



LSFT0A1
EXAM (UNIT 1-6)
JUNE 2017
TOTAL: 150

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DURATION:	3 HOURS
TOTAL MARKS:	150

NUMBER OF PAGES: 7 PAGES

Please read the following instructions carefully:

1. Answer all the questions in the question paper.
2. Answer question 1 in CAPITAL LETTERS.
3. ALL of the questions in the test book.
4. Work neatly.
5. Read your questions carefully.
6. Good Luck.

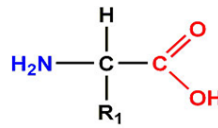
QUESTION 1

[18]

Choose the alternative that best completes the statement or answers the question. Only write down the correct CAPITAL letter next to the appropriate question number.

- 1.1 Peptide bonds are the bonds that forms in which macromolecule?
- | | |
|------------------|-------------|
| a. Carbohydrate. | c. Lipid. |
| b. DNA. | d. Protein. |
- 1.2 Many aquatic birds secrete waxy organic substances that repel water. The birds use these substances to coat their feathers. An analysis of these substances would reveal that they are composed mostly of
- | | |
|--------------|-------------------|
| a. lipids. | c. carbohydrates. |
| b. proteins. | d. nucleic acids. |

1.3 The molecule shown below is the building block of



- a. glucose.
b. water.
- c. amino acid
d. protein.
- 1.4 What part of the cell will most likely contain polysaccharides such as starch?
a. Mitochondrion.
b. Chloroplast
c. Ribosome.
d. Nucleus.
- 1.5 Which structure regulates substances that enters and leaves the cell and provides protection and support?
a. Nucleus.
b. Ribosomes.
c. Cell wall.
d. Cell membrane
- 1.6 What organelle will contain digestive enzymes?
a. Nucleus.
b. Chloroplast.
c. Lysosome.
d. Golgi-apparatus.
- 1.7 The centromeres move toward the poles in _____.
a. anaphase.
b. metaphase.
c. telophase
d.
- 1.8 In the life cycle of a human cell, each chromosome contains two chromatids by the end of the _____ phase.
a. cytokinesis
b. mitosis
c. synthesis
d. growth 1
- 1.9 Each chromosome replicates to produce two (2) sister chromatids in _____.
a. anaphase.
b. interphase.
c. prophase.
d. telophase.
- 1.10 The dark staining thread-like bodies within a cell nucleus are known as:
a. Centromeres.
b. Nucleoli.
c. Ribosomes.
d. Chromosomes.
- 1.11 The centrosome:
a. attaches two (2) chromatids together.
b. controls protein synthesis.
c. plays a role in cell division in plant cells.
d. plays a role in cell division in animal cells and lower plant only.
- 1.12 In a zygote, the chromosome number is:
a. always an odd number.
b. haploid.
c. half the number present in a gamete.
d. diploid.
- 1.13 The following are example of tissues in plants, except:
a. Protoderm
b. Vascular tissue
c. Ground tissue
d. Stomata
- 1.14 The following are example of modified roots, except:
a. Prop roots
b. Buttress roots
c. Strangling aerial roots
d. Mycorrhiza

- 1.15 The following are example of ground tissue, except:
- a. Epidermis
 - b. Collenchyma
 - c. Parenchyma
 - d. Sclerenchyma
- 1.16 When green plants photosynthesize, they produce complex organic compounds. This process consists of ____.
- a. sunlight energy that is converted to kinetic energy.
 - b. sunlight energy that is converted and stored as chemical energy.
 - c. heat-energy that is converted and stored as chemical energy.
 - d. chemical energy that is converted and stored as sunlight energy.
- 1.17 Which one of the following is NOT necessary for photosynthesis to take place?
- a. Water
 - b. Chlorophyll
 - c. Oxygen
 - d. Carbon dioxide
- 1.18 Which one of the following atmospheric gasses will disappear first when all chlorophyll containing plants are removed from the earth?
- a. Nitrogen
 - b. Oxygen
 - c. Carbon dioxide
 - d. Water vapour

QUESTION 2**[18]**

Give the correct biological term for each of the following statements. **Only write down the correct term next to the appropriate question number on the answer sheet.**

- 2.1 The type of molecule with a distinct carbon skeleton of four (4) fused rings.
- 2.2 Type of molecule that could cause atherosclerosis.
- 2.3 Linear molecule called a strand.
- 2.4 The structure that is filled with chlorophyll.
- 2.5 The membrane that encloses the organelle that contains chromatin.
- 2.6 The connections between cytoplasm of adjacent cells.
- 2.7 Type of cytoplasm division formed in animal cells.
- 2.8 The result of uncontrolled cell division.
- 2.9 The structure that forms between two (2) sister chromatids.
- 2.10 Carriers of the hereditary characteristics in nuclei.
- 2.11 The cytoplasmic organelle in animal cells that moves to the opposite poles during cell division.
- 2.12 Chromosomes arranged in identical pairs.
- 2.13 Specialised epidermal cells on stems and leaves.
- 2.14 Specialised epidermal cells of roots.
- 2.15 Spherical, loosely packed, big, thin-walled cells with large vacuoles.

- 2.16 The green pigment within plants that is necessary for the conversion of sun energy to chemical energy.
- 2.17 The liquid part of a chloroplast.
- 2.18 The part of a chloroplast where the light phase takes place.

QUESTION 3**[12]**

Provide a short definition for each of the following:

- 3.1 ATP / Adenosine triphosphate.
- 3.2 Co-factors / co-enzymes.
- 3.3 Pentose sugar.
- 3.4 Pectin.
- 3.5 Lignin.
- 3.6 Kinetochore fiber.
- 3.7 Somatic cells.
- 3.8 Perichondrium.
- 3.9 Lacunae.
- 3.10 Centromere.
- 3.11 Tumour.
- 3.12 NADPH.

QUESTION 4**[17]**

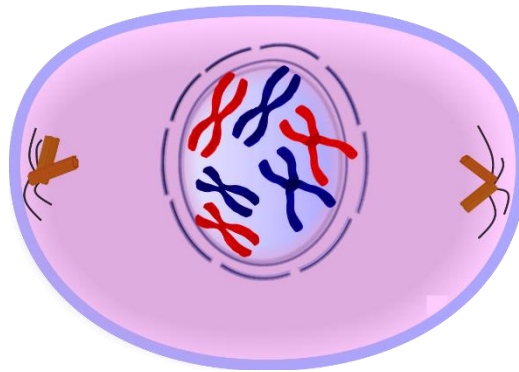
- 4.1 What type of disease will a person suffer from if the symptoms include distended abdomen, an enlarged liver, thinning hair and loss of teeth? (1)
- 4.1.1 What causes the disease referred to in 4.1? (1)
- 4.2 What type of disease will a person suffer from if the symptoms include weak bones that crumbles and fractures easily? (1)
- 4.2.1 Provide three (3) examples of good food sources to avoid getting the disease referred to in 4.2? (3)
- 4.3 Use a diagram to discuss hydrolysis taking place in a macromolecule. (5)
- 4.4 Provide one (1) **example and function** of a structural polysaccharide in plant and animal respectively. (4 x ½ = 2)
- 4.5 Draw two (2) different types of fat molecules **and** state another difference between each of the molecules. (4)

QUESTION 5**[17]**

- 5.1 Tabulate six (6) differences between plant and animal cells. (12 x ½ = 6)
- 5.2 Draw the organelle with a double membrane that will be present in plant cells only. (6)
- 5.3 Write down in which organelle the following process takes place: (3)
- a. Protein synthesis.
 - b. Photosynthesis.
 - c. Cellular respiration.
- 5.4 Name and discuss the organelle where food particles can be digested. (4 x ½ = 2)

QUESTION 6**[17]**

- 6.1 Study the following diagram and answer the questions that follow.



- 6.1.1 How many sister chromatids are present in the diagram above? (1)
- 6.1.2 Name the process that the cell in the diagram is undergoing. (1)
- 6.1.3 Which phase of the process in question 6.1.2 is depicted in the diagram? (2)
- 6.1.4 Name the phase that paved the way for the phase in the diagram above. (2)
- 6.1.5 Draw and label the phase that will take place after the phase in the diagram above. (4)
- 6.1.6 Give four (4) reasons why the process in question 6.1.2 is vital for survival of all living organisms. (4)
- 6.2 Explain the disease known as cancer. (3)

QUESTION 7**[17]**

- 7.1 Complete the following table by identifying three **(3) types of cartilages, their structure, function and location** in the body. (12)

	Type 1:	Type 2:	Type 3:
Structure			
Function			
Specific location			

- 7.2 Use a diagram with labels to show a cross section through bone. (6 x ½ = 3)
- 7.3 Where would you find the following connective tissues in your body?
- 7.3.1 Dense white fibrous connective tissue: (1)
- 7.3.2 Dense yellow fibrous connective tissue: (1)

QUESTION 8**[16]**

- 8.1 Write down the letter of the description in Column B that fits the correct structure in Column A: (10)

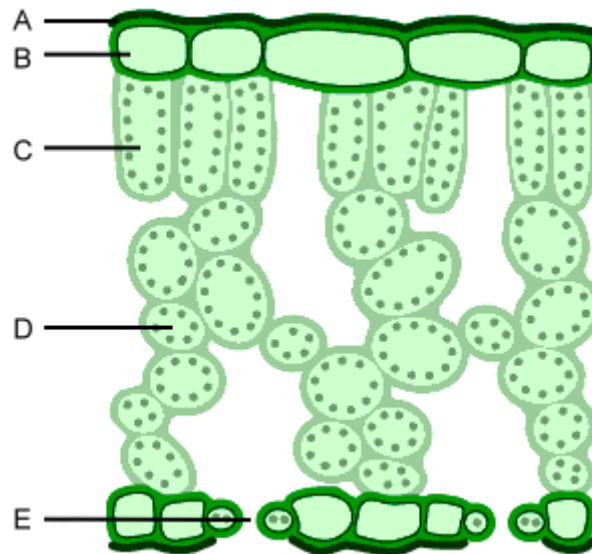
COLUMN A	COLUMN B
1. Epidermis	A. Tissue that forms new cells.
2. Sieve-tubes	B. Make up the largest part of living tissue in plants.
3. Collenchyma	C. Single layer of cells that cover the entire plant.
4. Tracheids	D. Epidermal cells that can photosynthesise.
5. Xylem	E. Tissue group that includes fibers and stone cells
6. Parenchyma	F. Non-living cells found in Xylem.
7. Companion cells	G. Cells that have thickened walls and serves as mechanical strengthening.
8. Sclerenchyma	H. Consists of vessel elements.
9. Meristem	I. Transport sucrose and other organic substances.
10. Guard cells	J. Cells with nuclei that are found in phloem.
	K. The basic structural unit of tissue.

- 8.2 In the following table, the first column on each line consists of the names of two items, each represented by A or B. The second column contains a statement. Indicate by choosing (A) or (B) or (A and B) or (none) and then write down the correct answer next to the question number. (6)

ITEM	STATEMENT
3.1 (A) Meristem (B) Epidermis	Contains outgrowths, like trichomes and thorns.
3.2 (A) Epidermal tissue (B) Collenchyma	Non-living cells.
3.3 (A) Collenchyma (B) Sclerenchyma	Gives mechanical strengthening and support.
3.4 (A) Xylem (B) Phloem	Photosynthetic tissue.
3.5 (A) Companion cells (B) Sieve-tubes	Components of vascular tissue.
3.6 (A) Sclerenchyma (B) Collenchyma	Cell walls with thickened corners

QUESTION 9**[18]**

Study the diagram below (CROSS SECTION THROUGH A LEAF TO SHOW THE INTERNAL STRUCTURES).
Answer the following questions.



- 9.1 Identify parts numbered (A) and (B) in the diagram. (2)
- 9.2 The organelle located inside the part numbered (C) in the diagram is mainly responsible for the process of photosynthesis.
- (i) Name this organelle. (1)
- (ii) In what ways is this organelle best adapted for its specific function? (2)
- 9.3 (i) identify the cells numbered C in the diagram. (1)
- (ii) In what way are these cells best adapted for their role as photosynthetic tissue? (5)
- 9.4 Explain the process of carbon dioxide uptake into leaf cells. (4)
- 9.5 Name the three (3) pigments involved in the process of photosynthesis. (3)

TOTAL 150