



FWC

G. C. E A/L Examination November - 2015

Conducted by Field Work Centre, Thondaimanaru

In Collaboration with

Zonal Department of Education Jaffna.

Grade: - 13 (2016)

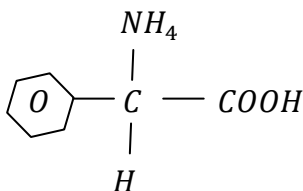
Biology - I

Time: - Two hours

Part - I

Instructions:

- ❖ Answer **all** questions.
- ❖ Mark with tick (**x**) in the answer sheet provided.



- 1) Which of the above molecule denotes the constitutive unit of the followings?
(1) Protein (2) Chitin (3) Cutin
(4) Nucleic acid (5) Cellulose
- 2) Which of the following is made up with a single nucleotide?
(1) NAD (2) ATP (3) DNA
(4) tRNA (5) FAD
- 3) Which of the following event takes place in the matrix of mitochondria?
(1) Oxalo acetate converted in to citric acid.
(2) Formation of pyruvate from glucose
(3) Oxidative phosphorylation
(4) Formation of Acetyl co - A from glucose
(5) Formation of water molecules
- 4) In which phase the DNA will be doubled in a cell cycle?
(1) Anaphase (2) Interphase (3) Prophase
(4) Metaphase (5) Telophase
- 5) Select the **incorrect** statement given below?
(1) Primary structure of proteins is synthesized in ribosomes
(2) All the protein synthesized will be accumulated by the vesicles of endoplasmic reticulum
(3) Formation of covalent bond between amino acids, determines the tertiary structure of the proteins.
(4) Non protein components join with protein in the lumen of the endoplasmic reticulum
(5) Some proteins enter the nucleus after the protein synthesis.

- 6) Prokaryotes differ from eukaryotes. In which of the following character a prokaryote differs from a eukaryote?
- (1) Presence of microtubules in flagella
 - (2) Plasma membrane is surrounding the cytoplasm.
 - (3) Chromatin structures found in chromosomes.
 - (4) Presence of 80s ribosome
 - (5) There are no membrane bounded organelles.
- 7) Which of the following character **does not** found in the member of Protista?
- (1) Presence of unicellular organisms.
 - (2) Flagella or cilia found in the life cycle.
 - (3) Pectin found as a cell wall component that has cell wall
 - (4) Presence of photo autotrophic and heterotrophic nutrition
 - (5) Presence of food storage who hasn't cell wall.
- 8) Which of the following is **not** a function of Golgi complex?
- (1) Intake of proteins which are synthesized in endoplasmic reticulum.
 - (2) Production of lysosomes
 - (3) Conversion of chemical structures of proteins.
 - (4) Storage of calcium ions.
 - (5) Produce transmission vesicles.
- 9) Which of the following statement regarding lysosome is **incorrect**?
- (1) Involve in the photolysis of water in light reactions.
 - (2) Digest particles received by phagocytosis
 - (3) Transport residue material out of cell by exocytosis
 - (4) Contain hydrolytic enzymes
 - (5) Digest worn out organelles
- 10) Which of the following is **not** a character of water as a habitat for organisms?
- (1) Decrease of volume below 4°C
 - (2) Allowing penetration of light
 - (3) High surface tension
 - (4) High specific heat capacity
 - (5) More heat utilized for freezing of water bodies.
- 11) Which of the following statement regarding polysaccharide is correct?
- (1) Amylo pectin found in starch is made up with 1 - 4 branch bonds.
 - (2) Inulin found as crystals in the central vacuole
 - (3) Only linear chains found in the structure of glycogen
 - (4) Cellulose is a polymer which has liner chains.
 - (5) Polysaccharides can make osmotic changes in living cells.
- 12) Which of the following statements regarding lipids is correct?
- (1) Carbon, hydrogen, oxygen and phosphorous generally found in lipids.
 - (2) Ratio between hydrogen and oxygen is 2: 1
 - (3) Most abundant steroid in human is cholesterol
 - (4) Only phospho-ester bond found in phospho- lipid molecule
 - (5) Lipids have more oxygen atoms than carbohydrates.

13) Which of the following is an acceptable statement regarding natural systems of classification?

- (1) It is easy to join or delete groups.
- (2) It is developed before the knowledge of evolution
- (3) Grouping is based on selected unifying characters.
- (4) Represent true relationships.
- (5) Aristotle was the first person who classified organisms systemically.

14) An animal found in a marine ecosystem shows the following characters.

- Flattened body
- Mouth and anus found in the opposite directions of the body.
- No arms.

In which class the above animal belongs to?

- (1) Anthozoa
- (2) Echinoidea
- (3) Holothuroidea
- (4) Asteroidea
- (5) Crinoida

15). Which of the following is **not** a common character to a virus?

- (1) Obligate parasites
- (2) Having hereditary material at centre and surrounded by a protein cupid
- (3) DNA and RNA found as hereditary materials
- (4) Do not show metabolism
- (5) All are minute in structure.

16).In which process *Agaricus*, which belongs to Basidiomycota reproduce asexually?

- (1) Fragmentation
- (2) Asexual spores
- (3) Conidiospore
- (4) Zygosporos
- (5) Basidiospore

17) Cartilaginous fishes differ from bony fishes. Which is the character that **does not** distinguish the above?

- (1) Skin with ctenoid scales
- (2) Heterocercal caudal fin
- (3) Paired pelvic and pectoral fins.
- (4) Ventral mouth
- (5) Endo skeleton made up with cartilage

18) Which of the following statement regarding human digestive system is correct?

- (1) Lymph nodes found in the mucosa layer of the large intestine
- (2) Secreting and enterogastrone induce the secretion of pancreatic juice
- (3) Intrinsic factor found in the gastric juice enhance the absorption of Cyanocobalamin
- (4) Deoxygenated blood leave from the liver through hepatic portal vein.
- (5) Bruner's gland found in the mucosa layer of duodenum

19) Which of the following is **incorrect**?

- (1) Vitamin D is essential for the synthesis of cholesterol
- (2) Vitamin K is essential for the absorption of fats.
- (3) Nicotinic acid prevents rashes on human skin.
- (4) Vitamin E prevents the breakage of erythrocytes
- (5) Deficiency to Vitamin K speed up the blood clotting in human.

20) Which one of the following enzymes **does not** act on food components?

- (1) Lactase
- (2) Pepsin
- (3) Rennin

(4) Enterokinase

(5) Sucrase

21) Which of the following regarding human large intestine is **incorrect**?

- (1) Its proximal end is caecum
- (2) It starts at the end of the small intestine and lasts to the anal canal
- (3) Taeniae coli found in the sub mucosa
- (4) It aids in the synthesis of amino acids.
- (5) Transverse colon is situated in front of the small intestine and the stomach

22) Which of the following statement is correct regarding human respiration?

- (1) Diaphragm is lifted upwards due its contraction during inspiration.
- (2) Mid brain controls the basic rhythm of the respiration.
- (3) Increase in body temperature decreases the decomposition of oxygen from haemoglobin
- (4) There is a change in the partial pressure of nitrogen in the oxygenated and deoxygenated blood.
- (5) Little amount of oxygen is conducted through blood plasma.

23) Which of the following human respiratory structure has the least diameter?

- (1) Right main bronchus (2) Bronchiole (3) Alveolar duct
- (4) Alveoli (5) Secondary bronchus.

24) Reason for the follow of blood from inferior vena cava into the relaxed right auricle?

- (1) Mass flow of the blood and the dissolved components.
- (2) Open and closure of valves in veins.
- (3) Closure of bicuspid and tricuspid valves.
- (4) Pulsation of sinoventricular node.
- (5) Pressure differences between vena cava and the right auricle.

25) Which of the following is **incorrect** regarding the changes in the aortic arches occurred in mammals from the basic plan?

- (1) 1st pairs of aortic arch completely disappear.
- (2) 3rd pairs of aortic arches changes into carotid arch.
- (3) Disappearance of right arch of the 4th pair.
- (4) 2nd pairs of aortic arch becomes respiratory arch
- (5) Left arch the 4th pair becomes systemic arch.

26) Which of the following statement regarding conducting system of human circulatory system is **incorrect**?

- (1) It consists of SA node, AV node and Perkinje fibers.
- (2) Stimulation to the heart beat is originated from SA node.
- (3) SA node is a specialized cell mass.
- (4) AV node is a specialized muscular mass.
- (5) Wave P is obtained from the contraction of SA node in the ECG

27) Which of the following animal contains the closed single circulatory system?

- (1) Earth worm (2) Cockroach (3) Human
- (4) Toad (5) Starfish

28) Which of the following is correct regarding water potential?

- (1) Water potential of a cell at incipient plasmolysis is the sum of solute and pressure potentials
- (2) Gross movement of water take place from the soil solution to the root hair due to the utilization of ATP.
- (3) Water potential is measured regarding the potential energy of the water molecules.
- (4) All the solutions contain the water potential values below zero.
- (5) Atmospheric water potential of atmosphere is greater than that of intercellular spaces of mesophyll cells.

29) Which of the following statement is **incorrect**?

- (1) Adhesive force is lost in the xylem when the air is found.
- (2) Caparison strips can only be seen in young roots.
- (3) Transport of sucrose from one sieve tube element to the other is a passive process.
- (4) Stomata open when K^+ ion intake from the adjacent epidermal cells
- (5) Cytokines interact with ethylene and induce the cell division.

30) Which of the followings **cannot** be transported in the phloem tissue?

- | | | |
|----------------|-------------------|-------------|
| a. Sucrose | b. Ca^{2+} | |
| c. PO_4^{3-} | d. Abscisic acid. | |
| (1) b and d | (2) a and c | (3) b and c |
| (4) b and c | (5) a and b | |

31) In human brain Broca's area found at

- | | | |
|-------------------|-------------------|--------------------|
| (1) Frontal lobe | (2) Pons varolli | (3) Occipital lobe |
| (4) Temporal lobe | (5) Parietal lobe | |

32) Which of the following **does not** takes place during the conduction in a synapse?

- (1) Release of acetylcholine
- (2) Release of calcium ion from vesicle.
- (3) Acetylcholine combined with receptor molecules
- (4) Formation of action potential at post synaptic membrane
- (5) Permeability to ions changes in the membrane when conduction takes place.

33) Which of the following statement regarding human brain is correct?

- (1) There is a very small area found I the cerebral cortex for the lips.
- (2) Cerebro-spinal fluid is found in the space between the duramatter and the piamatter
- (3) Mid brain is situated in between the medulla oblongata and the pons varolli.
- (4) White matter found in the surface of the cerebellum
- (5) Thalamus combines the sensory information and relay to the higher centers of the brain.

34) Which of the following human receptor- function combination is **incorrect**?

- | Receptor | Function |
|------------------------|----------------------------------|
| (1) Cone | Sensitive to low light intensely |
| (2) Orgam of Corti | Sensitive to vibrations |
| (3) Free nerve endings | Sensitive to low temperatures. |
| (4) Ruffni endings | Sensitive to high temperatures. |
| (5) Pacinian corpuscle | Sensitive the pressure |

35) Which of the following statement regarding excretion is **incorrect**?

- (1) No need of water for the excretion of uric acid
- (2) The first nitrogen waste form in animals is ammonia.
- (3) Urea is excreted only by kidneys.
- (4) Urea is the important nitrogen wastes in cartilaginous fishes.
- (5) Green glands are the excretory organs of aquatic crustaceans

36) The substance **does not** reabsorb passively in proximal convoluted tubule?

- (1) HCO_3^-
- (2) NH_4^+
- (3) K^+
- (4) Cl^-
- (5) Urea

37) Which of the following can be the part of the axial skeleton of the human?

- (1) Sternum
- (2) Scapula
- (3) Clavicle
- (4) Humerus
- (5) Femur

38) Which of the following statement regarding lumber curvature in the human vertebral column is **incorrect**?

- (1) It is formed after the birth
- (2) It is convex towards front
- (3) It is developed when the child is around 3 - 6 months.
- (4) It is a type of secondary curvature
- (5) It helps to child to hold and upright the body

39) Which of the following disorder generally can be observed in female after menopause?

- (1) Osteoporosis
- (2) Disc slips
- (3) Osteoarthritis
- (4) Renal calculi
- (5) Weakening & nerves

40) Which of the following is **not** a component of semen?

- (1) Prostaglandins
- (2) Fructose
- (3) Testosterone
- (4) Mucus
- (5) Ascorbic acid

Instructions for the questions 41-50.

ABD correct	ACD correct	AB correct	CD correct	Any other responses
1	2	3	4	5

41) Which of the following statement /s is / are **incorrect**?

- A. Sulphur is found in co enzyme - A
- B. Deficiency to Cl^- causes fatigue
- C. Copper (Cu^{++}) induce the alcohol fermentation in plants.
- D. Deficiency to Mn^{2+} affects the bone development
- E. Cobalt is the component to Vit. B_{12}

- 42) Which of the following disease /s can be diagnosed by the human blood smear?
- A. Diabetes mellitus
 - B. Chickengunia
 - C. Filaria
 - D. Malaria
 - E. AIDS
- 43) Character /s found in both *Pogonatum* and *Nephrolepis*,
- A. Gametophyte is photosynthetic
 - B. Gametophytes attach with pseudo roots to the substrates
 - C. Gametophytes are dioecious.
 - D. Diploid stage is dominant in the life cycle
 - E. Sporophyte contains vascular tissues.
- 44) Which of the following /s is / are the early signs of pregnancy?
- A. Constipation in some female
 - B. Decrease in the frequency in urination in some female.
 - C. Breast tenderness
 - D. Cessation of menstrual cycle
 - E. Enlargement of stomach.
- 45) Which of the following **does not** / **do not** happen / s due to the parasympathetic nervous system?
- A. Increase in the urine formation.
 - B. Increase in the secretion of bile.
 - C. Increase in the heart beat
 - D. Increase in the conversion of glycogen into glucose in liver
 - E. Increase in the secretion of saliva
- 46) Which of the following / s is / are acting as an electron acceptor/s in cellular respiration?
- A. Pyruvate
 - B. Molecular oxygen
 - C. FAD
 - D. Acetaldehyde
 - E. NAD
- 47) Adaptation / Adaptations regarding cross pollination in flowing plants,
- A. Cleistogamy
 - B. Rotating stigma
 - C. Unisexual flower
 - D. Protandry
 - E. Styles at the same level

- 48) Which is / are the place / places of uriniferous tubule where the reabsorption of water takes place due to the need of body in the presence of ADH?
- A. Ascending loop of Henle
 - B. Descending loop of Henle
 - C. Distal convoluted tubule
 - D. Collecting duct
 - E. Proximal convoluted tubule
- 49) Which of the following / s contain / s both endo and exoskeleton?
- A. Mollusca
 - B. Reptilia
 - C. Echinodermata
 - D. Radiolaria
 - E. Arthropoda
- 50) Which of the following / s is / are correct?
- A. All viruses are obligate parasites
 - B. All fungi are heterotrophs
 - C. All Bacteria are heterotrophs
 - D. All microbes are prokaryotes
 - E. All fungi produce non motile reproductive structures