



EXAMINATIONS COUNCIL OF ESWATINI
Junior Certificate Examination

CONFIDENTIAL
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JUNIOR CERTIFICATE EXAMINATION

DESIGN AND TECHNOLOGY

537/01

MARK SCHEME

MAXIMUM MARK 70

This document consists of 4 printed pages.

SECTION A

1	(a)	Marking gauge	[1]
	(b)	Firmer chisel, router	[1]
2	(a)	Straight tinsnips	[1]
	(b)	used for cutting sheet metal	[1]
3		Construction (arcs)	[1]
		150° line evident	[1]
		150° line accurate	[1]
		Sloping line	[1] [4]
4		Correct end grains, 3 veneers, equal divisions	[3]
5		It would damage the plastic	[1]
6		Riveting	[1]
7		left hatching	[1]
		Right hatching	[1] [2]
8		Frame structure	[1]
9	(a)	quarter sawing	[1]
	(b)	Timber does not warp easily, decorative	[1] [2]
10		Cross filing	[1]
11		Using the vice clamps/piece of wood	[2]
12		Correct quadrant	[1]
		Correct chord	[1]
13	(a)	Bevel gears	[1]
	(b)	To make output speed faster	[1] [2]
14	(a)	Correct clearance hole, Correct countersunk hole	[1]
	(b)	Countersunk bit	[1]
15		Die	[1]
16	(a)	Strip heater, heat gun	[1]
	(b)	Tensol Cement	[1] [30]

SECTION B

QUESTION B1

- | | |
|---|--------------|
| 1. Pentagonal pyramid | [1] |
| 2. Concentric circles on the right | [1] |
| 3. Single point perspective drawing | [1] |
| 4. Exploded view | [1] |
| 5. Ellipse | [1] |
| 6. Top hexagon evident | [1] |
| Accurate top hexagon (use of compass evident) | [1] |
| Top circle | [1] |
| 6 x divisions evident | [1] |
| Accurate 6 x divisions (use of compass evident) | [1] [5] |
| 7. Extension of base line to 25 mm | [1] |
| Construction of perpendicular line | [1] |
| Perpendicular line | [1] |
| Extension of top line | [1] [4] |
| 8. Joining of centres | [1] |
| Bisecting centre line | [1] |
| Normal lines | [1] |
| Internal/external circle | [1] |
| Semi-circle | [1] |
| Tangent | [1] [6] [20] |

QUESTION B2

- | | | |
|----------|--|----------|
| 1 | (a) Vacuum forming | [1] |
| | (b) ABS | [1] |
| | (c) Thermoplastics | [1] |
| 2 | Correct frame | [1] |
| | Correct blade | [1] |
| 3 | (a) appropriate joint | [1] |
| | (b) Male | [1] |
| | Female | [1] |
| | Quality | [1] |
| | (c) hard board/ Masonite/3 plywood | [1] |
| | (d) Panel pins and glue/groove | [2] |
| | (e) Appropriate handle | [1] |
| | Proper fitment method | [1] |
| | Communication | [1] |
| 4 | (a) Safety | [1] |
| | Appropriate design | [1] |
| | Ergonomics/comfortability | [1] |
| | Quality sketch | [1] |
| | (b) Mild steel/stainless steel/cast steel | [1] [20] |

QUESTION B3

- | | | |
|---|---|---------|
| 1 | Worm and wheel gear | [1] |
| 2 | Reciprocating motion , also called reciprocation , is a repetitive up-and-down or back-and-forth linear motion . | [1] |
| 3 | (a) beam | 1 |
| | (b) Bending force | [1] |
| | (c) Triangulation | [1] |
| | (d) Compression. | [1] |
| 4 | Correct fulcrum | [1] |
| | Correct load | [1] |
| | Correct effort | [1] |
| | Class 1 | [1] |
| 5 | Addition of supporting member | [1] |
| 6 | (a) Sprocket and chain | [1] |
| | (b) It does not slip | [1] |
| | (c) To increase speed | [1] |
| 7 | (a) Rack and pinion | [1] |
| | (b) A-Linear motion | [1] |
| | B-Rotary motion | [1] |
| 8 | (a) Double lever | [1] |
| | (b) Pivot | [1] |
| 9 | (a) Pear shaped | [1] |
| | (b) Oscillating motion | [1][20] |