



EXAMINATIONS COUNCIL OF SWAZILAND

CONFIDENTIAL
November 2018

JUNIOR CERTIFICATE EXAMINATION

DESIGN AND TECHNOLOGY

537/01

MARK SCHEME

MAXIMUM MARK 70

SECTION A

1	(a) Sign A	[1]
	(b) Sign D	[1]
2	Specification	[1]
3	Part A	[1]
4	Centre lines	[1]
	Ø10 hole	[3]
	5 mm depth	[1]
5	(a) Process - boring	[1]
	(b) Tool - ratchet brace	[1]
6	(a) Any 2 of: (i) Design and make (ii) Night light (iii) Ten year old	[2]
	(b) (i) Communication	[1]]
	(ii) Suitability	[1]
7	Lethu's car was light in weight	1
8	Bisecting any 2 sides	[2]
	Scribing circle	[1]
9	(a) Effort	[1]
	(b) Class 1	[1]
10	Screws	[1]
11	Clockwise rotation	[1]

12	Meshed gear	1
	Meshed spur gears	[2]
13	Circle evident	1
	Circle drawn above rectangle	1
	Circle same width as rectangle	[1]
14	Any of: not poisonous / light in weight / coloured	[1]
15	ABS (Acrylonitrile butadiene styrene)	[1]

SECTION B

Question B 1

- | | | |
|----------|---|-------------|
| 1 | Orthographic Projection | [1] |
| 2 | 5 parts | [1] |
| 3 | Section | [1] |
| 4 | Tool: Hacksaw | [1] |
| | Material: Metal / Plastic | [1] |
| 5 | Bisecting DCB | [1] |
| | Bisecting CBE | [1] |
| | Scribing circle | [1] |
| 6 | Left top rectangle | [1] |
| | Main front view | [1] |
| | Top right square | [1] |
| 7 | Minor axis 40 | [1] |
| | 6 divisions | [1] |
| | Intersection points | [1] |
| | Semi ellipse | [1] |
| 8 | Extend line AB to the left and to the right | [1] |
| | Draw two lines from D to A and to B | [1] |
| | Draw a line parallel to DA from C | [1] |
| | Draw a line parallel to DB from E | [1] |
| | Outline the required triangle | [1] |
| | | [20] |

Question B 2

- | | | |
|-----------|--|-------------|
| 1 | Twisting | [1] |
| 2 | Class 3 | [1] |
| 3 | It has a wider contact or gluing area / has a supporting shoulder | [2] |
| 4 | (a) Quarter sawing | [1] |
| | (b) Boards a less likely to warp | [1] |
| 5 | Half round file | [1] |
| 6 | (a) Acrylic | [1] |
| | (b) Property 1: easy to mould to shape | [1] |
| | Property 2: impact resistant | [1] |
| 7 | A belt and pulley system would slip and not provide the needed drive | [1] |
| 8 | Any of 1 of: Rebate / lap joint / mitre / dowel / dovetail / finger joints | [1] |
| | Appropriate joint | [1] |
| | Quality of joint | [1] |
| 9 | Fixing method | [1] |
| | Appropriate: User friendly of design | [1] |
| | Quality of sketch | [1] |
| | Communication | [1] |
| 10 | (a) Try square / cutting knife | [1] |
| | (b) Tenon saw | [1] |
| | | [20] |

Question B 3

1	Class 2	[1]
2	(a) Centre fixed pivot	[1]
	(b) Arrow pointing to the left	[1]
3	Force 1 - Load	1
	Force 2 - Effort	[1]
4	(a) Bevel gears	1
	(b) Tool: Hand drill	[1]
5	Pulley and belts / sprockets and chain	[2]
6	(a) Roller follower	[1]
	(b) Up and down movement	[1]]
7	(a) Reduced / slower speed	[1]
	(b) Driver pulley completes 1 revolution much faster because driven pulley has a larger diameter	[2]
8	Circle representing shaft	[1]
	Circle representing cam	[1]
9	(a) sketch of support	1
	(b) Name: tie or strut	1
	(c) Holder would snap at the wall attachment / lamp holder will bend	1
	(d) Tension / compression	[1]
		[20]