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<b>Final Term Test – 2018 (July)</b>			
<b>Grade 12</b>			
<b>Biology I</b>			
<b>Time: 2 hours</b> <i>Enu</i>			

This questions paper consists of 50 questions

- Answer all the questions.
- In each of the questions 1 to 50, pick one of the alternatives (1) , (2) , (3) , (4) , (5)
- Which is correct or most appropriate and mark on the number corresponding to your choice in the answer sheet provided.

1) Select the **correct** statement

1. C, H, O and N make up 96.6 % of living matter
2. H bonds are breaking in liquid water with low frequency
3. Water has high surface tension due to cohesive forces
4. Water at 15 °C has more density than the water at 10<sup>0</sup> C
5. Solubility of water depends on polarity and ionic nature

2) A branched polysaccharide which is formed by polymerization of pentose

1. Hemicellulose
2. Amylose
3. Glycogen
4. Pectin
5. Chitin

3) Select the **incorrect** statement about carbohydrate

1. Fructose is a ketose
2. A rare carbohydrate in nature has 4 carbon atoms
3. Glycogen is the stored food in fungi
4. Hemicellulose is a component of middle lamella of plant cell wall
5. Glucosamine has Nitrogen

4) Select the **incorrect** statement about lipids

1. Saturated fat and trans unsaturated fat contribute atherosclerosis
2. Choline is a hydrophobic molecule
3. Animal fat usually have no double bonds between carbon atoms
4. Cholesterol maintains the fluidity of plasma membrane
5. According to the nature of carbon double bonds, fatty acids can be divided as trans and cis types

- 5) Select the **correct** answer with proteins that do following functions respectively
- Transport fatty acids -
  - Prevent desiccation
  - Storage protein in milk
1. Serum albumin, Chitin, Caseinogen
  2. Serum albumin, Keratin, Caseinogen
  3. Ovalbumin, Keratin, Casein
  4. Serum albumin, Keratin, Casein
  5. Myosin, Cutin, Casein
- 6) **Not** a basic feature common to all cells
1. All cells are bounded by a plasma membrane
  2. Within the cell, there is a semifluid cytosol
  3. Ribosomes are found in all cells
  4. All cells carry genetic material
  5. All cells have vacuoles
- 7) **Not** a function of protein of plasma membrane
1. Involved in cell identification
  2. They allow for the passing of some ions
  3. Act as receptors for steroid hormone and allow them to enter the cell
  4. Act as enzymes
  5. Help to maintain the shape of the cell
- 8) **Not** found in mitochondrial matrix
1. Lipid droplets
  2. 70 S ribosomes
  3. Circular DNA
  4. Phosphate granules
  5. Enzymes
- 9) Select the **correct** statement about cell cycle
1. Most cells in the human body are in the  $G_0$  phase
  2. Two genetically identical daughter cells are formed during mitosis
  3. Chromosomes can be observed by light microscope at  $G_3$  phase
  4. The division of cytoplasm starts at cytokinesis
  5. This is important to maintain constant chromosomal number from generation to generation
- 10) Select the **correct** statement about enzymes.
1. The active site is formed by many amino acids
  2. Loosely bound cofactors are always reversible
  3. Biotin is an inorganic co-factors
  4. In most enzymes optimum pH range is 5-7
  5. Drugs used against microbes, bind with enzymes via weak interactions

11) Select the **incorrect** statement about cellular respiration

1. 6 ATP molecules are formed in aerobic respiration of glucose by substrate phosphorylation
2. The electron transport chain in the inner membrane of mitochondrion has protein and non-protein molecules
3. Not all cells produce 32 ATP molecules by cellular respiration
4. Intermediate molecules are joined only with the glycolysis and oxidation of pyruvate, when proteins are used in respiration
5. Final H acceptor is an organic molecule in both types of anaerobic respiration

12) Not a difference of cyclic electron transport from linear electron transport

1. Only photosystem I is used
2. No formation of NADPH
3. No releasing of oxygen
4. Excitation of photosynthetic pigments of reaction center complex of photosystem I
5. No activation of cytochrome complex

13) Which of the following statement is **incorrect** about diversification of organisms

1. Many present-day animal phyla appeared in the early Cambrian period
2. The divergence of human lineage was initiated 6-7 million years ago
3. Origin of first animal group is happened at Eon Phanerozoic
4. Colonization of land by animals began after about 500 million years ago
5. Oldest multicellular eukaryotes were originated about 1.2 billion years ago.

14) Which of the following is **correct** about the classification

1. Linnaeus classified plants into a hierarchical order of taxa, classification level such as; Species, genus, order, class, and phylum
2. Classification of Robert H Whittaker was based on nature of respiration of organisms
3. Aristotle classified organisms according to their nutritional mode
4. Theophrastus classified plants according to lifespan
5. Bacteria and Archea are mostly related to each other than Eukarya

15) Select the **incorrect** statement about *Salmonella typhi*

1. Introns in gene are very rare
2. Presence of several kinds of RNA polymerases
3. Cell wall composition has peptidoglycan
4. Membrane lipids have Unbranched hydrocarbons
5. No growth at over 100<sup>0</sup> C

16) Select the **incorrect** relationship

	Organism	Character
1	<i>Amoeba</i>	Living aquatic organism
2	Diatoms	Unicellular
3	<i>Gelidium</i>	Air filled bulb like structures are found
4	<i>Ulva</i>	Has hold fast
5	<i>Sargassum</i>	Has stem like stipe and leaf like blade

17) Select the **correct** statement about the following fungus



1. Exogenous basidiospores are produced
2. Form zygosporangium in unfavorable environmental conditions
3. Septa are found only at gametangia
4. Form structures with 8 spores
5. There is no Dikaryotic stage in the life cycle

18) **Not** a character of meristematic cell

1. Isodiametric shape
2. Having central large vacuole
3. Presence of large nucleus
4. Having only primary cell wall
5. Functionally undifferentiated

19) Select the **responsible** meristem, for the regrowth of damaged leaves of grasses due to grazing

1. Apical meristem
2. Intercalary meristem
3. Cork cambium
4. Vascular cambium
5. Lateral meristem

20) Select the **correct** statement

1. In the zone of cell elongation, root cells elongate, to more than ten times their original length
2. Cells produced inward to the apical meristem are differentiated to form root cap
3. There are parenchyma cells in the zone of cell elongation
4. In the zone of maturation, functionally non matured cells are present
5. Leaf primordia develop from leaves

21) Select the **incorrect** statement about the plant tissue systems

1. Short distance transport is a function of ground tissues
2. Epidermis of mature parts of the plant can be replaced by pericycle
3. Collenchyma provides support without restraining growth
4. Vessel elements have thinner walls than tracheids
5. In gymnosperms, organic food is transported via sieve cells

22) Select the **correct** relationship

1. Cortex of dicot stem - provide additional strength by sclerenchyma
2. Cortex of dicot root - selective absorption of minerals
3. Cortex of dicot stem - formation of vascular cambium
4. Epidermis of dicot root - provide protection by cuticle
5. Bundle sheath cells surrounding the vascular bundle of monocot stem - carry out dark reaction of photosynthesis

23) **Not** an adaptation of plant to capture maximum light

1. Increasing the height of plant
2. Having well branched stem
3. Having small leaves
4. Presence of horizontally oriented leaves
5. Arrangement of one leaf per node, on the stem

24) Select the **incorrect** statement about the guard cells of flowering plants

1. Inner wall is thicker than outer wall
2. They are parenchyma cells with chloroplasts
3. Two guard cells are tightly attached with each other, at two ends
4. Having vertically arranged cellulose microfibrils
5. Bean seed shaped

25) **Not** a factor that is responsible for the opening of stomata

1. Entering of water into guard cell
2. Decrease in CO<sub>2</sub> concentration in the substomatal cavity
3. Light intensity
4. High wind
5. Absence of ABA

26) Select the **correct** statement about the water potential of a cell

1. Water potential of a full turgid cell is similar with the solute potential
2. Only endosmosis is happened when a cell, is placed in pure water
3. Water potential of a cell at incipient plasmolysis is similar to the solute potential
4. Fully turgid cells are found in nature
5. There is no exosmosis, happens in a cell at dynamic equilibrium with a solution

27) **Not** a result of transpiration

1. Ascent of xylem sap
2. Uptake of water and minerals by roots from the soil solution
3. Increasing the humidity in the atmosphere surrounding the plant
4. Get a cooling condition to plant leaves
5. Bulk flow of organic food in the phloem

28) A **commensalism** relationship in plants

1. *Cuscuta* and host plant
2. epiphytes
3. *Anabaena* and *Cycas* root
4. *Loranthus* and Mango tree
5. Fungi and higher plant root

29) Which of following minerals create **chlorosis**, with their deficiency

- a.) Nitrogen
- b.) Magnesium
- c.) Potassium
- d.) Zinc
- e.) Sulfur

1. Only a and b
2. Only b and d
3. Only a, b and d
4. Only a, b and e
5. Only a, c and e

30) Select the **incorrect** statement/s about the plant life cycles

- a.) Prothallus is formed by the development of spores in *Pogonatum*
- b.) *Nephrolepis* has rhizoids
- c.) There is only one megasporangium, near to the each megasporophyll in *Selaginella*
- d.) Functional megaspore of *Cycas* is dispersed by wind
- e.) Stamens of flowering plants represent the microsporophylls

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

31) A reason for the seed dormancy

1. Synthesis of Gibberellin in the embryo
2. Presence of seed coat
3. Presence of immature embryo
4. Presence of endosperm, to provide nutrition to embryo
5. Presence of 2 Cotyledons

32.) Which of the following plant growth substance is responsible for the growth of pollen tube

1. Auxin
2. Gibberellin
3. Cytokinins
4. Ethylene
5. Jasmonic acid

33) which of the following is **correct** plant's responses for stress conditions

1. All monocot plants roll their leaves in drought conditions
2. Amount of unsaturated fatty acid is increased in plasma membrane, during winter season
3. All mangroves have salt glands
4. Presence of epidermal hairs, is an induced defense mechanism of plants
5. Cyanogenic glucoside is a primary metabolic product of plants

34) **Not** a response of blue light photoreceptors in plants

1. Light induced opening of stomata
2. Slowing of hypocotyl elongation, during the seedling breaks ground
3. Phototropism
4. Opening of stomata, due to decreasing of CO<sub>2</sub> concentration
5. The growth of a shoot towards the light

35) Which of the following is not affected by light

1. Seed germination
2. Plant spacing
3. Flowering
4. Elongation of shoot
5. Formation of root hairs

36) Select the **correct** statement about epithelial tissues in man

1. Basal surface of all cells are rest on the basement membrane
2. The walls of all glands in man are made up of simple cuboidal epithelium
3. Pseudostratified columnar epithelium is an compound epithelium
4. Some cells are modified to secrete hormones
5. Epithelial cells are arranged loosely

37) Select the **correct** relationship/s

- |                              |                                    |
|------------------------------|------------------------------------|
| a) Areolar tissue            | - holds organs in place            |
| b) Fibrous connective tissue | - form tendons                     |
| c) Bones                     | - provides support and flexibility |
| d) Smooth muscles            | - constriction of arteries         |
| e) Neurons                   | - provide support to neuroglia     |

- |                    |                    |                       |
|--------------------|--------------------|-----------------------|
| 1. Only a and b    | 2. Only a, b and c | 3. Only a, b, c and d |
| 4. Only a, b and d | 5. Only a, b and e |                       |

38) which of the following answer has a substance, that is not found in saliva

1. Water, Amylase, Minerals
2. Water, Amylase, Lipase
3. Mucus, Buffers, Antimicrobial substances
4. Water, Buffers, Immunoglobulin
5. Water, Amylase, lysozyme

39) Not a location, that forms plant meristem

1. Leaf of dicot plant
2. Leaf in grasses
3. Root tip
4. Outer cortex of dicot stem
5. Pericycle of dicot root

40) Select the **correct** statement/s

- a) Long, multinucleated cells found in the skeletal muscle tissue
  - b) Intercalated disc are found only in cardiac tissues
  - c) Smooth muscle cells are striated
  - d) Cardiac muscle cells are striated
  - e) Skeletal muscles control the involuntary actions
1. Only a and d
  2. Only a and e
  3. Only a, b and d
  4. Only a, b, c and d
  5. Only a, c and d

❖ The responses for questions 41 to 50 should be chosen as follows. One or more responses could be correct.

If only <b>A, B and D</b> are correct	-	1
If only <b>A, C and D</b> are correct	-	2
If only <b>A and B</b> are correct	-	3
If only <b>C and D</b> are correct	-	4
If any other response or combination of responses is correct	-	5

1	2	3	4	5
A, B and D are correct	A, C and D are correct	A and B are correct	C and D are correct	any other response or combination of responses is correct

41) Select the **correct** statement/s about Fungi

- A. Diploid condition in *Mucor* can be observed only in zygosporangium
- B. *Chytridium*, *Aspergillus* and Puff balls have septate mycelia
- C. The abundant mould that is formed on bread, has flagellated spores
- D. Septa enable the movement of mitochondria, in septate fungi
- E. Ascomycota can be only found in fresh water and terrestrial environment



42) Select the **correct** statement/s about microscopes

- A. Resolution power is a measure of the clarity of the image.
- B. Usually the maximum magnification of light microscope is 10000 times
- C. The resolution power is increasing with the decreasing of wave length
- D. Electron microscope magnifies the objects up to  $1 \times 10^8$  times
- E. During staining, heavy metals are attached more to certain cellular structures

43) Select the **correct** statement/s about  $C_4$  photosynthesis

- A.  $CO_2$  is converted into  $HCO_3^-$
- B. Malate or aspartate diffuse to the bundle sheath cells
- C. Mesophyll cells have low amount of chloroplasts
- D. Photosystem II can be found abundantly in bundle sheath cells
- E. PEP reacts with  $CO_2$


44) Select the **correct** statement/s about enzymes

- A. Binding of an one molecule of  $O_2$  to one binding site of hemoglobin, decreases the affinity for  $O_2$  of the remaining binding sites
- B. Drugs used against microbes are reversible inhibitors
- C. Trypsin has optimum activity at pH 2
- D. Derivatives of vitamins can be act as co-enzymes.
- E. Rate of reaction is always increased with the concentration of substrate, when environmental conditions are favorable

45) Select the **incorrect** statement/s about plasma membrane

- A. Plasma membrane of plant cells has cholesterol
- B. The two sides of the membrane may differ in composition and function
- C. Peripheral proteins are tightly attached to the inner surface of the membrane
- D. Most integral proteins are transmembrane proteins
- E. Cholesterol prevents, membrane solidification at low temperatures

- 46) Select the animal/s, without clear cephalization, and having sensory organs  
A. *Fasciola* B. *Taenia* C. *Planaria* D. Round worm E. Rag worm
- 47) Which of the following statement/s is/are **correct** about plants  
A. More root hairs are found far to the root tip area  
B.  $K^+$  concentration in the root hair cells is ten of times greater than in the soil solution  
C. Adsorption of water molecules by the hydrophilic cell walls from soil solution is imbibition  
D. Endodermis prevents solutes that have accumulated in the xylem from leaking back into the soil solution.  
E. Radial water transportation on plants is always start by apoplast
- 48) Which of the followings is/ are **correct**  
A. Most of the bacteria and fungi are heterotrophs  
B. Holozoic nutrition has main 4 steps  
C. Filter feeders are only aquatic organisms  
D. Substrate feeders are found inside the food  
E. Symbiosis is an one type of commensalism
- 49) Which of the followings is/are **incorrect**  
A. Alveoli cells of pancreas secrete digestive enzymes  
B. Liver is the largest gland of human body  
C. Hepatic duct is connected with pancreatic duct  
D. Trypsin is secreted from pancreas  
E. Blood sinusoids of liver has Kupffer cells
- 50) Which of the following gland/s release their secretions into the alimentary canal by a duct  
A. Liver  
B. Islets of Langerhans  
C. Pancreas  
D. Gall bladder  
E. Sweat gland

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<b>Final Term Test – 2018 (July)</b>				
<b>Biology II</b>		<b>Grade 12</b>		

### Part B – Essay

❖ **Answer 4 questions only**

- (5) a. Water is a vital inorganic molecule for the existence of life on this planet.  
Mention the 2 reasons for that
- b. Describe the major properties of water that are important to maintain life on earth
- (6) a. Describe the xylem tissue of *Gnetum*
- b. Describe the translocation of photosynthetic products, from leaf of mango plant to a fruit
- (7) a. Define animal tissue
- b. Describe different types of epithelial tissues with reference their structure, locations and functions
- c. Draw the main types of muscle tissues then compare the structural and physiological characters of them
- (8) a. Define alternation of generations
- b. Mention an example for Bryophyta and Pterophyta, then describe their life cycles comparatively
- (9) Mention 2 accessory glands in the abdominal cavity, and describe their structure and functions
- (10) Write short notes on,
- a. Galls of plants
- b. Radial transportation of water and minerals in plants
- c. Significance of C<sub>4</sub> photosynthesis