Note: (1) Think and Answer (2) Answer the questions according to the marks assigned.

Objective: Evaluate the depth of the knowledge of a student.

Name: **Date:**

Areas of improvement:

Maximum Marks (Objective)	**20**
Marks Obtained	
%	
Maximum Marks (Subjective)	**26**
Marks Obtained	
%	
Maximum Marks	**46**
Marks Obtained	
%	

Parent's Signature	**Parent's Signature**

Section A (Objective Questions)

A. Multiple Choice Questions: [0.5 x 26 = 13]

1. Which cell organelle is responsible for protein synthesis?

A) Endoplasmic reticulum

B) Lysosome

C) Ribosome

D) Golgi apparatus

2. Which of the following is not a function of the cell membrane?

A) Regulating the passage of substances into and out of the cell

B) Providing structural support to the cell

C) Recognizing signals from other cells

D) Controlling the movement of organelles within the cell

3. Which type of cell lacks a nucleus?

A) Plant cell

B) Animal cell

C) Bacterial cell

D) Fungal cell

4. Which organelle is responsible for packaging and distributing proteins within the cell?

A) Endoplasmic reticulum

B) Lysosome

C) Ribosome

D) Golgi apparatus

5. Which organelle is responsible for cellular respiration, converting glucose into ATP (energy)?

A) Nucleus

B) Ribosome

C) Mitochondria

D) Golgi apparatus

6. Which of the following is a characteristic feature of prokaryotic cells?

A) Presence of a nucleus

B) Presence of membrane-bound organelles

C) Presence of cell wall

D) Presence of chloroplasts

7. Which structure in the cell is responsible for storing water, nutrients, and waste products?

A) Nucleus

B) Mitochondria

C) Vacuole

D) Chloroplast

8. Which organelle is responsible for synthesizing lipids and detoxifying drugs in the cell?

A) Ribosome

B) Golgi apparatus

C) Smooth endoplasmic reticulum

D) Lysosome

9. Which organelle is responsible for breaking down complex molecules and recycling cellular components?

A) Ribosome

B) Golgi apparatus

C) Lysosome

D) Nucleus

10. Which organelle is responsible for modifying, sorting, and packaging proteins for secretion or for use within the cell?

A) Nucleus

B) Ribosome

C) Golgi apparatus

D) Endoplasmic reticulum

11. Which organelle is responsible for maintaining turgor pressure in plant cells?

A) Mitochondria

B) Vacuole

C) Chloroplast

D) Ribosome

12. Which type of cells lack membrane-bound organelles?

A) Eukaryotic cells

B) Prokaryotic cells

C) Animal cells

D) Plant cells

13. Which structure is responsible for maintaining cell-to-cell communication and cell recognition?

A) Cell membrane

B) Nucleus

C) Ribosome

D) Golgi apparatus

14. Which of the following organelles contains its own genetic material and is thought to have originated from an endosymbiotic event?

A) Mitochondria

B) Golgi apparatus

C) Endoplasmic reticulum

D) Lysosome

15. Which organelle contains enzymes that break down damaged or old organelles and recycle their components?

A) Nucleus

B) Ribosome

C) Lysosome

D) Golgi apparatus

16. Which organelle is responsible for producing and assembling ribosomal subunits?

A) Nucleus

B) Golgi apparatus

C) Endoplasmic reticulum

D) Nucleolus

17. Which type of cell division is responsible for growth and repair in multicellular organisms?

A) Mitosis

B) Meiosis

C) Binary fission

D) Budding

18. Which type of cell division is responsible for producing gametes (sperm and egg cells) in sexually reproducing organisms?

A) Mitosis

B) Meiosis

C) Binary fission

D) Budding

19. Which structure is responsible for the movement of chromosomes during cell division?

A) Centrosome

B) Nucleolus

C) Chloroplast

D) Vacuole

20. Which organelle is responsible for breaking down carbohydrates, lipids, and proteins into smaller molecules that can be used by the cell?

A) Ribosome

B) Lysosome

C) Golgi apparatus

D) Endoplasmic reticulum

21. Which type of cell division results in the formation of two identical daughter cells with the same number of chromosomes as the parent cell?

A) Mitosis

B) Meiosis

C) Binary fission

D) Budding

22. Which organelle is responsible for modifying and sorting proteins before they are sent to their final destination within or outside the cell?

A) Endoplasmic reticulum

B) Golgi apparatus

C) Nucleus

D) Vacuole

23. Which organelle is responsible for the synthesis of lipids, including phospholipids for cell membranes?

A) Nucleus

B) Ribosome

C) Smooth endoplasmic reticulum

D) Golgi apparatus

24. Which process involves the engulfing of large particles or other cells by cells, forming a vesicle that fuses with a lysosome for digestion?

A) Pinocytosis

B) Exocytosis

C) Phagocytosis

D) Endocytosis

25. Which process involves the engulfing of large particles or other cells by cells, forming a vesicle that fuses with a lysosome for digestion?

A) Pinocytosis

B) Exocytosis

C) Phagocytosis

D) Endocytosis

26. Which organelle is responsible for converting glucose into ATP through glycolysis and cellular respiration?

A) Nucleus

B) Mitochondria

C) Golgi apparatus

D) Endoplasmic reticulum

B. Fill in the blanks: [0.5 x 14 = 7]

1. The _____ is a network of membrane-bound tubules involved in protein and lipid synthesis.

2. _____are specialized structures within the nucleus that contain genetic information in the form of DNA.

3._____ is the diffusion of water molecules across a selectively permeable membrane from an area of higher water concentration to lower water concentration.

4. _____ are small, non-membrane-bound structures in the cytoplasm that synthesize proteins based on instructions from the nucleus.

5. The _____ is a rigid structure outside the cell membrane that provides support and protection for plant cells.

6. _____ are organelles found in plant cells and some protists that contain green pigments and carry out photosynthesis.

7._____ is the process by which cells selectively engulf large particles, such as food, into vesicles for digestion.

8. _____ are the building blocks of proteins, synthesized in the cytoplasm by ribosomes.

9. _____ is the semi-fluid matrix that fills the interior of cells and surrounds organelles.

10. _____is the process by which cells release energy from glucose and other organic molecules with the help of oxygen, producing carbon dioxide and water as by-products.

11._____ are small membrane-bound sacs that transport and store materials within the cell.

12. _____are the structural and functional units of heredity that carry genetic information from one generation to the next.

13._____are the building blocks of nucleic acids (DNA and RNA), consisting of a phosphate group, a sugar molecule, and a nitrogenous base.

14._____ are structures within the nucleus where ribosomal RNA (rRNA) combines with proteins to form ribosome subunits.

Section B (any 6 questions only)

Short Answer Questions: [2 x 6 = 12]

Q1. Why are cells considered the basic structural and functional units of living organisms?

Q2. Compare and contrast prokaryotic and eukaryotic cells.

Q3. Why are mitochondria often referred to as the powerhouse of the cell?

Q4. Discuss the significance of the endoplasmic reticulum (ER) in protein synthesis and lipid metabolism.

Q5: Discuss the role of the nucleus in cellular function and inheritance.

Q6. Discuss the role of lysosomes in cellular digestion and recycling.

Q7. Discuss the importance of cell division in growth, repair, and reproduction of organisms.

Q8. Explain the importance of the Golgi apparatus in cellular function.

Section D [2 x 3 = 6]

III. Large Answer Question:

Q9. How does a plant cell differ from an animal cell?

Q10. Differentiate between rough and smooth endoplasmic reticulum. How is the endoplasmic reticulum important for membrane biogenesis?

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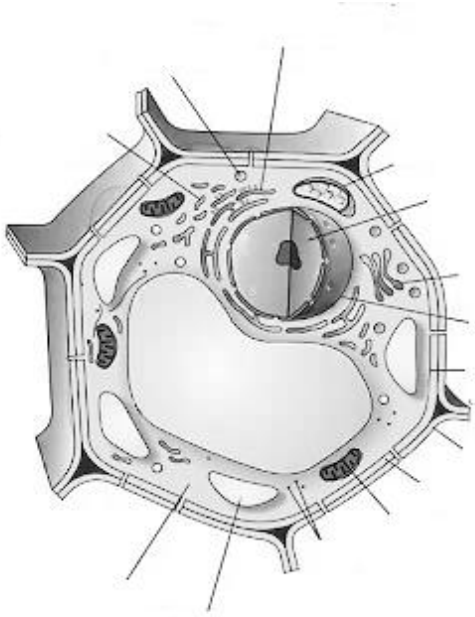
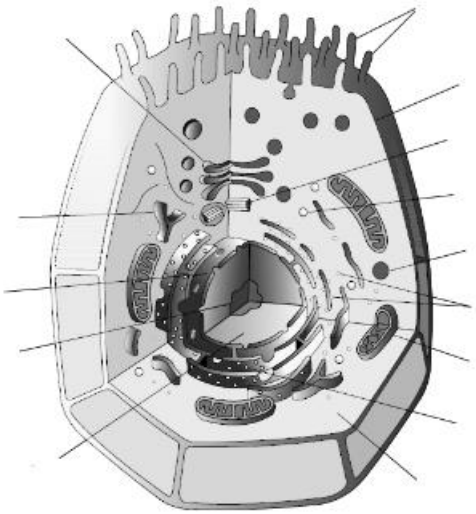
Section E [8 x 1 = 8]

IV. Picture Study:

A. Label the highlighted parts of plant cells: [3. 5 x 1 = 3.5]



B. Label the highlighted parts of an animal cell. [3. 5 x 1 = 3.5]



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C. Identify Mitosis and Meiosis in the diagram below [1 x 1 = 1 }