

STANDARD GRADE PAPER I

**POSSIBLE ANSWERS FOR: SECTION A
QUESTION 1**

1.1.					
1.1.1	B	(2) ✓✓	BIOLOGY SG PAPER 1		
1.1.2	A	(2) ✓✓			
1.1.3	C	(2) ✓✓			
1.1.4	D	(2) ✓✓			
1.1.5	B	(2) ✓✓	5 x 2		(10)
1.2					
1.2.1	Autotrophic	(1) ✓/Photosynthesis	(1) ✓ any 1		
1.2.2	Mitochondria	(1) ✓			
1.2.3	Radiant✓/Sunlight✓/Light / solar	(1) ✓ any 1			
1.2.4	ATP	(1) ✓/ADP	(1) ✓		
1.2.5	Obesity / (overweight)	(1) ✓			
1.2.6	Fermentation	(1) ✓			
1.2.7	Defaecation	(1) ✓/Egestion	(1) ✓ any 1		
1.2.8	Malnutrition	(1) ✓/ Anorexia✓/Starvation✓/Marasmus✓ (under nourishment/ under nutrition✓)	(1) any 1		
1.2.9	Hydrochloric acid	(1) ✓/HC/	(1) ✓ any 1		
1.2.10	Insulin	✓			(10)
1.3					
1.3.1	C	(1)/ E (1)/ F(1)	any 2		
1.3.2	A	(1)/ C (1)/ D (1) / F (1)	any 2		
1.3.3	B	(1)/,C(1) / F (1)	any 1		
1.3.4	C	(1) / F (1)	any 1		(6)
1.4					
1.4.1	Both A and B	(2) ✓✓			
1.4.2	None	(2) ✓✓			
1.4.3	A only	(2) ✓✓			
1.4.4	B only	(2) ✓✓			
1.4.5	A only	(2) ✓✓			
1.4.6	A only	(2) ✓✓			
1.4.7	None	(2) ✓✓			
		Mark as close to answer as possible			(14)
1.5					
1.5.1	A=sunlight /radiant energy /light /solar	(1)✓			
	C=carbon dioxide / CO ₂	(1)✓	E = ring any answer even if blank and +1		(3)
1.5.2	B=Oxygen /O ₂	(1)✓ / water vapour (1)✓ (any 1)			(2)
	D= ring any answer even if blank and + 1				
1.5.3	Palisade ✓/spongy ✓ guard cell / mesophyll /chlorenchyma	(1)✓			1
1.5.4	F=chloroplast	(1) ✓			1
1.5.5	G=epidermis	(1)✓			1
1.5.6	H=prevents water loss (1)✓/desiccation /allows sunlight through /barrier to infection/protection	(1)✓			1
1.5.7	Stoma / stomata /(pore)	(1) ✓.			1
					1
					(10)
			TOTAL SECTION A : [50]		

2.2.3 Promotes peristalsis /promotes water absorption/ prevents constipation or regulate bowel movement/cleans gut/ absorbs toxins/ reduces transit time / prevents cancer of the colon/ aids in digestion / helps with the retention of water(1)✓ in faeces

Any 1

2.2.4 Soya beans /protein (2) ✓✓

(1)

2.2.5 Bread / carbohydrate(2) ✓✓

(2)

2.2.6 Pumpkin (2) ✓✓

(2)

(2)

TOTAL : [25]

(11)

QUESTION 3

- 3.1
- 3.1.1 Powder C (1) ✓ (1)
- 3.1.2 Powder B (1)✓ (1)
- 3.1.3 Powder A (1)✓ (1)
- 3.1.4 Powder D (1)✓ (1)
- 3.1.5 Powder E (1)✓ (1)
(5)
- 3.2
- 3.2.1 enzyme (1) /(Salivary) amylase/ ptyalin / ✓ any 1 (1)
- 3.2.2 alkaline / neutral/ pH = 7 (2)✓ any 1x 2 (2)
- 3.2.3 Maltose / disaccharide / glucose / monosaccharide (1)✓ any 1 (1)
- 3.2.4 Hydrolysis (2) / chemical digestion (2) /catabolism (2) any 1 x2 (2)
- 3.2.5 36 – 40 °C (1)✓/Body temperature ✓ any 1 (1)
- 3.2.6 optimum temperature for enzyme action/activity/functioning/human body temperature (1) ✓ any 1 (1)
- 3.2.7 Proteins (1) ✓ (1)
- 3.2.8 Enzyme will be denatured/(destroyed/stops functioning) (1) and no digestion/hydrolysis(1) will take place (2)
(10)
- 3.3
- 3.3.1 A (2) ✓✓ (2)
- 3.3.2 A (2) ✓✓ (2)
- 3.3.3 To absorb carbon dioxide (1)✓ (1)
- 3.3.4 (i) Mass in plant A increased (1) because photosynthesis was taking place – organic food/starch (1) was being synthesized (2)
- Mass in plant B decreased (1) because no photosynthesis was taking place/no food/starch (1)/used up in respiration (2)
- (ii) chlorophyll (1) ✓/ light / water / temperature/enzymes any 1 (1)
(10)

TOTAL : [25]

QUESTION 4

4.1

- 4.1.1 A- larynx / (voice box) /(thyroid cartilage)(1) (1)
B- trachea / (windpipe) (1) (1)
C- cartilage (1) ring /cartilage / c-shaped cartilage (1)
D- bronchus (1) (1)
E- pleura (1) (1)
H- diaphragm (1) / smooth muscle) (1)
(6)
- 4.1.2 C- keeps trachea open (1)✓
/prevents blocking/walls collapsing (1)
any 1 (1)
- E-protect the lungs (1) ✓/reduces friction (1) any 1 (1)
- H-contract or relaxes during breathing ✓/ inhalation or exhalation /separates thoracic cavity from abdominal cavity assists in breathing (1) (1)
(3)
- 4.1.3 - mucus antiseptic /protective/kills germs(1)
- moistens air that flows in /prevents drying out (1)
- easy movement of the air (1)
any 2 (2)
- 4.1.4 Inhalation / breathing in taking place (1)✓
external intercostal muscles contract (1)✓
rib cage enlarges/moves up and out (1)✓
diaphragm contracts (1)✓/ less dome shaped / moves down
air pressure decreases (1)✓
air flows in (1)✓
any 5 (5)
- ### 4.2
- 4.2.1 A=(branch) of pulmonary artery/artery/arteriole (1) (1)
B=(branch) of pulmonary vein / vein /venule (1) (1)
C=alveolus / air sac (1) (1)
D=capillary (1) (1)
(4)
- 4.2.2 (i) A= carbon dioxide / CO₂(1) (1)
(ii)B = oxygen / O₂ (1) (1)
- 4.2.3 Bicarbonate ions (1), carb-aminohaemoglobin (1) in solution / dissolved(1)
carbonic acid (1)

- 4.2.4 oxyhaemoglobin ✓ or in solution in plasma (any 1) Any 2 (2)
- TOTAL : [25] (1)
(9)

QUESTION 5

- 5.1.1 A= oxygen (1) ✓ B= glucose (1)✓ (A and B may be interchanged) (2)
- 5.1.2 C=carbon dioxide (1) ✓ / water (1) ✓ D = water (1)✓ / carbon dioxide(1) ✓ (2)
- 5.1.3 (i) oxygen (2) ✓✓ (2)
(ii) lactic acid (2) ✓✓ (2)
[8]
- 5.2
- 5.2.1 Respiration (2) ✓✓ / germination of seeds (2)
- 5.2.2 For insulation or to keep heat (temperature in (2) / to prevent heat from environment affecting the results (2)
- 5.2.3 To sterilize / to prevent growth of micro-organisms/to prevent inaccurate readings / to prevent respiration taking place/ to kill germs/ prevents decaying(2) ✓✓
Any 1 x 2 (2)
- 5.2.4 Seeds not sterilized/
growth of micro-organisms
Or respiration of micro-organisms
Or decay of seeds
therefore heat released(1) ✓ **first point + any 1** (2)
(8)
- 5.3
- 5.3.1 (i) Predator= beetles (1)✓ (1)
(ii) Prey = plant lice (1)✓ (1)
- 5.3.2 Every time there is an increase in beetles (1)✓, the number of plant lice decreased (1)✓ / prey's numbers more than predators
OR
Ladybird beetles used to control the plant lice (2) (2)
- 5.3.3 90 - 93 (2) ✓✓ (2)
- 5.3.4 They were the prey of the growing number of beetle population/
predation (1) ✓*
Emigration (1) ✓
Density independent factors (1) or examples
✓* + any 1 (2)

- 5.3.5 Ladybird population dropped / less predators (1) ✓
Emigration of ladybird beetle (1) ✓
Immigration of plant lice (1) ✓
Any favourable condition (1) ✓
Increased natality/birth rate (1) ✓

Any 1

(1)
(9)

TOTAL : [25]

TOTAL FOR SECTION B : [100]

MOONTLIKE ANTWOORDE VIR BIOLOGIE SG VRAESTEL 1

**AFDELING A
VRAAG 1**

1.1.		
1.1.1	B (2)	
1.1.2	A (2)	
1.1.3	C (2)	
1.1.4	D (2)	
1.1.5	B (2)	5 X 2
1.2		
1.2.1	Outotrofies (1)/fotosintese (1)	enige 1
1.2.2	Mitokondria (1)	1
1.2.3	Stralingsenergie (1) / sonlig / lig / radiasie(1)	enige 1
1.2.4	ATP (1) / ADP	enige 1
1.2.5	Obesiteit / vetsug / (oorgewig) (1)	1
1.2.6	Fermentasie / gisting (1)	1
1.2.7	Defekasie/ ontlasting (1) / Egestie	enige 1
1.2.8	Wanvoeding (1) / (ondervoeding) / anoreksia / marasmus/ hongersnood	enige 1
1.2.9	Soutsuur (1) / HCl / waterstofchloried	enige1
1.2.10	Insulien (1)	1 (10x1)
1.3		
1.3.1	C (1) / E (1) / F (1) (Merk slegs die eerste twee letters)	enige 2
1.3.2	A (1) / D (1) / F (1) / C (1) (Merk slegs die eerste twee letters)	enige 2
1.3.3	B (1) / C (1) / F (1) (Merk slegs die eerste letter)	enige 1
1.3.4	C (1) / F (1) (Merk slegs die eerste letter)	1 [6]
1.4		
1.4.1	Beide A en B / A+B (2)	2
1.4.2	Geeneen (2)	2
1.4.3	Slegs A / A (2)	2
1.4.4	Slegs B / B (2)	2
1.4.5	Slegs A / A (2)	2
1.4.6	Slegs A / A (2)	2
1.4.7	Geeneen (2)	2 [14]
1.5		
1.5.1	A=stralingsenergie / radiasie-energie / sonlig / lig (1) enige 1 E = omkring antwoord + (1) C = Koolstofdiksied (1) / CO ₂ (Merk slegs die eerste drie letters in korrekte volgorde indien A, E, C nie aangedui is nie)	(3)
1.5.2	B = Suurstof (1) / O ₂ / waterdamp (1) D = omkring antwoord / spasie +(1)	(2)
1.5.3	Palisade/ sponsmesofiel/ sluitselle/ chlorenchiem / mesofiel (1)	enige1
1.5.4	F = chloroplaste (1)	(1)
1.5.5	G = epidermis (1)	(1)
1.5.6	H = voorkom waterverlies (1) / laat sonlig deu / beskermingslaag teen	enige1

- 1.5.7 infeksie / voorkom uitdroging / beskerming
Huidmondjie porie / stomata/ stoma / porie (1) / (1)
Totaal 50

AFDELING B
VRAAG 2

- 2.1
2.1.1 dunderm (1) /duodenum/ enige deel van dunderm (ileum of jejenum) (1)
- 2.1.2 (meeste) absorpsie (1) van voedsel / verteringsprodukte (1)
- 2.1.3 Groot aantal villi (1) - voorsien groot oppervlakte vir maksimum absorpsie (1) (2)
Vingeragtige uitgroei (1) – voorsien groot oppervlakte vir maksimum absorpsie (1) (2)
Teenwoordigheid van mikro-villi (1) – vergroot oppervlakte vir absorpsie (1) (2)
Kapillêre netwerk teenwoordig (1) – help met absorpsie / vervoer van voedsel (1) (2)
Limfvat teenwoordig (1) – absorpsie/vervoer van vette (1) (2)
Konstante beweging - noue kontak met voedsel / beweging van voedsel (2)
Enkellaag epiteel / dun epiteel (1) – vergemaklik absorpsie (1) (2)
Bekerselle wat slym afskei / slym (1) – help met absorpsie /hou dit klam vir absorpsie(1) (2)
Groot aantal mitokondria (1) – verskaf energie vir aktiewe absorpsie (1) (2)
- eienskap + verduideliking = 2 punte
slegs eienskap korrek = 1 punt
enige
3x2
maks6
- 2.1.4 Kapillêre bloedvat / haarbloedvat / bloedvat (1) (1)
- 2.1.5 Glukose, (mono-sakkariedes), aminosure, vetsure, gliserol (1) eerste 2
enige
(2x1)
- 2.1.6
- | B | C |
|--|---|
| ge-absorbeerde voedingstowwe / glukose (mono-sakkariedes), aminosure, water, minerale elemente), koolstofdioksied, gedeoksigeneerde bloed
Enige (1) | Minder voedingstowwe/suurstof / geoksigeneerde bloed
(1) |
- (2)
- 2.1.7 B, C, D en E (1) (1)
[14]
- 2.2
2.2.1 Sojabone (2) (2)
- 2.2.2 Sojabone (2) / aanvaar pampoens – grafiek in sommige gevalle onduidelik (2)
- 2.2.3 Bevorder peristalse (1)/ bevorder water absorpsie / voorkom hardlywigheid /

	bevorder gereelde ontlasting / derms skoon te maak / absorbeer toksiese stowwe / voorkom aambeie / voorkom kanker / help met vertering / help met die behoud van water in feses	enige 1
2.2.4	Sojabone (2) / proteiene (2)	(2)
2.2.5	Brood (2) / koolhidrate	(2)
2.2.6	Pampoen (2) / koolhidrate (2)	(2) [11] /25/

VRAAG 3

3.1

3.1.1	Poeier C (1)	(1)
3.1.2	Poeier B (1)	(1)
3.1.3	Poeier A (1)	(1)
3.1.4	Poeier D (1)	(1)
3.1.5	Poeier E (1)	(1) (5)

3.2

3.2.1	ensiem (1) (Speeksel) amilase/ ptialien	enige1
3.2.2	alkalies (1) / neutral / pH=7	enige 1
3.2.3	Maltose/ disakkaried (1)/ glukose / monosakkaried	enige 1
3.2.4	Hidrolise (2) / chemiese vertering / katabolisme	enige 1
3.2.5	36 – 40 °C (1)/ liggaamstemperatuur	enige 1
3.2.6	optimum temperatuur vir ensiemaksie/ -aktiwiteit/ -funksionering (1) / liggaamstemperatuur van die mens	enige 1
3.2.7	proteïene (1)	(1)
3.2.8	Ensieme sal denatureer(1) en geen vertering/hidrolise(1) sal plaasvind nie / ensieme sal vernietig word/ ensieme sal nie werk nie	(2) [10]

3.3

3.3.1	A (2)	
3.3.2	A (2)	(2)
3.3.3	Om koolstofdiksied te absorbeer (1)	(2)

- 3.3.4 (i) Massa in plant A vermeerder (1) omdat fotosintese plaasgevind het (1)/ organiese voedsel/stysel is vervaardig (1)
- Massa in plant B verminder (1) omdat geen fotosintese plaas gevind het nie (1) (2)
- (b) chlorofil (1) / lig / water / ensieme / temperatuur (2)
- enige 1
[10]
/25/

VRAAG 4

4.1

- 4.1.1 A- Larinks / strottehoof / (stemkas, tiriodkraakbeen, adamsappel - (1)
aanvaar vir 2002) (1)
- B- tragea / lugpyp (1) (1)
- C- kraakbeen (1)/ C-vormige kraakbeenring / kraakbeenringe enige 1
- D- brongus (1) / longpyp (1)
- E- pleuraalmembraan /longvlies (1) (1)
- H- diafragma /mantelvlies /middelrif (1) (1)
- 4.1.2 C- hou tragea oop / om beweging van lug te verseker (1)/ voorkom blokkasie/ beperk wrywing (3)
- E-beskerm die longe (1) / beperk wrywing / help met asemhaling enige 1
- H-trek saam of verslap gedurende asemhaling(1) / help met asemhaling / inaseming en uitaseming / skei borskas enige 1
- 4.1.3 - slym antisepties (1) / vernietig kienme / beskerm (1)
- bevogtig lug wat invloei (1)/ voorkom uitdroging enige 1
- vergemaklik die beweging van lug (1) (1)
- (1)
- maks 2
- 4.1.4 Inaseming vind plaas (1) 1
- Uitwendige tussenribspiere trek saam (1) 1
- Ribbekas vergroot/ (1) beweeg op en uit enige 1
- Diafragma trek saam (1)/minder koepelvormig / beweeg opwaarts enige 1
- Lugdruk verminder (1) 1
- Lug vloei longe binne (1) 1
- enige (5)
- 4.2
- 4.2.1 A= (tak van) longslagaar / pulmonêre arterie/ arterie/ slagaartjie(1) (1)
- B= (tak van) longaar / aar / aartjie /vene (1) (1)
- C= alveolus/longblasie (1) (1)

	D=kapillêr / bloedhaarvat (1)	(1)
		(4)
4.2.2	(i) A = koolstofdiksied (1) (ii) B = suurstof (1)	(2)
4.2.3	Bikarbonaatione(1), karb-aminohemoglobien (1) in oplossing of opgelos (1) / koolsuur	enige 2
4.2.4	oksihemoglobien of in oplossing	(1)
		9] /25/

VRAAG 5

5.1.1	A= suurstof (1) B= glukose (1) (A en B mag omgeruil word)	(2)
5.1.2	C=koolstofdiksied (1) D = water (1) (C en D mag omgeruil word)	(2)
5.1.3	(i) suurstof (2) (ii) melksuur (2)	(2) (2)
5.2		
5.2.1	Respirasie (2)/ ontkieming van sade	(2)
5.2.2	Vir insulasie of om hitte (temperatuur) in te hou (2) / om te verhoed dat hitte van omgewing die lesings beïnvloed / om temperatuur konstant te hou	(2)
5.2.3	Om te steriliseer / om groei van mikro-organismes te voorkom /om onakkurate lesings te voorkom / om fermentasie te voorkom / om respirasie te voorkom / om ontbinding te voorkom	(2)
5.2.4	Sade nie gesterilisser nie (1) – groei/respirasie van mikro-organismes stel hitte vry (1) / sade ontbind (1)	(1 +1)
5.3		[8]
5.3.1	(i) Predator= kewers (1) (ii) Prooi = plantluse (1)	(2)
5.3.2	Elke keer as die kewers toeneem (1), neem die aantal plantluse af (1) / aantal prooi minder as predatore / kewers is gebruik (1) om die plantluse te kontroleer (1)	(2)
5.3.3	90 –93 (2)	(2)
5.3.4	Hulle was die prooi van `n groeiende kewerpopulasie (1) of predasie (1) Emigrasie / enige digtheidsonafhanklike faktore – enige een	(1) (1)

5.3.5 Skilpadkewerpopulasie het afgeneem omdat daar nie genoeg voedsel was
nie / minder predatore / afname in / immigrasie het plaasgevind / enige (1)
gunstige omstandighede / toename in nataliteit (1)

9]
/25/