JUNE EXAMINATION (UNIT1-6)
JUNE 2019
Lecturer: Ms E Pretorius
Moderator: Prof C van Dyk
TOTAL 150

QUESTION 1 [18]

1.1 Calcium is required by humans to:
a. assist in clotting of blood.
b. control the water balance in blood.
c. prevent muscular cramps.
d. produce the hormone thyroxin.

1.2 The cell membrane of plants:
a. prevents loss of water.
b. allows certain molecules through selectively.
c. gives shape to the cell.
d. forms the cell walls.

1.3 Mitosis is always responsible for the formation of:
a. daughter cells with the haploid chromosome number.
b. daughter cells with the diploid chromosome number.
c. cells in which the number of chromosomes is not constant.
d. cells with new hereditary characteristics.

1.4 Hemoglobin is a pigment consisting of a compound containing:
a. protein and copper.
b. carbohydrate and copper.
c. protein and iron.
d. phospholipid and iron.

1.5 The following are all examples of plant organs except:
a. roothairs
b. stems
c. leaves
d. roots

1.6 Which two of the following are features of erythrocytes?
1. Contain hemoglobin
2. Destroy bacteria
3. Assist in clotting of blood.
4. Produced in spongy tissue of long bones.

a. 1 and 2
b. 2 and 3
c. 3 and 4
d. 1,3 and 4

1.7 Mitosis ensures that each new cell produced by cell division will have:
a. an equal share of cytoplasm.
b. twice the number of chromosomes.
c. half the number of chromosomes.
d. the same number of chromosomes as the parent cell.

1.8 Which of the following serves as a macronutrient for plants and animals?
a. Iron.
b. Phosphorus.
c. Iodine.
d. Sodium.

1.9 The middle lamella is composed largely of:
a. lignin.
b. chitin.
c. cellulose.
d. pectin.

1.10 All digested carbohydrates reach the body tissues of humans as:
a. sucrose.
b. glucose.
c. cellulose.
d. glycogen.

1.11 The organelle in a plant cell that converts radiant energy into chemical potential energy is the:
a. dictyosome.
b. chloroplast.
c. nucleolus.
d. mitochondria.

1.12 The nucleus of a plant cell has 16 chromosomes. How many chromosomes will each new (daughter) cell's nucleus have after mitosis?
a. 8
b. 16
c. 32
d. 4

1.13 One (1) of the components of hemoglobin is:
a. Sodium.
b. Iron.
c. Phosphorus.
d. Calcium.

1.14 Which one (1) of the following will decrease during the day, in a cell where photosynthesis is taking place? The amount of
a. Carbon dioxide
b. Chlorophyll
c. Oxygen
d. Carbohydrates

1.15 The following form part of the stems in plants, except:
a. nodes
b. internodes
c. trichomes
d. mycorhiza

1.16 Which one (1) of the following atmospheric gasses will disappear first when all chlorophyll containing plants are removed from the earth?
a. Nitrogen
b. Carbon dioxide
c. Oxygen
d. Water vapour

1.17 The apical meristem is located near the tip of the:
a. stem
b. root
c. node
d. stems and roots.

1.18 Photosynthesis takes place in all of the following except in:
a. algae.
b. virusses.
c. cyano bacteria..
d. green protists.

QUESTION 2 **[18]**

Provide the correct biological term for the following statements.

2.1 The cardiovascular disease that can be worsen by saturated fats.

2.2 The small region on the enzyme that binds with the substrate.

2.3 The chemical bond that involves sharing of electron pairs between atoms.

2.4 Channel proteins for the transport of water.

2.5 Specific place in a cell where you find the DNA/RNA in prokaryotes.

2.6 Substance that repulses water.

2.7 Duplicated chromosome that will move to then new cell and mature.

2.8 Division of the cytoplasm and cell contents except nucleus.

2.9 The invagination of the cell membrane in animal cells during telophase.

2.10 Shiny white tissue produced by fibroblasts, for strength and support.

2.11 Membrane surrounding the chondrocytes in cartilage tissue.

2.12 The single process that transmits impulses away from the cell body.

2.13 Part of xylem (vascular tissue), non-living cell transporting water and minerals, have tapered (pointed) ends with pits.

2.14 Specialized epidermal cells.

2.15 Gives rise to the epidermis.

2.16 The entire range of radiation wavelengths.

2.17 Green pigment that absorbs solar energy from sun.

2.18 Organisms that can photosynthesize and produce their own food.

QUESTION 3 **[12]**

Provide the correct biological statement for the following terms.

3.1 Rickets.

3.2 Glycoside bond.

3.3 Thylakoids.

3.4 Lysosomes.

3.5 Somatic cells.

3.6 Aster.

3.7 Cilia.

3.8 Nervous tissue.

3.9 Heterotrophs

3.10 Thylakoid.

3.11 Stroma.

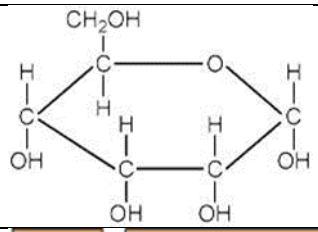
3.12 Chlorophyll a and b.

QUESTION 4 **[18]**

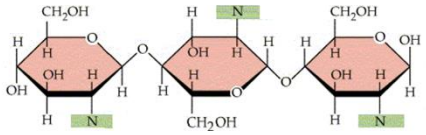
4.1 Explain in detail how the enzyme pepsin will help to break a dipeptide in your stomach. (10)

4.2 Study the diagrams below and answer the questions that follows.

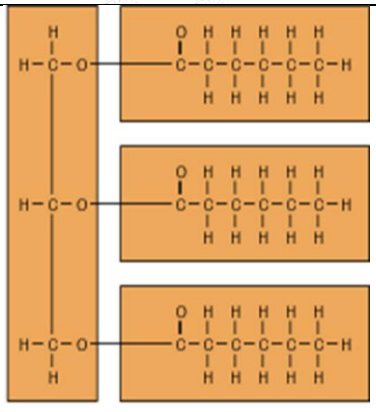
a)



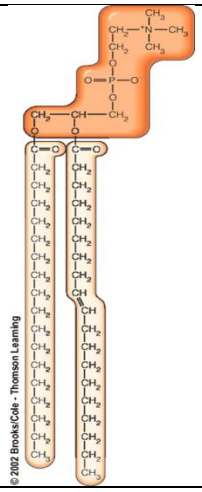
b)



c)



d)



4.2.1 Provide the name of the macro molecule to which each of the molecules in the diagrams in 4.2 belong. (4)

4.2.2 What is the type of molecule is provided in 4.2 (d). (2)

4.2.3 What type of reaction will form the molecule in 4.2 (c) and what is the basis of this reaction. (2)

QUESTION 5 **[17]**

5.1 List any five (5) differences between a plant and an animal cell. (10)

5.2 Discuss the movement of non-polar and polar molecules across the membrane of a cell. (7)

QUESTION 6 **[17]**

6.1 Discuss the process that takes place during prophase in detail. (5)

6.2 Discuss the process that takes places during early telophase in detail. (5)

6.3 Make a labelled drawing that illustrates late telophase. (5)

6.4 Why is mitosis important for living organisms? (4 x ½ = 2)

QUESTION 7 **[18]**

7.1 Provide a brief description of smooth muscle. (4 x ½ = 2)

7.2 Provide a brief description of cardiac muscle. (4 x ½ = 2)

7.3 List the four (4) major tissues found in animals and provide the function of each. (8)

7.4 Provide two (2) functions of yellow elastic cartilage in your body. (2)

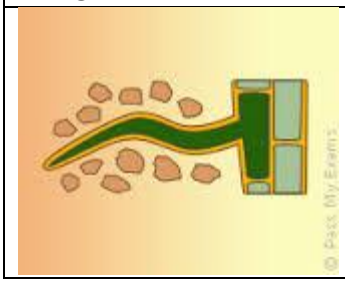
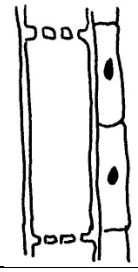
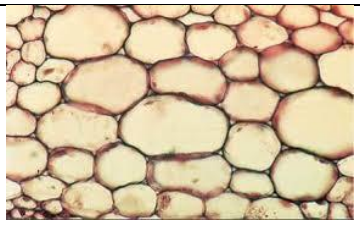
7.5 Provide a brief description of white fibrocartilage. (4)

QUESTION 8 **[16]**

8.1 Draw a labelled diagram of the specialised epidermal cell that plays a role during photosynthesis. (5)

8.2 What is the key functions of trichomes? (3)

8.3 Study the following diagrams and answer the questions that follow.

DIAGRAM A	DIAGRAM B	DIAGRAM C	DIAGRAM D
			

8.3.1 Identify diagrams A – D above and provide a function for each. (8)

QUESTION 9 **[16]**

9.1 Name the raw materials involved in photosynthesis. Briefly describe how each one (1) of these raw materials reaches their destination to ensure photosynthesis. (16 X ½ = 8)

9.2 Construct your own flow diagram to show the events occurring during the second phase of photosynthesis. Include all aspects of the phase in your diagram. (8)
