

# APPLIED SCIENCE

## SECTION B – Answer Booklet

Fill in the codes for the province and school and your 3-digit candidate number.

Year		Province			School			Candidate Number		
1	9									

Write your name and school in the spaces provided.

Candidate Name: \_\_\_\_\_

School Name: \_\_\_\_\_

ANSWERS WRITTEN ON THE QUESTION PAPER OR ANY OTHER PAPER WILL NOT BE MARKED.


WRITE ANSWERS NEATLY IN THE SPACES PROVIDED IN THIS ANSWER BOOKLET

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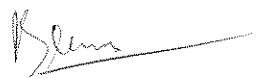
FOR MARKERS USE ONLY

	Score	Markers' Initials	
		Marker 1	Marker 2
SECTION B			
QUESTION 31			
QUESTION 32			
QUESTION 33			
QUESTION 34			
QUESTION 35			
QUESTION 36			
QUESTION 37			
QUESTION 38			
QUESTION 39			
QUESTION 40			
	70		

START YOUR WORK ON THE NEXT PAGE

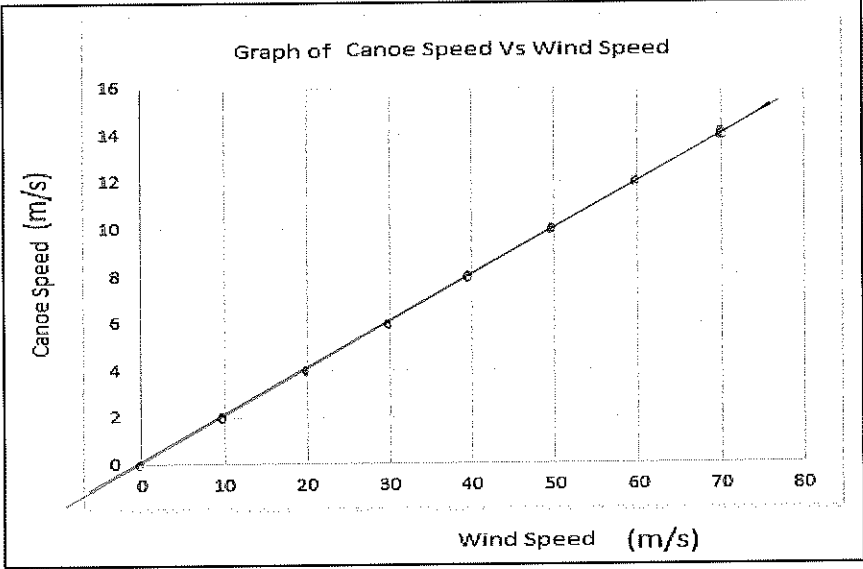
D. Konowka  
  
 MSD officer

Julius Pava  


K. V. Kanna  


SECTION B - ANSWERS

Write your answer in the space provided below. Your answers must be clear and precise.

QUESTION 31	Mark/ Question	Mark Scored
a. i. <u>    A    </u>	1	
ii. <u>    B    </u>	1	
b. i. <u>    cook    </u> ii. <u>    water/moisture    </u>	2	
c. i.  <p style="text-align: center;">Graph of Canoe Speed Vs Wind Speed</p> <p>The graph shows a linear relationship between Wind Speed (m/s) on the x-axis and Canoe Speed (m/s) on the y-axis. The x-axis ranges from 0 to 80 with major ticks every 10 units. The y-axis ranges from 0 to 16 with major ticks every 2 units. A straight line is drawn through the origin and several data points: (10, 2), (20, 4), (30, 6), (40, 8), (50, 10), (60, 12), and (70, 14).</p>	1	
ii. using value $A: 20$ $\Rightarrow 1:5$	1	
iii. using ratio 1:5 $20 \propto x$ $x = 20 \times 50$ $= 100 \text{ m/s}$	1	
For Markers Use Only	Q31 Total	7

QUESTION 32		Mark/ Question	Mark Scored
a.	<u>River</u> <u>Stream</u>	1 1	
b.	i. <u>Well / Rain water tank</u>	1	
	ii. <u>Biomagnification / Bioamplification</u>	1	
c.	i. <u>Compounds of hydrogen carbonate / bicarbonate</u>	1	
	ii. <u>Scale is formed by the formation of insoluble carbonate produced when boiling</u>	1	
d.	<u>Fluorine (F)</u>	1	
For Markers Use Only		<b>Q32 Total</b>	<b>7</b>

QUESTION 33		Mark/ Question	Mark Scored
a.	<u>Electromagnetism</u>	1	
b.	<u>Ohm's Law</u>	1	
c.	<u>Automatic Telling Machine</u>	1	
d.	<u>Water conducts electricity because it is an electrolyte.</u>	1	
e.	i. <u>Transmitter</u>	1	
	ii. <u>Receiver</u>	1	
f.	<u>Continuity Test Mode.</u>	1	
For Markers Use Only		<b>Q33 Total</b>	<b>7</b>

QUESTION 34		Mark/ Question	Mark Scored
a.	i. <u>Prevents/minimises heat loss</u>	1	
	ii. <u>Ensures uniform heating/Traps heat energy</u>	1	
b.	i. <u>Cement</u>	1	
	ii. <u>Glass</u>	1	
c.	i. <u>Decomposition</u>	1	
	ii. <u>Used to treat soil acidity as lime is alkaline</u>	1	
d.	<u>Brick is fire resistant/heat resistant</u>	1	
For Markers Use Only		<b>Q34 Total</b>	7

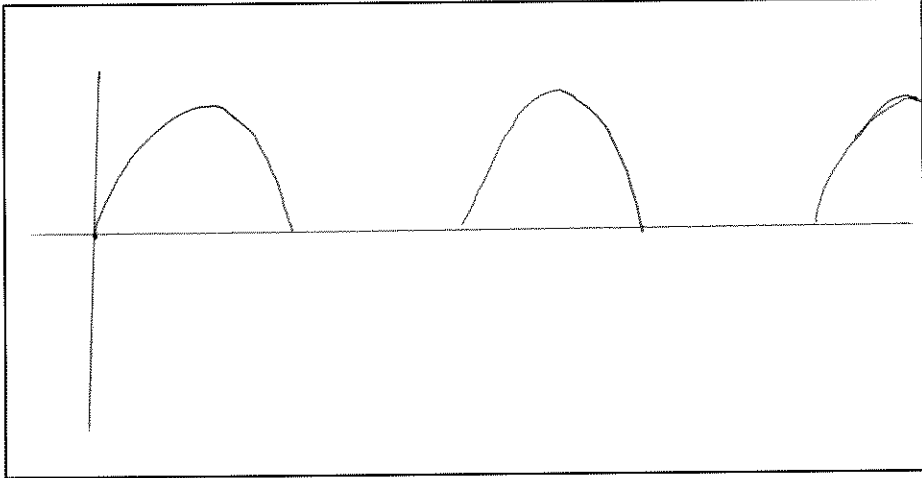
QUESTION 35		Mark/ Question	Mark Scored
a.	<u>Process of buying and selling permits and credits to emit CO<sub>2</sub></u>	1	
b.	i. <u>Overgrazing</u>	1	
	ii. <u>Monoculture.</u>	1	
c.	<u>Mangroves provide the right habitat for fish to mate, lay eggs, hatch and nurture young ones</u>	1	
d.	<u>Plastics that are broken down by the action of microorganisms.</u>	1	
e.	i. <u>Produce fumes/toxic gases/fire risks.</u>	1	
	ii. <u>Contamination of water supply/damage crops.</u>	1	
For Markers Use Only		<b>Q35 Total</b>	7

QUESTION 36		Mark/Question	Mark Scored
a.	X <u>Vegetable<sup>oil</sup>/ethanol</u>	1	
	Y <u>Vegetable oil/ethanol</u>	1	
b.	<u>Since biodiesel is produced from plant/animal product, which are also renewable.</u>	1	
c.	i. <u>Products that enhance our appearance/ Beauty products/ Make up products.</u>	1	
	ii. <u>Moisturizers help to reduce dryness of skin by providing a protective layer</u>	1	
d.	<u>Methanogens</u>	1	
e.	<u>Produce less pollution.</u>	1	
For Markers Use Only		<b>Q36 Total</b>	7

QUESTION 37		Mark/Question	Mark Scored
a.	<u>Heat</u>	1	
b.	<u>Nuclear radiation</u>	1	
c.	i. $\% = \frac{80}{(50+80+35+20)} \times 100 = \underline{43.24\%}$	1	
	ii. $\frac{80}{20} = 4 \therefore$ it is 4 time bigger.	1	
d.	$\frac{2}{100} \times 50000 = 1000 \text{ l.}$ 3hr $\rightarrow$ sec $\rightarrow 10800 \text{ sec}$ Water lost = $\frac{1000 \text{ l}}{10800 \text{ s}} = \underline{0.093 \text{ l/s}}$	2	
e.	Bulb A: $1 \times 1 : 0.80$ $0.04 \times 48 : x_1$ $x_1 = 1.536$		
	Bulb B: $1 \times 1 : 0.80$ $0.008 \times 48 : x_2$ $x_2 = 0.3072$		
	saved amount $\rightarrow x_1 - x_2$ $1.536 - 0.3072 = 1.2288$ $\therefore \underline{1.23}$	1	
For Markers Use Only		<b>Q37 Total</b>	7

QUESTION 38		Mark/ Question	Mark Scored
a.	i. <u>From birth. Passed on by mother</u>	1	
	ii. <u>30%</u>	1	
b.	i. <u>26.5°C</u>	1	
	ii. <u>Sponge Bath. Use wet cloth to lower the baby's body temperature. Full bath will bring baby into shock.</u>	1	
c.	i. <u>Adrenaline</u>	1	
	ii. <u>Adrenal Gland located above the kidneys.</u>	1	
d.	<u>10.5 ml</u>	1	
For Markers Use Only		<b>Q38 Total</b>	<b>7</b>

QUESTION 39		Mark/ Question	Mark Scored
a.	<u>Condensing/cooling of ethanol vapours produces pure ethanol.</u>	1	
b.	i. <u>Sun drying removes/dehydrates food to lower the activity of microbes.</u>	1	
	ii. 1. <u>Antioxidants - Slow down fat oxidation.</u>	1	
	2. <u>Antibiotics - Help to stop growth of microorganisms.</u>	1	
c.	i. <u>Genetically Modified organism</u>	1	
	ii. <u>Gene of interest is identified, removed and transferred to host organism to produce desirable characteristic/products</u>	1	
	iii. <u>Possible allergic reactions/antibiotic resistance.</u>	1	
For Markers Use Only		<b>Q39 Total</b>	<b>7</b>

QUESTION 40		Mark/ Question	Mark Scored
a.	i. $I = \frac{V}{R_T} = \frac{12}{6\Omega} = 2A$	1	
	ii. $V = IR = 2A \times 3\Omega = 6V$	1	
b.	i. picture elements.	1	
	ii. Camera B because it has a higher resolution.	1	
c.	Danger. High voltage	1	
d.	Welding goggles/glass.	1	
e.		1	
For Markers Use Only		<b>Q40 Total</b>	<b>7</b>