



First Term Examination – 2021

Conducted by

Field Work Centre, Thondaimanaru.

Biology - I

Three Hours and 10
minutes

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Gr -12 (2022)

Part- I

- ❖ Answer **all** questions.
- ❖ In each of the question 1-30, pick one of the alternatives from (1),(2),(3),(4),(5) which is **correct** or **most appropriate** and mark your response on the answer sheet with a **cross (X)** on the number.

01. Which of the following organizational level show the characteristics of life?

- 1) Mitochondrion 2) Yeast 3) RuBISCO
4) Central vacuole 5) DNA

02. Which of the following contains only C, H and O as the constitutive elements?

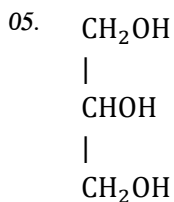
- 1) Chitin 2) Phospholipid 3) Inulin
4) ATP 5) Albumin

03. The character of water responsible for the transport of minerals and nutrients in plants against gravity.

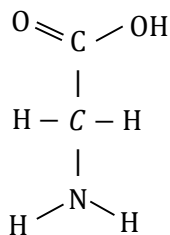
- 1) High specific heat 2) High surface tension
3) Ionization 4) Cohesion between water molecules
5) Polarity

04. General formula for both ribose and amylopectin

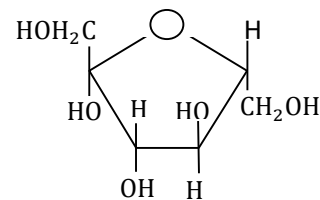
- 1) $(C H_2 O)_n$ 2) $C_x (H_2 O)_y$ 3) $(C_6 H_{10} O)_n$
4) $(C_6 H_{10} O_6)_{n-1}$ 5) $C_x H_2 O_y$



(A)



(B)



(C)

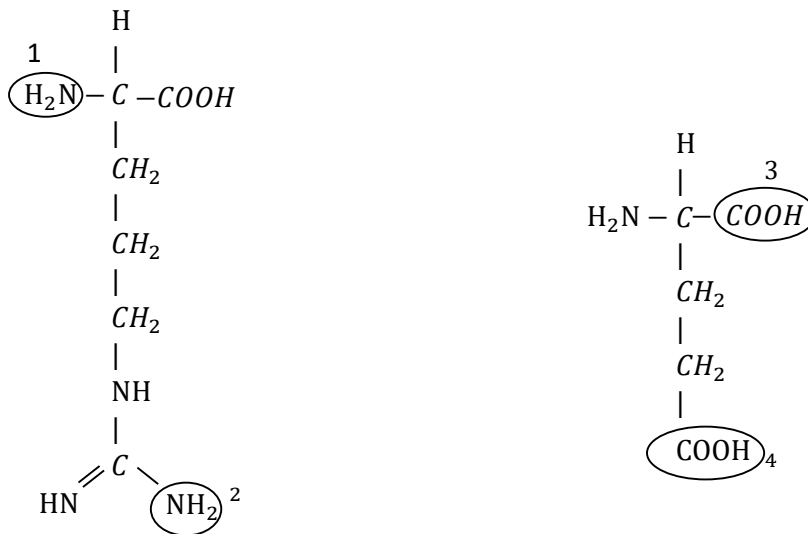
In which one of the followings gives A, B and C respectively from hydrolysis?

- 1) Myelin, myosin, maltose.
2) Chitin, keratin, sucrose.
3) Oil, insulin, lactose.
4) Fat, actin, RNA.
5) Fat, collagen, sucrose.

06. Myoglobin

- 1) contains only hydrogen bonds along with peptide bonds.
- 2) is a catalytic protein.
- 3) facilitates the transport of fatty acids in blood.
- 4) undergo a series of primary, secondary and tertiary structural changes.
- 5) made up of more than two poly peptide chains.

07. The followings are the structures of two amino acids. One has more than one carboxylic acid group and other has more than one amino group.



A peptide bond is formed between the two amino acids. Which groups form the peptide bond?

- 1) 2 and 3
- 2) 1 and 3
- 3) 2 and 4
- 4) 1 and 4
- 5) 1, 2, 3 and 4

08. Generally, the highest magnification and resolution power of a compound light microscope are respectively

- 1) X 2000, 200 μm
- 2) X 1500, 0.2 mm
- 3) X 1000, 200 nm
- 4) X 1000, 200 μm
- 5) X 1500, 0.1 mm

09. Lysosomes

- 1) found abundantly in secreting cells.
- 2) digest food particles received by phagocytosis.
- 3) contain oxidizing enzymes.
- 4) produce Golgi apparatus.
- 5) participate in photo respiration.

10. Scanning electron microscope

- 1) allow electrons to pass through.
- 2) uses glass lens system to focus electron beam.
- 3) can be used to observe the surfaces of the living specimen.
- 4) has a resolution of 200 nm.
- 5) can reflect the fine beams of electron from the surface of the specimen.

11. In plant cells, cytoplasmic streaming is involved with

- 1) microfilaments.
- 2) rough endoplasmic reticulum.
- 3) smooth endoplasmic reticulum.
- 4) intermediate filaments.
- 5) tubulin polymers.

12. Mitotic phase that forms chromatin,

- | | | |
|--------------|------------------|--------------|
| 1) Prophase | 2) Pro metaphase | 3) Metaphase |
| 4) Ana phase | 5) Telophase | |

13. Followings are some events take place in meiosis.

- a. Formation of two haploid cells.
- b. Replication of DNA.
- c. Chromosomes with sister chromatids move to opposite poles.
- d. Crossing over taking place in some places of homologous chromosomes.
- e. Splits of centromere of chromosomes.

Which one of the following shows the correct sequence of the events in meiosis?

- 1) b, c, d, a, c 2) b, d, c, e, a 3) b, d, c, a, e 4) b, d, e, a, c 5) a, c, d, e, b

14. Biochemical process that need only ATP as energy requirement.

- 1) Facilitated diffusion through plasma membrane.
- 2) Combining of CO₂ with RuBP.
- 3) Formation of glyceraldehyde 3- phosphate from 1, 3 bis-phospho glycerate.
- 4) Regeneration of RuBP.
- 5) Formation of malate from oxaloacetate.

15. The event takes place during the cell cycle of apical meristem cells of a plant.

- 1) Crossing over.
- 2) Duplication of centrosomes.
- 3) Pairing of homologous chromosomes.
- 4) Synthesis of histone proteins.
- 5) Formation of cleavage furrow.

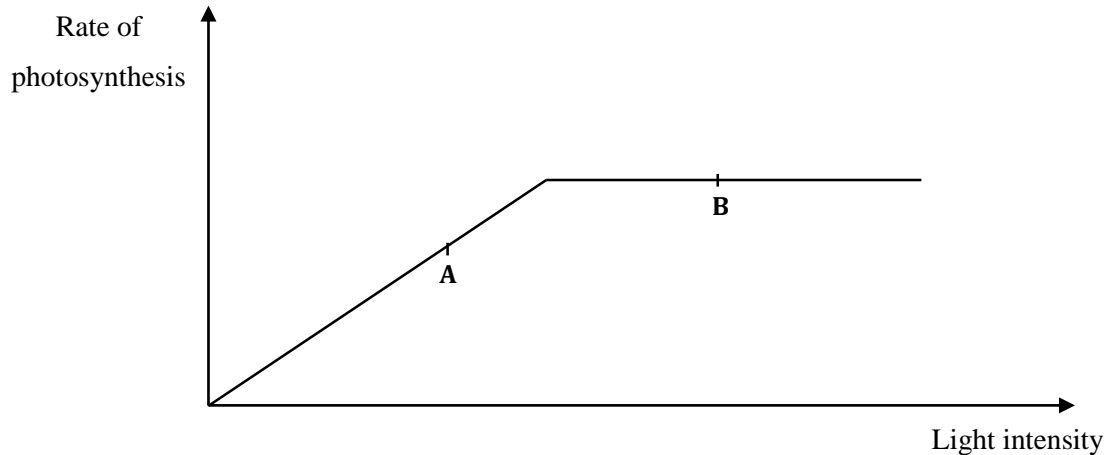
16. Unique feature for the light dependent reactions of photosynthesis

- 1) Phosphorylation.
- 2) Electron transport chain.
- 3) Reduction of coenzymes.
- 4) Functioning of electron carriers.
- 5) Splitting of water.

17. Enzymes,

- 1) all are thermo labile.
- 2) all function at same pH range.
- 3) can cause more collision probability only for active sites.
- 4) can alter chemical bonds involving in the formation of enzyme substrate complex during pH changes.
- 5) have no changes in their active sites beyond the optimum temperature .

18.



Limiting factors at **A** and **B** respectively

- 1) Light intensity, CO₂ concentration
- 2) Temperature, Light intensity
- 3) CO₂ concentration, Light intensity
- 4) pH, Light intensity
- 5) O₂ concentration, Light intensity

19. Carotenoids

- 1) are the principal photosynthetic pigments.
- 2) found in photo system II but not in the photo system I.
- 3) only absorb 600 – 700 nm wave lengths of light .
- 4) also found as pigments in the central vacuole.
- 5) protects plants from photo oxidation. .

20. Common to both aerobic anaerobic respiration.

- 1) Utilization of ATP molecules.
- 2) Oxidation of pyruvate.
- 3) Synthesis of 32 ATP molecules.
- 4) Acceptance of final electrons by organic molecules.
- 5) Oxidative phosphorylation.

21. Event of cellular respiration takes place within the mitochondrion.
- 1) Reduction of pyruvate. 2) Release of CO_2 3) Reduction of NADP^+
 4) Hydrolysis of ATP. 5) Photo phosphorylation.

22. *Panthera* is a mammal.
 Taxon of *Panthera* and Mammalia are respectively,
- 1) Specific epithet and order 2) Genus and super class 3) Genus and class
 4) Class and genus 5) Genus and phylum

23. The first photo synthetic organism evolved on the earth is
- 1) Red algae 2) Flowering plants 3) *Euglena*
 4) Cyanobacteria 5) Sponges

24. Followings are some structures of protists.
Contractile vacuole, eye spot, leaf like blades, gas filled bulb shape floats.
 Organisms that show the above structures respectively.
- 1) *Amoeba, Paramecium, Gelidium, Sargassum.*
 2) *Euglena, Amoeba, Ulva, Gelidium.*
 3) *Paramecium, Euglena, Ulva, Sargassum.*
 4) *Amoeba, Euglena, Ulva, Diatom.*
 5) *Paramecium, Amoeba, Sargassum, Euglena.*

❖ Use the following instructions for the questions (25– 30)

A B D correct	A C D correct	A B correct	C D correct	Any other response
1 st Answer	2 nd Answer	3 rd Answer	4 th Answer	5 th Answer

25. Structural poly saccharide / poly saccharides,
- A) Hemi cellulose B) Chitin C) Amylose
 D) Keratin E) Amylopectin
26. Which of the following is / are common to all cellular organizations?
- A) Flagella B) 80 S ribosomes C) 70 S ribosomes
 D) DNA E) Nitrogen fixing ability
27. Product / products of cellular respiration of bacteria involved in yoghurt production.
- A) NAD^+ B) Water C) Lactic acid
 D) ATP E) CO_2

28. Correct response / responses regarding sequence of electron flow in photosynthesis.

- A) $\text{NADPH} \longrightarrow \text{O}_2 \longrightarrow \text{CO}_2$ B) $\text{Water} \longrightarrow \text{PS I} \longrightarrow \text{PS II}$
C) $\text{Water} \longrightarrow \text{PS II} \longrightarrow \text{PS I}$ D) $\text{Water} \longrightarrow \text{NADPH} \longrightarrow \text{Calvin cycle}$
E) $\text{NADPH} \longrightarrow \text{Electron transport chain} \longrightarrow \text{O}_2$

29. Character / Characters can be used distinguish / distinguishes Domain Archea from Domain Bacteria.

- A) Presence of circular DNA.
B) Growth is not inhibited to antibiotics.
C) Inhabit in extreme environmental conditions such as salt marshes.
D) Presence of prokaryotic cellular organization.
E) Undergo mitosis.

30. Protist / protists which is / are multicellular along with cell wall.

- A) *Sargassum* B) *Ulva* C) Diatom
D) *Gelidium* E) *Euglena*