

May/June 2016

Memorandum

**BLG1502 May/June 2016
Animal and Plant Diversity**

Question 1

1.1 B

1.2 E

1.3 D

1.4 B

1.5 D

1.6 E

1.7 D

1.8 C

1.9 D

1.10 D

Question 2

2.1 Eukaryotic

2.2 Stroma

2.3 Mixotrophs

2.4 Endodermis

2.5 Bioremediation

2.6 Carpel

2.7 Red algae

2.8 Fertilization

2.9 Pollination

2.10 Coevolution

Question 3

Advantages of Algae

1. It can be used as a soil additive
2. It can be used as a healthy supplement
3. It can be used as a bioremediation agent
4. It can be used as a source of energy

Disadvantages of Algae

1. Due to rapid reproduction algae growing in water block sunlight reaching other aquatic plants, which results in their deaths
2. The process of deriving biofuel from algae is expensive and requires constant temperatures and therefore cannot be fully taken advantage of.
3. It may cause allergic reaction in some people.

4. It contains high level of sodium which makes consuming algae dangerous for people with high blood pressure or heart disease.

Question 4

4.1) Parenchymas and collenchymas similarities

- (a) Both of them are living cells
- (b) Both are circular oval or polygonal
- © Both manufacture starch when they contain chloroplasts

Differences between parenchymas and collenchymas

- (a) Parenchymas are distributed in almost all to parts of the plant body while collenchymas occurs mostly in the aerial parts of the plants restricted to the outer layers.
- (b) Parenchymas cells are thin walled and have intercellular spaces while collenchymas cells are thick walled having the absence of inter cellular spaces.
- © Parenchymas have tissues consisting of thin walled living cells while collenchymas has tissue consisting of cells having localised thickening in their cell walls.
- (d) Parenchymas is distributed in almost all of the parts of the plant body while collenchymas is the present in peripheral regions
- (e) Parenchymas contains living cells that assimilate and store food and waste products while collenchymas contains cellulose and pectin.
- (7) Parenchymas contains clear cytoplasm while collenchymas is the chief mechanical tissue of the young parts of the plants particularly in the young dicotyledonous stems.

4.2. Differences between monocotyledonous and dicotyledonous plants.

	Monocotyledonous plants	Dicotyledonous plants
1	The seeds have only one cotyledon	The seed have two cotyledons
2	Leaves usually show parallel venation	Leaves have reticulate venation
3	They have fibrous root system	They have tap root system
4	The flowers are trimerous (have 3 or	The flowers are pentamerous have five

	multiple petals)	petals
5	There is no secondary growth	Secondary growth present
	Stem contains scattered vascular bundles e.g. maize, rice, grass, wheat, etc.	Stem contains ring of vascular bundles e.g. sunflower ,pear, rose etc.

Question 5

Open circulatory systems are found in arthropods, most mollusks where blood bathes the organs directly. There is no distinction between blood and interstitial fluid so the fluid is called hemolymph. The heart pumps the hemolymph to spaces areas surrounding the organ called sinuses and the organs are bathed.

Closed circulating systems have vessels that separate the blood from the interstitial fluid and the blood from the fluid and the heart pumps the fluid. Examples are earthworms, squids, vertebrates.

Basic components common to both systems are:

- a. Circulatory fluid (blood)
- b. A set of tubes (blood vessels)
- c. A muscle pump (heart)

6.1 Organisms can regulate/maintain a stable internal temperature by regulating their internal temperature to best suit their needs like the regulators (endotherm) which use internal control mechanisms to maintain their optimum temperature needed for the body to function hence they are often described as warm blooded because they maintain a constant body temperature. The organism can also maintain a stable internal temperature by conforming their internal temperature to the external temperature hence a conformer is also called an ectotherm and it cannot regulate its own internal temperature so it adapts its behaviour by moving to environment with optimum temperatures .They are often referred to as cold blooded.

6.2 a. Conduction: This is the process of losing heat through physical contact with another object or blood.

b. Convection: This is the process of losing heat through the movement of air or water molecules across the skin.

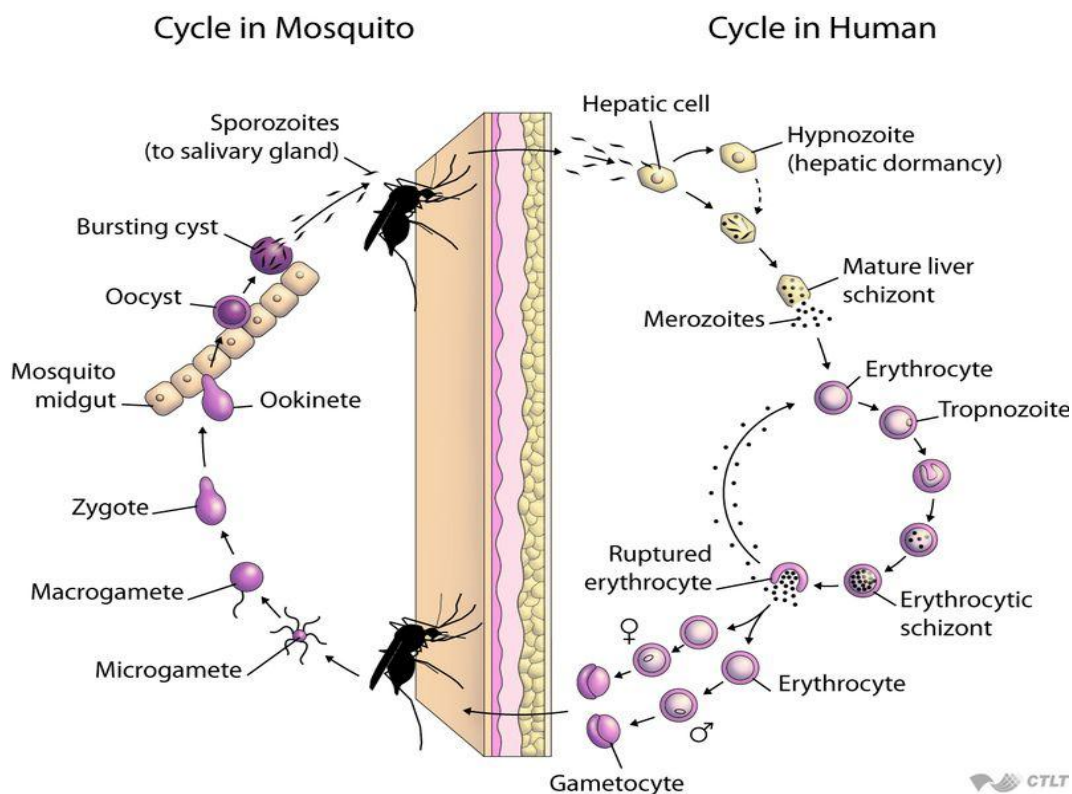
c. Radiation: This is a form of heat loss through infrared rays. It involves transfer of heat from one subject to another with no physical contact involved.

d. Evaporation: This is the process of losing heat through the conversion of water to gas

Question 7

Apicomplexans are a group of intracellular parasites that have life cycle stages evolved to allow them to survive the wide variety of environments they are exposed to during to their complex cycle.

Plasmodium life cycle



Question 8

8.1 a. Thyroid- stimulating hormone (TSH)

b. Follicle stimulating hormone (FSH)

c. Luteinizing hormone (LH)

d. Growth hormone

f. Prolactin hormone

8.2 a. Testosterone

b. Oestrogen

c. Progesterone

8.3 a. Aldosterone

b. Adrenaline

c. Cortisol

d. Androgens