

	രത്നവാലി ബാലികാ വിദ്യാലയം - ഗംപാഹ Rathnavali Balika Vidyalaya - Gampaha	09	E	I
Second Term Test – 2018 (March)				
Grade 12				
Biology I			Time: 2 hours <i>Enu</i>	

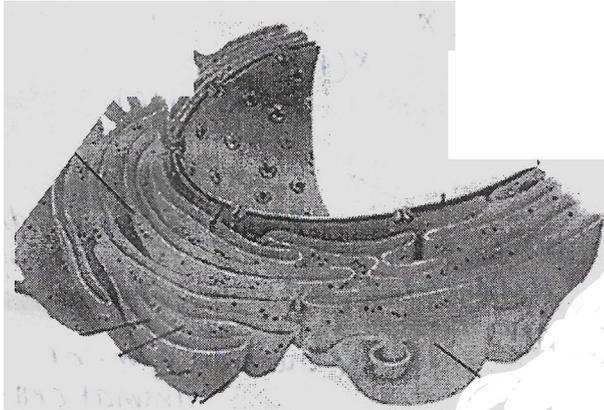
- This questions paper consists of 50 questions.
 - Answer all the questions.
 - In each of the questions 1 to 50, pick one of the alternatives (1) , (2) , (3) , (4) , (5)
 - Which is correct or most appropriate and mark on the number corresponding to your choice in the answer sheet provided.
- (1). Select the correct statement about water in living bodies
1. Water is a small, angular, charged molecule
 2. Water has weak intra molecular attractions
 3. Water forms a crystalline lattice when temperature decreases slightly from room temperature
 4. Water acts as a hydrogen acceptor in photosynthesis
 5. Water plays a main role in the regulation of human body temperature
- (2). Select the correct statement
1. CO₂ acceptor in C₃ photosynthesis is a macro molecule
 2. All branched carbohydrates have aldoses
 3. Glycosidic bond is formed between keto- groups when a sucrose molecule is formed
 4. G3P is a monosaccharide
 5. Dissaccharides cannot be stored in living tissues because of water solubility
- (3). Select the incorrect statement about amino acids
1. Most amino acids have asymmetrical central atom
 2. Every amino acid has only one carboxylic acid group
 3. Amino group of amino acid can accept H⁺
 4. Condensation reactions occur between amino acids while removing water molecules
 5. First result of condensation reactions is the primary structure of protein
- (4). Select the incorrect statement about lipids
1. Some lipids act as signaling molecules
 2. Phospholipid has negative electric charged
 3. Oleic acids has double bonds in carbon skeleton
 4. Triglycerides have hydrophilic hydrocarbon chain
 5. Arthropods use wax on exoskeleton for the protection from desiccation

- (5). During the usage of scanning electron microscope
1. Actual colour of the specimen can be observed
 2. Electron beam fully penetrate the specimen
 3. Internal structure can be observed
 4. Living objects can be observed by using powerful magnets
 5. Specimens are applied with heavy metal prior to observation
- (6). Peroxisomes are,
1. Found in all living cells, and involved in detoxification
 2. Formed by modification of lysosomes
 3. Involved in the formation of CO_2 in some photosynthetic tissues
 4. Found in fat storing tissues of animals
 5. The structures having reducing enzymes
- (7). Select the incorrect statement
1. Microtubules are formed by 13 columns of tubulin molecules
 2. Micro filaments are involved in the formation of cleavage furrow
 3. Intermediate filaments are super coiled thicker cables
 4. Microtubules, micro filaments and intermediate filaments are involved in the maintenance of cell shape
 5. Actin is the subunit that form the component with highest diameter in cytoskeleton
- (8). Not a function of cytoplasmic connections between adjacent cells
1. Allow for the exchange of materials between cells
 2. Allow for the exchange of signals between cells
 3. Forms a continuous seals around the cells
 4. Linking the extracellular matrix and cytoskeleton
 5. Prevents the leakages of fluid between cells
- (9). In mitotic division
1. Centrosomes move towards the opposite poles of the cell at first stage of prophase
 2. Movement of centrosome is happened due to lengthening of aster
 3. Cohesin between sister chromatids are remained during the metaphase
 4. 2 identical daughter cells are formed at the end of telophase
 5. At the end of anaphase nuclear envelop is formed around chromosomes
- (10). Select the incorrect statement about cell cycle
1. During interphase high metabolism is maintained
 2. Nuclear envelop and nucleolus get disappeared during prophase
 3. Non-kinetochore fibers interact with the spindles of opposite poles
 4. Due to shorting of microtubules, chromatids are separated during anaphase
 5. Check points are found at G_1 and G_2 phases
- (11). Select the incorrect structure-function comparison
1. Smooth endoplasmic reticulum- packaging of modified material into secretory vesicles
 2. Lysosomes - autolysis causing cell death
 3. Peroxisomes - involved in photorespiration
 4. Glyoxysomes - converts fatty acids into sugar
 5. Plasma membrane -communicate between adjacent cells

(12). Select the correct statement about ribosomes

1. Elemental composition is C,H,O,N,S, and P
2. Found as free ribosomes, only in prokaryotic cells
3. Larger ribosomes are found in Archaea
4. In prokaryotic cells, protein synthesized by 70 S ribosomes are packaged in vesicles
5. 70 S ribosomes are found in chloroplasts of prokaryotes and eukaryotes

(13). Not a function of below cell organelle



1. Synthesize glycoproteins by joining carbohydrates to the protein
2. Facilitates the growth of cell membrane by adding phospholipids, proteins and carbohydrates
3. Transport protein within the cell
4. Stored Ca^{2+} ions
5. Produce transmission vesicles

(14). Not a common character for all cells

1. All cells have cytoskeleton
2. All cells have ribosomes
3. All cells have DNA as genetic material
4. All cells are bound by a membrane which is a selective barrier
5. Subcellular components are suspended within the cytosol

(15). Which of the followings act as electron carriers

1. ATP and NAD
2. FAD and NADP
3. ATP and NADH
4. FAD and ADP
5. AMP and NADPH

(16). In meiosis II

1. Replication of genetic material and condensation of chromatin take place during prophase
2. Chromosomes are aligned on the metaphase plate by using microtubules that are formed during prophase I
3. Kinetochores of sister chromatids are attached to microtubules extending from both poles
4. chromosomes move towards the opposite poles at the beginning of anaphase
5. 4 genetically diverse daughter cells are formed at the end of telophase

(17). Select the incorrect statement about ATP

1. ATP is needed for the synthesis of macro molecules
2. ATP is needed for the muscle contraction
3. ATP is a nucleotide
4. ATP production is higher during aerobic respiration than the fermentation
5. Highest ATP production is happed at Krebs cycle

(18). Select the correct statement

1. Sacrose gives brick red precipitate when heated with benedict solution
2. Albumin gives purple colour with alkaline CuSO_4
3. Lignin gives yellow colour with Safranine
4. Coconut oil give yellow colour with Sudan III
5. Glycogen gives yellow precipitate with Millon's reagent

(19). Cytoskeleton

1. Fibroectin are present
2. Proteoglycan molecules are embedded in a collagen network
3. Main component is elastin fibers
4. It has no macro molecules
5. Found between middle lamella and cytoskeleton

(20). Which of the following act as cytoplasmic connections between plant cells

1. Gap junction
2. Tight junction
3. Plasmodesmata
4. Middle lamella
5. Desmosome

(21). The molecule that binds with 4 carbon molecule, to give the first result of Krebs cycle

1. CO_2
2. Oxaloacetic acid
3. Citrate
4. Acetyl group
5. Coenzyme A

(22). What is the linking reaction between glycolysis and citric acid cycle

1. Tri carboxylic acid cycle
2. Oxidative phosphorylation
3. Krebs cycle
4. Oxidation of pyruvate
5. Electron transport chain

(23). Select the **incorrect** statement about oxidative phosphorylation in eukaryotes

1. 28 ATP molecules are formed
2. This happens at the inner membrane of mitochondria
3. Oxidation of NADH is occurred
4. Protein and non- protein molecules are involved
5. 1.5 ATP molecules are formed by the reduction of one FADH_2

(24). Not a step that happens during the recycling of NADH in cellular respiration without oxygen,

1. Regeneration of NAD^+ via 2 alternative pathways
2. No decarboxylation of pyruvate
3. Reduction of acetaldehyde
4. Production of ethanol from pyruvate
5. Conversion of pyruvate into lactic acid

- (25). Select the **incorrect** statement about first photosynthetic organisms.
1. Evolved 2.7 billion years ago
 2. Evolved in water
 3. Eukaryotic organisms
 4. Unicellular organisms
 5. Absence of chloroplasts
- (26). Oldest fossils of prokaryotes and eukaryotes were found respectively in
1. Archaean eon and Palaeozoic
 2. Archaean eon and Proterozoic eon.
 3. Proterozoic eon and Phanerozoic eon
 4. Proterozoic eon and Mesozoic
 5. Hadean eon and Proterozoic eon
- (27). Mammals are evolved
1. In Cenozoic era
 2. With the extinction of Dinosaurs
 3. Before the origin of primates
 4. From bipedal ancestors
 5. after the adaptive radiation of birds
- (28). Long muscular neck of the giraffe had evolved over many generations as giraffe stretch their necks even higher. This is explained by,
1. Use and disuse theory
 2. Theory of Inheritance of acquired characteristics
 3. Darwin - Wallace theory
 4. Natural selection theory
 5. Neo Darwinism
- (29). Define the species as the smallest group of individuals that share a common ancestor in,
1. Binomial nomenclature
 2. Biological definition of a species
 3. Morphological species concept
 4. Ecological species concept
 5. Phylogenetic species concept
- (30). Select the **incorrect** statement
1. Cell wall of prokaryotes has only peptidoglycan and polysaccharides
 2. Cell wall of eukaryotes has no polysaccharides
 3. Eukaryotes and some prokaryotes have unbranched membrane lipids
 4. Growth can be inhibited by antibiotics, only in some prokaryotes
 5. DNA is associated with histone protein, in some organisms without organized nucleus
- (31). Select the **correct** statement about protista
1. A group with organisms having different evolutionary origin
 2. They are evolved from common ancestor
 3. All are combination of photosynthetic and heterotrophic
 4. Never form colonies
 5. All unicellular forms have locomotory structures
- (32). Terrestrial plants were evolved in,
1. Proterozoic eon
 2. Mesozoic period
 3. Before 470 million years ago
 4. Before 305 million years ago
 5. Later Phanerozoic eon
- (33). Select the **incorrect** statement about Bryophyta
1. Dominant gametophyte
 2. Independent haploid generation
 3. Diploid generation does photosynthesis at immature stage
 4. Sporophyte depends on male gametophyte
 5. Diploid plant has no leaves but bear stomata

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

If only A,B and D are correct	-	1
If only A,C and D are correct	-	2
If only A and B are correct	-	3
If only C and D 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). Which of the following/s is/are **correct** about enzymes
- Some electron acceptors act as coenzymes in enzymatic reactions
 - Rate of enzymatic reaction cannot be increased by increasing the enzyme concentration, while a competitive inhibitor is present in the medium
 - Non competitive inhibitors bind with the enzyme by another site, not with the active site, by ionic bonds.
 - In Catabolic reaction, ATP acts as a activator
 - Competitive inhibitors interrupt the enzymatic reaction by changing the shape of active site
- (42). Which of the following/s is/are **correct** about golgi complex
- Manufacture cellulose
 - Double membrane bound cell organelle
 - Cis** face is located near the E.R to receive vesicles,
 - Trans face produce secretory vesicles, to transport to other areas of the cells
 - Liver cells have more golgi complexes because they involved in detoxification
- (43). Which of the following/s is/are **not** considered as polymers
- A. Adenine B. Lactose C. Chitin D. Amylose E. Hemicellulose
- (44). Which of the following/s is/are **correct** about cell membrane
- Cell membrane is always selectively permeable
 - Inorganic ions can be enter the cell with water passively
 - ~~Respiratory inhibitors block the entering of mineral ions via the cell membrane~~
 - 2 sides of the plasma membrane may differ in composition and function
 - Water movement across the cell membrane is happened against concentration gradient
- (45). Which of the following/s is/are **correct** about nucleus
- Found in all eukaryotic cells
 - Important for the storing of genetic materials
 - Nuclear matrix has chromatin
 - Largest cell organelle that can be observed by the light microscope
 - mRNA is synthesized in nucleolus

- (46). Glycerol is used in cellular respiration,
- A. For glycolysis
 - B. For the oxidation of pyruvate
 - C. For citric acid cycle
 - D. For TCA cycle
 - E. For oxidative phosphorylation
- (47). Which of the following/s is/are **correct** about ethyl alcohol fermentation
- A. The product of glycolysis is oxidized in the absence of Oxygen
 - B. Release CO_2
 - C. No ATP production
 - D. Used NADH produced in glycolysis
 - E. Final electron acceptor is pyruvate
- (48). *Aspergillus*
- A. Is an unicellular organism
 - B. Endospores are produced during asexual reproduction
 - C. Conidiospores are produced during sexual reproduction
 - D. Gametangia are fused at sexual reproduction
 - E. Lots of spores are produced in one ascus
- (49). During the excitation of chlorophyll molecule
- A. Light energy is absorbed
 - B. It acts as an electron acceptor
 - C. Electrons are boosted to higher energy level
 - D. It becomes oxidized
 - E. It becomes negatively charged
- (50). Which of the following/s is/are **correct** about PEP carboxylase enzyme
- A. It catalyzes the CO_2 fixation reaction
 - B. It directly form malate from its catalysis reaction
 - C. It found at mesophyll cells of C_4 plants
 - D. This has no affinity to molecular oxygen
 - E. Less efficient than RuBP carboxylase-oxygenase enzyme