MEMORANDUM

SECTION A

1.1.1 B

1.1.2 C

1.1.3 A

1.1.4 B

1.1.5 D

1.1.6 A

1.1.7 A

1.1.8 A

1.1.9 A

1.1.10 B

1.2.1 Parastalsis

1.2.2 Lactic acid

1.2.3 Kwashiokor

1.2.4 ATP

1.2.5 Aerobic

1.2.6 Active transport

1.2.7 Thallus

1.2.8 Villi/Villus

1.2.9 Chordata/Chordates

1.2.10 Oxygen

1.3.1 ~~B~~ only

1.3.2 A only

1.3.3 B only

1.3.4 A only

1.3.5 A only

1.3.6 A only

1.3.7 ~~B only~~

1.3.8 A only

1.3.9 Both

1.3.10 A only

SECTION B

QUESTION 2

2.1.1 - They have a coelom✓

- They developed from protostome✓

- They are multicellular ✓

- They have three germ layers which are bilateral symmetry✓

2.1.2 Protostome development✓

Deuterostome development✓

2.1.3 a) - It provides space for development of the internal organs✓

- It separates the gut wall from the body wall enabling them to function independently of each other✓

- The fluid within the body cavity acts a hydrostatic skeleton✓

- The fluid also cushions the internal organs, protecting them from injury✓

(Any **TWO**)

b) It makes diffusion inadequate✓ due to:

- The transport of gases to and from the body wall acts as a gas exchange surface✓

- The transport of food from the gut wall to the body wall✓

- The transport of nitrogenous waste from internal cells to the body surface✓

(Any **TWO**)

2.1.4 - Body wall made up of outerderm and endoderm✓

- Made up of ectoderm (outer layer) ✓ and endoderm (inner layer)✓

- Ecto and endoderm layers and separated by non-cellular jelly-like layer mesoglia.✓✓

- These layers surround a gut cavity.✓

- Ectoderm develops into outer body wall, and endoderm into inner body wall✓

- Ectodermal cells detect stimuli✓, such as food and danger✓

- Endodermal cells are responsible for digestion✓ and absorption of food✓
- They also have stinging cells used for defence✓ and capture prey✓ (Any **FIVE**)

2.1.5 - Coelom in Arthropods is reduced and contain haemocoels✓
- Coelom in Annelids contain coelomic fluid✓

2.2.1 D - Anther ✓
E – Stigma ✓
F- Petal/Corolla✓

2.2.2 B✓

2.2.3 Filaments and stigma are enclosed ✓
Has a large corolla/petals ✓

2.2.4 B✓

2.2.5 A: angiosperm ✓
Pine cone: gymnosperm✓

2.2.6 Gynosperm's seeds are naked ✓
Angiosperm's seeds are enclosed in an ovary/fruit ✓

2.2.7 After pollination a pollen tube ✓is developed – allows male gamete to be carried directly to the egg cell✓ in the ovule

(Any **ONE**)

2.2.8 - Seeds have a tougher coat✓ which prevents drying out
- Seeds have food reserves✓ for the developing embryo
- Seeds have a fully developed embryo✓ to immediately start growing when conditions become favourable
- Seeds have a longer lifespan✓ than spores
- Seeds can remain dormant (and still viable) ✓ longer than spores

(Any **TWO)**

2.3.1 Protista ✓

2.3.2 Take anti-malarial drugs ✓
Use insect repellents on exposed skin✓
Sleep under beds-nets ✓
Empty areas of standing water to prevent breeding of mosquitoes ✓

(Any **TWO)**

2.3.3 A female Anopheles mosquito ✓ bites an infected person; the parasite is sucked in ✓ and develops further in the vector and the mosquito bites another person✓ transferring the parasite. (Any **TWO)**

2.3.4 Antibiotics can only be used to treat diseases caused by bacteria✓
and the malaria is transmitted by a protist.✓

2.3.5 The economy will be negatively affected ✓as the cost of malarial treatment is high ✓or decreased work production ✓

QUESTION 3

3.1.1 a) To determine whether carbon dioxide is necessary/required for photosynthesis ✓✓
b) To determine whether chlorophyll is necessary/required for photosynthesis ✓✓
c) To determine whether starch is necessary/required for photosynthesis✓✓

3.1.2 To destarch the plant✓

3.1.3 Iodine solution✓✓

3.1.4

LEAF A	**LEAF B**	**LEAF C**
Blue-black✓	Blue, black or purple✓	Blue, black or purple✓

3.2.1 B – Liver✓
C – Stomach✓

3.2.2 Protein ✓

3.2.3 It provides a basic medium by secreting pancreatic juice which contains sodium bicarbonate✓✓

3.2.4 - It is made up of serosa✓ on the outside
- The muscular layer that assist in peristalsis✓
- the submucosa made up of connective tissue with blood vessels, lymph vessels & nerves✓
- Mucosa or mucous membrane which is the innermost layer lined with goblet cells✓
- Has millions of tiny villi which increase absorption surface✓ (Any **THREE**)

3.2.5 - Assist in peristalsis✓ and easy movement of faeces✓
- Prevents faeces from drying out ✓and causing constipation✓
- Prevent poisonous substances from being absorbed into the blood stream✓

(Any **THREE**)

3.3.1 X – Mitochondrion✓

Y - Chloroplast ✓

3.3.2 a) Photosynthesis ✓

b) Cellular respiration ✓

3.3.3 a) 1 – Carbon dioxide✓

b) 2 – Oxygen✓

c) 3 – ~~Oxygen~~✓

b) 4 – ~~Carbon dioxide~~✓

3.3.4 Chlorophyll✓

3.3.5 To trap light ✓

3.3.6 The dark phase✓

- The reactant of the dark phase takes place in the stroma of the chloroplast
- Carbon dioxide provides carbon and oxygen which combines with hydrogen atoms✓ to form Energy rich carbohydrates such as glucose and starch ✓
- Energized hydrogen atoms and ATP provide the required energy for this process ✓
- Specialised enzymes control the dark phase✓

3.3.5 - An important byproduct of dark phase is oxygen, ✓which is a basic requirement of life for all higher lifeforms. ✓

- Plants are also source of nutrient/energy for consumers which is obtained through starch stored in plants. ✓

SECTION C

QUESTION 4

Mechanical breakdown

- Carbohydrates broken down to a smaller size✓ by the teeth✓
- And stomach which grinds the food ✓
- To become a liquid called chyme ✓ (Max 3)

Chemical digestion

- Carbohydrases✓ in the saliva✓, pancreatic juice and intestinal juice✓
- Breakdown the polysaccharides ✓to disaccharides ✓
- And eventually to monosaccharides✓ in an alkaline medium ✓ (Max 6)

Absorption

- Glucose/monosaccharides move by diffusion ✓ against concentration gradient✓
- Through the columnar epithelial cells ✓
- They are absorbed actively/by active absorption
- Into the blood capillaries of a villus ✓ and transported through active transportation✓
- The capillaries all join to form the hepatic portal system ✓ (Max 4)

Assimilation

- Takes the digested food to the liver and muscles✓
- Where it can be stored as glycogen ✓
- And from there to the rest of the body through the hepatic vein to the cells ✓
- To produce energy through cellular respiration ✓
- Or to synthesise other polysaccharides for growth/rapair ✓ (Max 4)

ASSESSING THE PRESENTATION OF THE ESSAY

Marks	Description
3	Well structured – demonstrates insight and understanding of the question
2	Minor gaps in the logic and flow of the answer
1	Attempted but with significant gaps in the logic and flow of the answer
0	Not attempted/nothing written other than question number/no relevant information

(3)

TOTAL SECTION C: 20
GRAND TOTAL: 150