

SULIT
4551/3
BIOLOGI
Kertas 3
Peraturan Pemarkahan
Ogos 2011
1½ jam



BAHAGAN PENGURUSAN
SEKOLAH BERASRAMA PENUH DAN SEKOLAH KECEMERLANGAN
KEMENTERIAN PELAJARAN MALAYSIA

PEPERIKSAAN PERCUBAAN SPM SETARA
2011

BIOLOGI
Kertas 3

PERATURAN PEMARKAHAN (PP)
Untuk kegunaan pemeriksa sahaja

Peraturan pemarkahan ini mengandungi 15 halaman bercetak.

QUESTION 1

No	MARK SCHEME	Score																											
1(a)	<p>Able to record all 12 data for the volume of urine produced and the average volume of urine produced correctly.</p> <p><u>Sample answers:</u></p> <table border="1" data-bbox="295 562 1101 932"> <thead> <tr> <th rowspan="2">Group</th> <th rowspan="2">Volume of water intake, ml</th> <th colspan="2">Volume of urine produced,ml</th> <th rowspan="2">Average volume of urine produced, ml</th> </tr> <tr> <th>Student 1</th> <th>Student 2</th> </tr> </thead> <tbody> <tr> <td>P</td> <td>100</td> <td>80</td> <td>80</td> <td>80</td> </tr> <tr> <td>Q</td> <td>200</td> <td>134</td> <td>136</td> <td>135</td> </tr> <tr> <td>R</td> <td>300</td> <td>205</td> <td>207</td> <td>206</td> </tr> <tr> <td>S</td> <td>400</td> <td>303</td> <td>305</td> <td>304</td> </tr> </tbody> </table>	Group	Volume of water intake, ml	Volume of urine produced,ml		Average volume of urine produced, ml	Student 1	Student 2	P	100	80	80	80	Q	200	134	136	135	R	300	205	207	206	S	400	303	305	304	3
Group	Volume of water intake, ml			Volume of urine produced,ml			Average volume of urine produced, ml																						
		Student 1	Student 2																										
P	100	80	80	80																									
Q	200	134	136	135																									
R	300	205	207	206																									
S	400	303	305	304																									
	Able to record 8 - 11 data correctly	2																											
	Able to record 4 – 7 data correctly	1																											
	Able to record only 0 - 3 data or not able to respond / wrong response.	0																											
(b) (i)	<p>Able to state two different observations correctly based on two criteria:</p> <p>C1- Volume of water intake // Group C2 – Volume of urine produced // Average volume of urine produced</p> <p><u>Sample answers:</u></p> <ol style="list-style-type: none"> When the volume of water intake is 100 ml /200 ml /300 ml /400 ml / Group P / group Q / Group R / Group S, the average volume of urine produced is 80ml / 135 ml / 206 ml /304 ml. When the volume of water intake is 100 ml /200 ml /300 ml /400 ml / Group P / group Q / Group R / Group S, the volume of urine produced is 80 / 134 ml / 136 ml / 205 ml / 207 ml / 303 ml / 305 ml. The average volume of urine produced in Group P is lower / smaller than that in Group Q / R / S // The average volume of urine produced in Group S is higher than that in Group P / Q / R. 	3																											

	<p>Able to state one correct observation and one inaccurate observation .</p> <p><u>Sample answer (inaccurate):</u></p> <p>1. When the volume of water intake is 100 ml /200 ml /300 ml /400 ml // Group P / group Q / Group R / Group S, the average volume of urine produced is the least / less / high / the highest.</p>	2
	<p>Able to state only one correct observation or two observation at idea level.</p> <p><u>Sample answer (idea level):</u></p> <p>1. The volume / average volume of urine produced is different. 2. The volume of water intake affects the (average) volume of urine produced.</p>	1
	<p>No response or incorrect response or two inaccurate observation or one idea only.</p>	0
(b) (ii)	<p>Able to make two accurate inferences based on two criteria: C1 – more / less (amount) of water reabsorbed C2 – higher / lower osmotic pressure // permeability of kidney / tubule to water increases / decreases // more / less ADH / aldosterone secreted to kidney tubule</p> <p><u>Sample answer:</u> (For observation 1 and 2 in sample answers)</p> <p>1. More/high/much/ (amount) of water reabsorbed due to high osmotic pressure // vice versa</p> <p>(For observation 3 in sample answers)</p> <p>2. More / higher (amount) of water reabsorbed due to higher osmotic pressure in Group P compared to Group Q/R/S.</p>	3
	<p>Able to state one correct inference and one inaccurate inference or able to state two inaccurate inferences.</p> <p><u>Sample answer (inaccurate):</u></p> <p>1. More/high/much/ (amount) of water reabsorbed // inversely. 2. Higher / high / lower / low osmotic pressure. 3. Less / more ADH is secreted to the kidney tubule.</p>	2

	<p>Able to state one correct inference or two inferences at idea level.</p> <p><u>Sample answer for idea level:</u></p> <ol style="list-style-type: none"> 1. ADH is secreted. 2. Salt reabsorbed. 3. Water reabsorbed. 	1																																																																	
	No response or inaccurate responses.	0																																																																	
	<p>Summary of scoring for 1(b)(i) and 1(b)(ii) :</p> <table border="1" style="margin: auto;"> <thead> <tr> <th>Score</th> <th>Correct</th> <th>Inaccurate</th> <th>Idea</th> <th>Wrong</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr style="background-color: #e0e0e0;"> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr> <td></td> <td style="text-align: center;">-</td> <td style="text-align: center;">2</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> <tr style="background-color: #e0e0e0;"> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">2</td> <td style="text-align: center;">-</td> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> </tr> <tr> <td></td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> </tr> <tr style="background-color: #e0e0e0;"> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">1</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>	Score	Correct	Inaccurate	Idea	Wrong	3	2	-	-	-						2	1	1	-	-		-	2	-	-						1	1	-	1			-	-	2	-		1	-	-	1		-	1	1	-						0	-	1	-	1	0	-	-	1	1	
Score	Correct	Inaccurate	Idea	Wrong																																																															
3	2	-	-	-																																																															
2	1	1	-	-																																																															
	-	2	-	-																																																															
1	1	-	1																																																																
	-	-	2	-																																																															
	1	-	-	1																																																															
	-	1	1	-																																																															
0	-	1	-	1																																																															
0	-	-	1	1																																																															

(c)	Able to state all 3 variables and methods to handle each variable correctly.	3														
	<u>Sample answer</u>															
	<table border="1"> <thead> <tr> <th>Variable</th> <th>Method to handle the variable</th> </tr> </thead> <tbody> <tr> <td><u>Manipulated variable</u></td> <td></td> </tr> <tr> <td>Volume of water intake</td> <td>(The students) drink different volume of (plain) water // Change the volume of water (from 100 ml to 200 ml, 300 ml and 400 ml).</td> </tr> <tr> <td><u>Responding Variable:</u></td> <td></td> </tr> <tr> <td>Average volume of urine produced (after one hour)</td> <td>Measure and record the volume of urine produced by using a measuring cylinder. // Calculate the (average) volume of urine produced by using formula : Volume of urine produced by student 1 + student 2 ----- 2</td> </tr> <tr> <td><u>Constant variable:</u></td> <td></td> </tr> <tr> <td>Number of students in each group // Time taken to collect/measure/record the urine// type of water</td> <td>Fix the number of student // Fix the time taken (to collect/measure/record the urine) at one hour/ use only plain water</td> </tr> </tbody> </table>		Variable	Method to handle the variable	<u>Manipulated variable</u>		Volume of water intake	(The students) drink different volume of (plain) water // Change the volume of water (from 100 ml to 200 ml, 300 ml and 400 ml).	<u>Responding Variable:</u>		Average volume of urine produced (after one hour)	Measure and record the volume of urine produced by using a measuring cylinder. // Calculate the (average) volume of urine produced by using formula : Volume of urine produced by student 1 + student 2 ----- 2	<u>Constant variable:</u>		Number of students in each group // Time taken to collect/measure/record the urine// type of water	Fix the number of student // Fix the time taken (to collect/measure/record the urine) at one hour/ use only plain water
	Variable		Method to handle the variable													
<u>Manipulated variable</u>																
Volume of water intake	(The students) drink different volume of (plain) water // Change the volume of water (from 100 ml to 200 ml, 300 ml and 400 ml).															
<u>Responding Variable:</u>																
Average volume of urine produced (after one hour)	Measure and record the volume of urine produced by using a measuring cylinder. // Calculate the (average) volume of urine produced by using formula : Volume of urine produced by student 1 + student 2 ----- 2															
<u>Constant variable:</u>																
Number of students in each group // Time taken to collect/measure/record the urine// type of water	Fix the number of student // Fix the time taken (to collect/measure/record the urine) at one hour/ use only plain water															
Able to state 4 – 5 ticks	2															
Able to state 2 – 3 ticks	1															
No response or incorrect respons or 1 tick only	0															

(d)	<p>Able to state the hypothesis relating the manipulated variable and the responding variable correctly based on three criteria: P1 : manipulated variable (Volume of water intake) P2 : responding variable (Volume of urine produced) H : relationship</p> <p><u>Sample answer</u> P1 + P2 + H</p> <p>1. As the volume of water intake increases, the volume of urine produced increase // vice versa.</p>	3
	<p>Able to state a hypothesis based on any two criteria. <u>Sample answer :</u></p> <p>P1 + P2 // P1/P2 + H</p> <p>1. The volume of urine produced depends on the volume of water intake. 2. Different group of students has different volume of urine produced.</p>	2
	<p>Able to state a hypothesis based on any one criterion or at idea level. <u>Sample answer</u></p> <p>1. Volume of urine produced is different.</p>	1
	No response or incorrect respons	0
	Any two correct aspect	2
	Any one aspect correct	1
	No response or incorrect respons	0

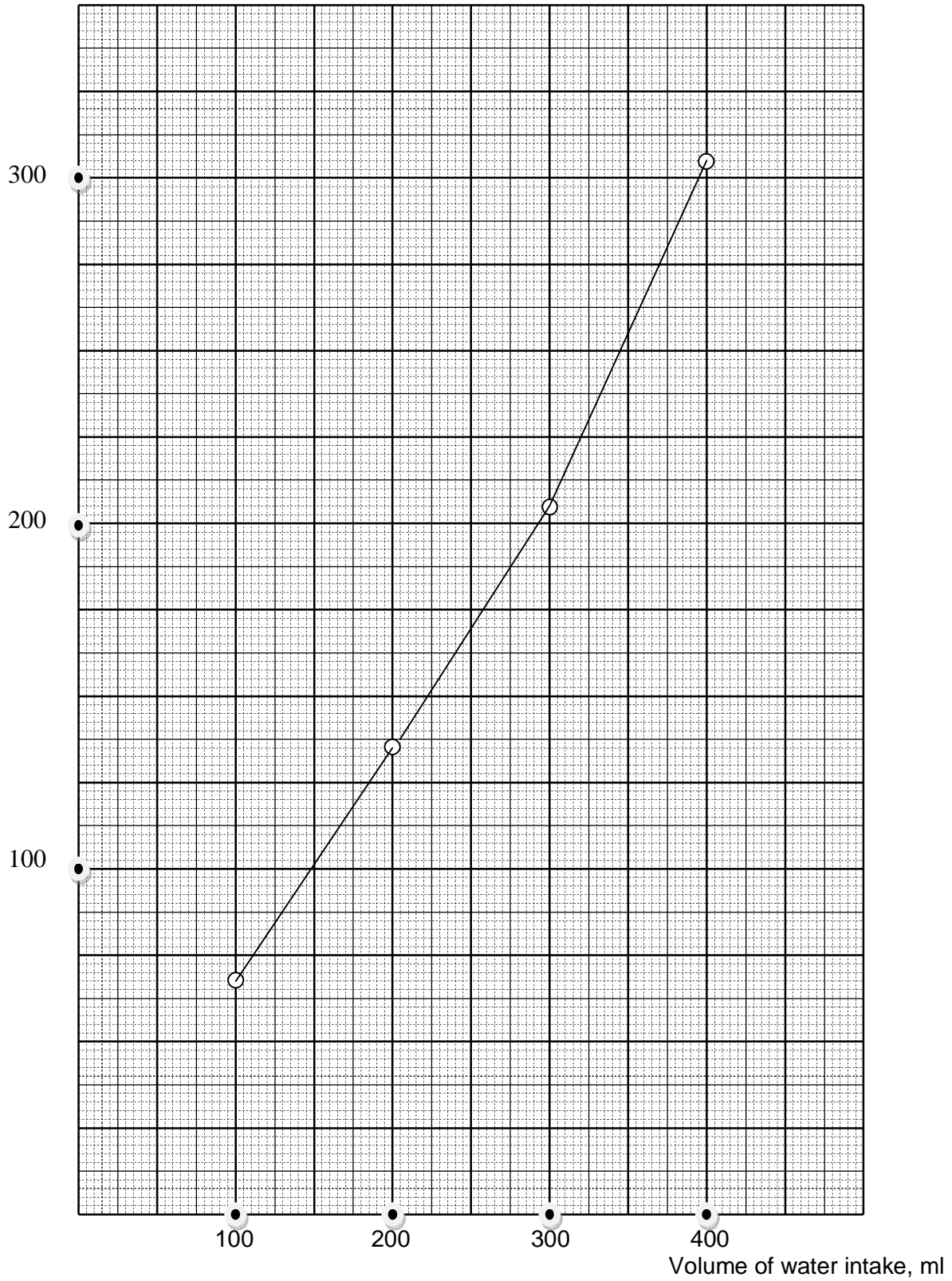
(e) (i)	<p>Able to construct a table correctly with the following aspects:</p> <p>T : Titles with correct units - 1 mark D : Data - 1 mark C : Average volume of urine produced - 1 mark</p> <p><u>Sample answer :</u></p> <p style="text-align: center;">Title, T</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Volume of water intake, ml</th> <th colspan="2">Volume of urine produced,ml</th> <th rowspan="2">Average volume of urine produced, ml</th> </tr> <tr> <th>Student 1</th> <th>Student 2</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>80</td> <td>80</td> <td>80</td> </tr> <tr> <td>200</td> <td>134</td> <td>136</td> <td>135</td> </tr> <tr> <td>300</td> <td>205</td> <td>207</td> <td>206</td> </tr> <tr> <td>400</td> <td>303</td> <td>305</td> <td>304</td> </tr> </tbody> </table> <p style="text-align: center;">Data, D</p> <p style="text-align: right;">C – Calculation</p>	Volume of water intake, ml	Volume of urine produced,ml		Average volume of urine produced, ml	Student 1	Student 2	100	80	80	80	200	134	136	135	300	205	207	206	400	303	305	304	3
Volume of water intake, ml	Volume of urine produced,ml		Average volume of urine produced, ml																					
	Student 1	Student 2																						
100	80	80	80																					
200	134	136	135																					
300	205	207	206																					
400	303	305	304																					
	Any two correct aspect	2																						
	Any one aspect correct	1																						
	No response or incorrect respons	0																						
(e) (ii)	<p>Able to draw the graph of average volume of urine produced against volume of water intake based on the following aspects :</p> <p>P(paksi) : title of x-axis and y-axis - 1 mark T(Titik) : four points plotted correctly - 1 mark B(bentuk) : all points connected smoothly - 1 mark</p> <p>All three correct aspects</p> <p>Any two correct aspects</p> <p>Any one aspect correct</p> <p>No response or incorrect response</p>	3																						
	Any two correct aspects	2																						
	Any one aspect correct	1																						
	No response or incorrect response	0																						

(f)	<p>Able to explain the relationship between the volume of water intake to the volume of urine produced based on the following criteria.</p> <p>R1 : Relationship – The higher the volume of water intake, the higher the (average) volume of urine produced R2 : Osmotic pressure decreases R3 : Less water reabsorbed (from the kidney) // less ADH is produced // Kidney tubules become less permeable to water</p> <p><u>Sample answer :</u> The higher the volume of water intake, the higher the (average) volume of urine produced because the osmotic pressure decreases. Thus, less water reabsorbed from the kidney.</p>	3
	Able to explain the relationship using any two aspects.	2
	Able to explain the relationship using one aspect only.	1
	No response or incorrect respons	0
(g)	<p>Able to predict and explain the volume of urine produced based on the following criteria:</p> <p>P1 : Prediction – volume of urine less than 80 ml // any value less than 80 ml P2 : Explanation - Osmotic pressure of increases P3 : More water reabsorbed (from the kidney)</p> <p><u>Sample answer</u> Volume of urine in less than 80 ml // 75 ml Because the osmotic pressure increases, so more water reabsorbed (from the kidney)</p>	3
	Able to predict and explain the volume of urine produced based on any two criteria:	2
	Able to predict and explain the volume of urine produced based on any one criterion:	1
	No response or incorrect response	0

(h)	<p>Able to define osmoregulation operationally based on the following criteria. D1 : A <u>process</u> that causes D2 : (Average) volume of urine produced by the students / group A,B,C and D after one hour D3 : after taking different volume of water // depends on the volume of water intake // the higher the volume of water intake, the higher the volume of urine produced.</p> <p><u>Sample answer :</u></p> <p>Osmoregulation is the process that causes the (average) volume of urine produced by the students / group P,Q,R and S after one hour. The average volume of urine produced depends on the volume of water intake.</p>	3								
	Any two criteria stated	2								
	Any one criteria stated	1								
	No response or incorrect response	0								
(i)	<p>Able to classify apparatus and materials into their respective variables.</p> <p><u>Sample answer :</u></p> <table border="1" data-bbox="297 1144 1101 1381"> <thead> <tr> <th></th> <th>Manipulated Variable</th> <th>Responding Variables</th> <th>Fixed Variable</th> </tr> </thead> <tbody> <tr> <td>Apparatus / Materials</td> <td>cup Beaker // Measuring cylinder</td> <td>Measuring cylinder // beaker</td> <td>stopwatch students mineral water</td> </tr> </tbody> </table> <p>All 6 corrects</p>		Manipulated Variable	Responding Variables	Fixed Variable	Apparatus / Materials	cup Beaker // Measuring cylinder	Measuring cylinder // beaker	stopwatch students mineral water	3
	Manipulated Variable	Responding Variables	Fixed Variable							
Apparatus / Materials	cup Beaker // Measuring cylinder	Measuring cylinder // beaker	stopwatch students mineral water							
	1 – 2 wrongs	2								
	3 – 4 wrongs	1								
	5 – 6 wrongs or no response	0								

e(i) Sample answer

Average volume of urine produced, ml



QUESTION 2

Aspect	Mark Scheme	Marks	Notes on scoring
Problem statement	<p>Able to state a problem statement relating manipulated variable to the responding variable correctly based on criteria: P1 : MV (Carbon dioxide concentration) P2 : RV (The rate of photosynthesis) R : Relationship in question form (What is the effect of.....? // Does the...affect...?)</p> <p>Sample answers:</p> <ol style="list-style-type: none"> Does the percentage/concentration of carbon dioxide affect the rate of photosynthesis? What is the effect of percentage of / concentration of carbon dioxide on the rate of photosynthesis? 	3	P1+P2+R
	<p>Able to state a problem statement inaccurately based on any two criteria:</p> <p>Sample answers:</p> <ol style="list-style-type: none"> What is the effect of different concentration of carbon dioxide on the rate of photosynthesis. (No R) What can affect the rate of photosynthesis? (No P1) What is the effect of different concentration of carbon dioxide on photosynthesis? (No P2) Different concentration of carbon dioxide can affect the rate of photosynthesis. (No R) Can carbon dioxide affect the rate of photosynthesis? (No P1) 	2	P1 and P2 only P1/P2 and R only
	<p>Able to state a problem statement based on any one criterion at idea level.</p> <ol style="list-style-type: none"> Does carbon dioxide affect photosynthesis? (No P1 and P2) Does the rate of photosynthesis affected by carbon dioxide gas.(No P1 and R) What is the factor that affect the rate of photosynthesis.(No P1and R) Does percentage / concentration of carbon dioxide affect the photosynthesis. (No P2 and R) 	1	

	No response/wrong response	0 mark	
Hypothesis	<p>Able to state a hypothesis by relating the manipulated variable to the responding variable correctly based on criteria:</p> <p>P1 : MV (Carbon dioxide concentration / percentage) P2 : RV (The rate of photosynthesis) R : Relationship between P1 and P2.</p> <p>Sample answer:</p> <ol style="list-style-type: none"> As/When the percentage/concentration of carbon dioxide increases/decreases the rate of photosynthesis/number of bubble release increases/decreases. 	3 marks	<p>P1+P2+R</p> <p>R:....increases/ decreases..... increases /decreases</p>
	<p>Able to state a hypothesis inaccurately correctly based on any two criteria:</p> <ol style="list-style-type: none"> As/When the concentration of carbon dioxide increases the photosynthesis increases.(no P2) As/When the carbon dioxide increases the rate photosynthesis increases.(no P1) Carbon dioxide concentration influence/affect the rate of photosynthesis (no R) 	2	<p>P1 + P2 only P1/P2 + R only</p>
	<p>Able to state a hypothesis at idea level based on any one criterion:</p> <ol style="list-style-type: none"> Carbon dioxide influence/affect the rate of photosynthesis.(P2 only) Carbon dioxide concentration influence/affect the photosynthesis.(P1 only) Carbon dioxide influence/affect the photosynthesis. (idea) 	1	
	No response/wrong response/R only.	0 mark	

Variables	Able to state all three variables correctly. <u>Sample answers:</u> Manipulated variable : Concentration / percentage of carbon dioxide Responding variable : The rate of photosynthesis// The number of bubbles released per minute Constant variable : Light intensity / temperature / type of plant / size of plant	3	
	Able to state any two variables correctly.	2	
	Able to state any one variable correctly.	1	
	No response / wrong response	0	
Apparatus and materials	Able to list all the apparatus and materials correctly. 4A + 3M <u>Sample answers:</u> Materials : * Elodea/Hydrilla/aquatic plant , different concentration of * sodium bicarbonate , distilled * water Apparatus : Beaker, boiling tube, clip, table * lamp * - compulsory	3	
	3A + 3M including * - compulsory materials and apparatus	2	
	1-2 A + 1-2 M including aquatic plant and a light source.	1	
	No response / wrong response	0	

<p>Procedure</p>	<p>Able to describe the steps of the experiment procedure or method correctly based on the following criteria:</p> <p>K1 : How to set up the apparatus (at least 3 steps)</p> <p>K2 : How to operate the the control variable (Any one)</p> <p>K3 : How to operate the responding variable (Any one)</p> <p>K4: How to operate the manipulated variable (Any one)</p> <p>K5 : Precaution // steps to increase accuracy (Any one)</p> <p><u>K1- How to set up the apparatus</u></p> <ul style="list-style-type: none"> • <u>Diagram of apparatus and material set up with 5 correct labels.</u> • <u>Choose / Cut 7 cm length of fresh <i>Elodea/Hydrilla</i></u> • <u>Clip the tip with a paper clip</u> • <u>and put it in the boiling tube (with the clip down)</u> <p><u>K2- How to operate the constant variable</u></p> <ul style="list-style-type: none"> • Pour <u>40 ml</u> of 1% sodium bicarbonate solution into the boiling tube. • Place the apparatus at <u>20 cm</u>(other suitable example) distant from a light source <p><u>K3 – How to operate the responding variable</u></p> <ul style="list-style-type: none"> • Count and <u>record</u> the number of bubbles released in 5 minutes by using <u>stopwatch</u>. • <u>Calculate</u> the rate of photosynthesis using <u>formula : number of bubbles released / time</u> <p><u>K4 – How to operate the manipulated variable</u></p> <ul style="list-style-type: none"> • Change the concentration of sodium bicarbonate solution to <u>2%</u> sodium bicarbonate solution, <u>3%</u> sodium bicarbonate solution, <u>4%</u> sodium bicarbonate solution and 5% sodium bicarbonate solution. (at least 4 different concentration) <p><u>K5 - Precaution</u></p> <ul style="list-style-type: none"> • Place the boiling tube in a beaker of water /water bath at room temperature throughout the experiment • Give a time duration of five minutes for the plant to adjust to the new carbon dioxide concentration before taking the reading. 	<p>3</p>	
-------------------------	--	-----------------	--

	All 5K																	
	3 - 4K	2																
	2 K	1																
	0 K or wrong response / no response	0																
Presentation of data	<p>Able to present all the data with the units correctly based on criteria:</p> <p>Titles and units : 1m</p> <ul style="list-style-type: none"> • MV – Concentration of sodium bicarbonate solution (%) • Operating RV - Number of bubbles released in 5 minutes • RV - Rate of photosynthesis - number of bubbles/minute) <p>Data : 1m</p> <ul style="list-style-type: none"> • At least four different concentration of sodium bicarbonate <p><u>Sample :</u></p> <table border="1"> <thead> <tr> <th>Concentration of sodium bicarbonate solution / carbon dioxide (%)</th> <th>Number of bubbles released in 5 minutes</th> <th>Rate of photosynthesis (number of bubbles/minute)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>	Concentration of sodium bicarbonate solution / carbon dioxide (%)	Number of bubbles released in 5 minutes	Rate of photosynthesis (number of bubbles/minute)	1			2			3			4			2	
Concentration of sodium bicarbonate solution / carbon dioxide (%)	Number of bubbles released in 5 minutes	Rate of photosynthesis (number of bubbles/minute)																
1																		
2																		
3																		
4																		

Sample answer for procedure:

No	Steps	Criteria
1.	<u>Choose / Cut 7 cm</u> length of fresh <i>Elodea/Hydrilla</i> .	K1,K2
2.	<u>Clip</u> the tip the plant with a paper clip.	K1
3.	<u>Pour 40 ml</u> of 1% sodium bicarbonate solution into the boiling tube.	K1,K2
4.	<u>Put the plant into the boiling tube</u> (with the clip down)	K1,K2
5.	<u>Place</u> the apparatus at <u>20 cm</u> (other suitable example) distant from a light source.	K1,K2
6.	<u>Count and record</u> the number of bubbles released in <u>5 minutes</u> by using <u>stopwatch</u> .	K2,K3
7.	Change the concentration of sodium bicarbonate solution to <u>2%</u> sodium bicarbonate solution, <u>3%</u> sodium bicarbonate solution, <u>4%</u> sodium bicarbonate solution and 5% sodium bicarbonate solution. (at least 4 different concentration)	K4
8.	<u>Calculate</u> the rate of photosynthesis by using <u>formula : number of bubbles released / time</u>	K3
9.	Place the boiling tube in a beaker of water at <u>room temperature throughout the experiment</u>	K5
10	Give a time duration of <u>five minutes</u> for the plant to <u>adjust to the new carbon dioxide concentration</u> before taking the reading.	K5
11	Record the results in a <u>table</u> .	K1