accuracy [2]

9.

| Use | Adhesive |
|---|---------------------------|
| wooden boat building | Synthetic resin |
| gluing metal parts together | Epoxy resin |
| Gluing plastic laminate to a manufactured board table top | Impact glue, contact glue |

[3]

- 10. (a)** Press forming, injection, vacuum forming [1]
(b) Acrylic, polystyrene, ABS [1]
- 11. (a)** 2 feature include: Large play surface, appropriate height, curved edges, edges prevent objects rolling off [2]
- (b) (i)** 2 benefits include: quicker, can be used many times, more accurate than Individual marking out, easier to mark out (2x1) [2]
- (ii)** Electrical powered saws include: band saw, jig saw [1]
- (c) (i)** 2 benefits include: better surface finish, easy to work, more consistent structure, relatively cheap material, stable, available in sheet sizes (2x1) [2]
- (ii)** 2 advantages include: more even finish possible, no brush strokes, easier to cover large area (2x1) [2]
- (d) Any two of:** to make the surface more hardwearing, easier to wipe, protect the MDF, improve the appearance [2]
- (e)** Sketch (0-2)
 Additional notes (0-1)
 Accept any view of top and side e.g. end view or 3D
 Accept sketch of one KD fitting for maximum marks
 Can be wooden block – does not have to be a pre-manufactured KD fitting [3]
- (f)** Quality sketch (0-2)
 Relevant joining method (0-1)
 Fitting used (0-1)
 Additional notes (0-1) [5]
- (g)** Quality sketch (0-1)
 Appropriate support method (0-1)
 Additional notes (0-1) [3]
- (h)** some form of hand hold shaped and positioned appropriately (0-2)
 Award 1 mark for any additional detail (0-1) [3]

- 12. (a) (i)** Scribe, engineers try square, rule, odd-leg callipers (2x1) [2]
- (ii)** Three stages:
 Drill hole to insert jig saw, Scroll saw [with metal cutting blade, abrafile, piecing saw
 Chain drilling
 Flat cold chisel
 File flat and smooth
 Award (0-2) marks for each stage shown clearly (3x2) [6]
- (b) (i)** Plastic/dip coated, anodising, [spray] painted [1]
- (ii)** Stages include: clean the surface of metal, use of at least 2 grit wet and dry (silicon carbide) paper, use of polish mop with appropriate compound [3]
- (c)** Marking out: use of templates, compass, rule, pencil, try square
 Cutting out; appropriate saw, plane, rasp, sander, file [4]
- (d)** Stages include: use of former around which sheet metal will be shaped, held in position while bent using a soft-faced mallet or hammer and waste wood
 Appropriate Former (1)
 Held in position (1)
 Method to force (1)
 Technical accuracy (1) [4]
- (e) (i)** Plastics Names; Acrylic, ABS [2]
- (ii)** Properties; easy to mould/shape, does not scratch the DVD case, available in different colours [2]
- (f)** Disposal: Re-use, Recycled. [1]

- 13. (a)** Marker pen lines can be erased if errors are made, they do not scratch the surface [1]
- (b)** Two reasons:
To allow for better fitting bend, for easy clean, improve the appearance, easy bending 2x1 [2]
- (c)** Three stages include: draw filing, scraper, use of wet and dry, Buffing/polishing (3x1) [3]
- (d)** Correct length of tray including shaped ends (1)
Correct width of tray (1)
Corners to be cut out shown (1)
Correct bend lines (1)
Correct cut lines (1) [5]
- (e)** 4 stages:
Drill hole
Insert coping saw [or relevant] and saw on waste area leaving small amount of waste
File shape file to line
Use wet and dry glass paper (4x1) [4]
- (f)** **(i)** Appropriate joint: Dovetail, dowel, (1)
(ii) Appropriate method: groove, rebate, adding strips (1)
Appropriate sketch (0-3) [5]
- (g)** **(i)** Copper sheet in the folding bar (1)
Work held in the bench vice (1)
Bend to 90° with a mallet, use of scrap piece of wood (1) [3]
(ii) polish/buffing (1)
lacquering (1) [2]