GR 11 LIFE SCIENCES NOVEMBER 2024 – P2 MARKING GUIDELINES

SECTION A

QUESTION 1

1.1.1 B ✓✓
1.1.2 A
1.1.3 C
1.1.4 C
1.1.5 B
1.1.6 D
1.1.7 A
1.1.8 C
1.1.9 B
1.1.10 D

(10 x 2 = 20)

1.2.1 Carbon footprint ✓
1.2.2 Sessile
1.2.3 Niche
1.2.4 Ozone
1.2.5 Emigration
1.2.6 Thallus / Bryophyte / moss / prothallus
1.2.7 Porifera
1.2.8 Eukaryotes
1.2.9 Eutrophication
1.2.10 Carbon sink

(10 x 1 = 10)

1.3.1 Both ✓✓
1.3.2 B only
1.3.3 A only

(3 × 2 = 6)

1.4.1 a) Style ✓ (1)
b) Filament ✓ (1)

1.4.2 a) G ✓ (1)
b) C ✓ (1)
c) B ✓ (1)

1.4.3 Stamen ✓ *(accept Androecium)* (1)

1.4.4 Insects ✓ (1)

1.4.5 Larger petals ✓ (1)

(8)

1.5.1 Asexual ✓ (1)

1.5.2

ADVANTAGES	DISADVANTAGES
Quick / Not limited to flowering season / pollination / waiting for seeds to germinate	No/Limited genetic variation / Diseases or unfavourable characteristics passed on
Efficient / Offspring almost guaranteed	Offspring compete with parents for resources
Only 1 parent needed	
Desirable characteristics not lost in offspring	

(5)

(table + any 2)

(6)

TOTAL SECTION A: [50]

SECTION B

QUESTION 2

2.1 2.1.1 1: Bryophyta ✓
2: Pteridophyta ✓
3: Gymnospermae ✓
4. Angiospermae ✓ (4)

2.1.2 A: vascular tissue develops / xylem & phloem ✓
B: seeds ✓ / pollen tube
C: flowers ✓ / fruit (3)

2.1.3 Those divisions have vascular tissue / xylem & phloem ✓
Which provides support ✓ (2)

2.1.4 a pollen tube forms ✓
instead of the sperm having to swim to the egg ✓ / the sperm is directly transported to the egg (2)
(11)

2.2.1 a) Sterilising method ✓ (1)
b) Bacterial growth ✓ (1)

2.2.2 - toothbrushes were sterilised for the same amount of time / 5mins ✓
- the toothbrushes were all sterilised once a day ✓
- the toothbrushes were all collected after same number of days / 21 days ✓
- all the volunteers were not on antibiotics / using mouthwashes / undergoing dental treatment ✓
(any 2) (2)

2.2.3 To serve as a control ✓
To show that reduced bacterial growth was due to sterilisation ✓ / to compare using a sterilising method against using nothing / to compare experimental results to (2)

2.2.4 Some bacteria are resistant ✓ (1)
(7)

2.3 2.3.1 a) Monera ✓ (1)
b) Plasmid ✓ (1)
c) To prevent drying out ✓ (1)

2.3.2 Antibiotics stop bacteria from forming walls / proteins / nucleic acids ✓
They can alter the permeability of the cell membrane ✓
They can interfere with enzyme action ✓ (any 2) (2)

2.3.3 The plasmid from the bacterial cell (is removed) ✓ using restriction enzymes ✓
The insulin gene from human DNA ✓ is inserted into the plasmid ✓
The plasmid is then reinserted (into the bacterial cell) ✓ The bacteria divide/multiply ✓ and the bacteria will start to produce insulin ✓ (any 5) (5)

(10)

2.4 2.4.1 a) Sporangium ✓ (1)
b) Sporangiophore ✓ (1)
c) Stolon ✓ (1)

2.4.2 Dark ✓ (1)

2.4.3 Saprophytic ✓*
They release enzymes ✓
To break down dead/decaying matter ✓
Which is then absorbed ✓ (4)

(8)

2.5 2.5.1 Cnidaria ✓ (1)

2.5.2 a) X ✓ (1)
b) Y ✓ Z ✓ (2)
c) X ✓ (1)
d) Z ✓ (1)
e) X ✓ or Z (1)

2.5.3 a) Incoming food doesn't mix with outgoing undigested remains ✓
Different areas become specialised to improve efficiency (any 1) (1)

b) Allows animals to reach a more considerable size ✓
allows more space for organs to develop ✓
Serves as a transport medium for gases/nutrients/waste
Acts as a hydrostatic skeleton
Acts as a haemocoel (1)
Separates digestive tract from body wall (any 1)

2.5.4 a) mesoglea ✓ (1)

b) ectoderm ✓ (1)

c) gut (cavity) ✓ / digestive tract (1)

2.5.5 a) B ✓ (1)
b) D ✓ (1)

(14)
[50]

QUESTION 3

3.1 3.1.1 Predator-prey ✓ (1)

3.1.2 The maximum number of individuals ✓ that an ecosystem can support ✓ (2)

3.1.3 A ✓ (1)

3.1.4 The population is smaller ✓ /
The population only increases after the population of A increases (1)

3.1.5 1995 ✓ (1)

3.1.6 Disease or parasites ✓ / food shortage / water shortage / waste accumulation / lack of space (any 1) (1)

3.1.7 Natural disasters ✓ (accept examples: drought / flood / fire) (1)

3.1.8 The population of springbuck would increase ✓
as there would be no predators ✓ (2)
(10)

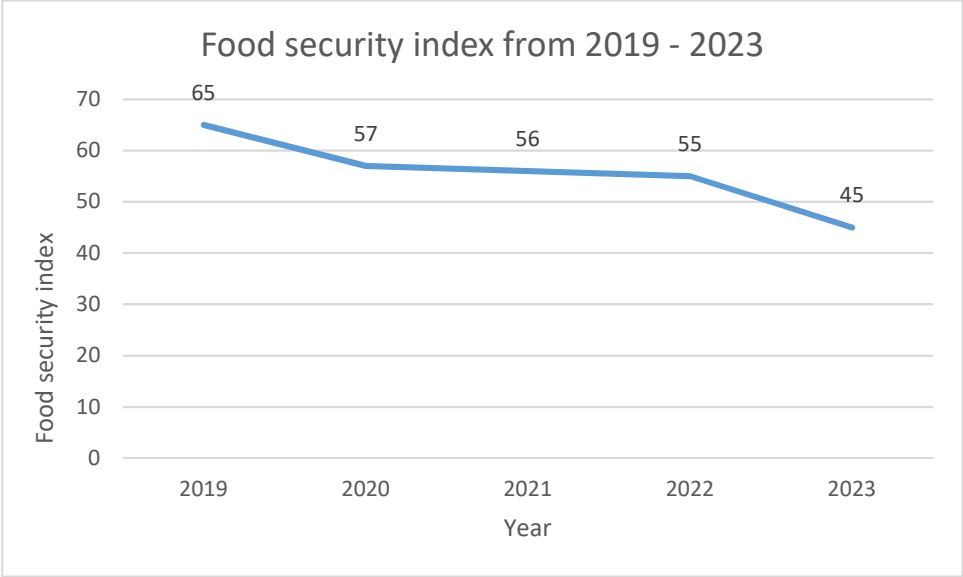
3.2 3.2.1 When all people ✓ at all times ✓ have access to sufficient / safe / nutritious food ✓ (3)

3.2.2 Global food price crisis / drought / COVID-19 lockdown / inflation due to the war in Ukraine / tough economic circumstances ✓✓ (any 2) (2)

3.2.3 Turning to alternative sources of nutrition ✓
VAT changes ✓
Keeping better record and track of nutritional outcomes in the country (any 2) (2)

3.2.4 a) $\%\ increase = \frac{65-46}{46}$ ✓ x 100 ✓ = 41.3 ✓% *(accept 41.30 or 41)* (3)

b)



Type – line graph drawn	**(T)**	**1**
Heading – both variables included	**(H)**	**1**
Scale (incl first point not on Y axis)	**(S)**	**1**
Labels	**(L)**	**1**
Plotting	**(P)**	**1: 1 – 4 points plotted correctly** **2: all 5 points plotted correctly**

(6)

3.2.5 Crops and/or livestock die / which lowers the yield ✓ and less food is available to the public ✓ (2)

(18)

3.3 3.3.1 a) Lag ✓ phase (1)

b) Accelerating / exponential growth ✓ phase (1)

c) Decelerating growth ✓ phase (1)

3.3.2 Logistic ✓ (1)

3.3.3 a) D ✓ (1)

b) B ✓ (1)

3.3.4 The fish are adapting to their new environment ✓ and time is required for them to seek a mating partner / for incubation / to reach sexual maturity ✓ (2)

3.3.5 The population had reached carrying capacity ✓ / E is the carrying capacity
Environmental resistance occurs ✓ /density dependent factors occur
This prevents the population from increasing ✓ (3)

3.3.6 Environmental resistance ✓ (1)

(12)

3.4 3.4.1 Gases that trap heat / IR radiation / radiant energy and keep the Earth warm ✓ (1)

3.4.2 Without greenhouse gases the earth would be frozen ✓ and unable to sustain life ✓ OR

Grenhouse gases keep the Earth warm ✓ so that it can sustain life (2)

3.4.3 Deforestation decreases the amount of carbon dioxide being taken up ✓ because there are fewer trees / less photosynthesis ✓ (2)

3.4.4 Burning fossil fuels ✓ (1)

3.4.5 The increased carbon dioxide levels cause more infrared radiation/heat ✓ to be trapped / reflected back to earth ✓ / enhanced greenhouse effect
This causes the temperature of the Earth's surface to increase ✓ / global warming
Which leads to an increase in extreme weather conditions ✓ (4)

(10)

[50]

TOTAL SECTION B: [100]

TOTAL MARKS: 150