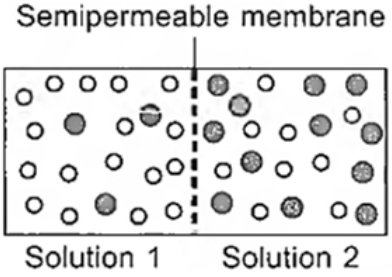
CBSE

FUNDAMENTAL UNIT OF LIFE WS 1

Class 09 - Science

Section A

1. Study the given figure carefully. In which direction the net movement of water will take place? **[1]**



[Key : O Water molecule; ® Solute molecule]

a) From solution 1 to solution 2

b) Both From solution 1 to solution 2 and From solution 2 to solution 1

c) From solution 2 to solution 1

d) No movement will take place

2. Cell arises from the pre-existing cell was stated by **[1]**

a) Virchow

b) Purkinje

c) Robert Hook

d) Robert Brown

3. The statement 'cells arise only from pre-existing cells' was given by: **[1]**

a) Louis Pasteur

b) Schwann

c) Schleiden

d) Rudolf Virchow

4. The basic building units of an onion bulb, are called _____. **[1]**

a) scales

b) cells

c) roots

d) tissues

5. The number of lenses in a compound microscope is: **[1]**

a) 1

b) 4

c) 3

d) 2

6. Cell theory was given by **[1]**

a) Haeckel

b) Virchow

c) Hooke

d) Schleiden and Schwann

7. Living cells were discovered by **[1]**

a) A.V. Leeuwenhoek

b) Robert Brown

c) Robert Hooke

d) R. Virchow

8. The technical term for the “Group of similar cells performing a specific function” is**:** **[1]**

a) Tissue
b) Cell
c) Organ system
d) Organ

9. Match the following with the correct response**:** **[1]**

(a) Largest cell	(i) Mycoplasma
(b) Smallest cell	(ii) Bacteria
(c) Single-cell	(iii) Amoeba
(d) Prokaryotic cell	(iv) Ostrich egg

a) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)
b) (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii)
c) (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)
d) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i)

10. Match the following with the correct response**:** **[1]**

(a) Robert Brown	(i) Nucleus
(b) Purkinje	(ii) Cell
(c) Robert Hooke	(iii) Protoplasm
(d) Schleiden	(iv) Cell theory

a) (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii)
b) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i)
c) (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)
d) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)

11. Which of the following is incorrect for cell theory**:** **[1]**

A. All organisms are made up of cells.
B. All living organisms are made up of eukaryotic the cell only.
C. Cells arise from pre-existing cells.
D. The outermost covering of all living cells is the cell wall.

a) B and C
b) A and D
c) All of these
d) B and D

12. Why is virus an exception of cell theory? **[1]**
13. What is microscope? **[1]**

Section B

14. **Fill in the blanks:** **[2]**
    (a) Organism consisting of more than one cell, wherein the differentiated cells perform specialized functions in the organism is called a _____ organism. **[1]**
    (b) The unicellular organism is an organism having only _____ cell. **[1]**
15. What is cell theory? Who formulated it? **[2]**
16. Why is the cell called the structural and functional unit of life. **[2]**
17. Why is cell called the structural and functional unit of life? **[2]**
18. How can you calculate the magnification of a microscope? **[2]**
19. Why is light microscope called a compound microscope? **[2]**
20. Who discovered cells, and how? **[2]**
21. Who discovered cell, and how? **[2]**

22. How is a bacterial cell different from an onion peel cell? **[2]**

Section C

23. **State True or False:** **[4]**

(a) The cells of the human body have different shapes and sizes. **[1]**

(b) There are some organisms that are single-celled but can live their own. **[1]**

(c) In 1665, Robert Hooke first discovered and named the cells. **[1]**

(d) There is a division of labor in multicellular organisms. **[1]**

24. **Read the passage and answer any four questions:** **[4]**

Leeuwenhoek discovered the free-living cells in pond water for the first time. Robert Brown discovered the nucleus in the cell. A single cell may constitute a whole organism as in Amoeba. These organisms are called unicellular organisms. On the other hand, many cells group together in a single body and assume different functions in it to form various body parts in multicellular organisms. The shape and size of cells are related to the specific function they perform. Each living cell has the capacity to perform certain basic functions that are characteristic of all living forms. Each kind of cell organelle performs a special function, such as making new material in the cell, clearing up the waste material from the cell and so on.

i. Cells were first discovered by:

a. Robert Hooke
b. Leeuwenhoek
c. Schleiden
d. Virchow

ii. Which of the following is a unicellular organism?

a. Fungi
b. Plants
c. Chlamydomonas
d. Animal

iii. Who suggested that all cells arise from pre-existing cells?

a. Robert Hooke
b. Leeuwenhoek
c. Schleiden
d. Virchow

iv. Which of the following is an incorrect statement?

I. Each living cell has the capacity to perform certain basic functions
II. There is a division of labour in multicellular organisms
III. Each kind of cell organelle performs a special function
IV. All activities inside the cell do not interact with the environment.

a. (I) and (II)
b. (II) and (III)
c. (III) and (IV)
d. Only (IV)

v. Identify the given cell.

a. Blood cell

b. Nerve cell

c. Ovum

d. Fat cell

Section D

Question No. 25 to 29 are based on the given text. Read the text carefully and answer the questions: **[5]**

There are groups of organisms which do not possess a nucleus. The genetic material lies coiled in the cytoplasm. True vacuoles are absent. Membrane bound cell organelles are absent. Plastids are absent but photosynthetic pigments occur in many of them. Cell wall does not contain cellulose.

25. What is the name of organisms which do not have a well defined nucleus?

a) Prokaryotes
b) Protistans
c) Eukaryotes
d) Lichens

26. What is the name of the complex formed by their genetic material?

a) Nucleosome
b) Nucleolus
c) Chromosome
d) Nucleoid

27. Where are photosynthetic pigments located in them?

a) They are dissolved in the cytoplasm
b) Photosynthetic pigments do not occur in them
c) Photosynthetic pigments are embedded in the plasma membrane
d) They are packed inside bag-like vesicles

28. What is the name of substance that forms cell wall in these organisms?

a) Protein complex as found in motile green algae
b) Chitin as found in fungi
c) Peptidoglyean as found in monerans
d) Cellulose as found in plants

29. Which of the following is correct regarding Plastids?

a) Plastids don't have their own DNA and ribosome.
b) None of these.
c) Plastids exist in both plant and animal cells.
d) It is single membraned organelles.

Question No. 30 to 34 are based on the given text. Read the text carefully and answer the questions: **[5]**

Most of the eukaryotic cells possess sausage shaped colourless organelles that are essential for living of aerobic organisms. Each organelle is covered by a double membrane envelope. The inner membrane is folded inwards to

increase the internal surface. Partially embedded in the membranes of these infoldings are tennis racket shaped structures.

30. What is the name of the organelle?

a) Mitochondrion
b) Chromoplast
c) Golgi apparatus
d) Dictyosomes

31. The infoldings of the inner membrane are called

a) Cisternae
b) Karyosomes
c) Sterna
d) Cristae

32. What are the functions of the organelle?

a) Translation of coded information
b) Formation of lactic acid from pyruvate
c) Breakdown of glucose to pyruvate
d) Carrying out Krebs' cycle of respiration

33. Why is it called powerhouse of the cell?

a) It bears oxysomes or elementary particles
b) It generates electric potential that runs the cellular machinery
c) It is the major seat of ATP synthesis
d) It is the seat of synthesis of amino acids and fats

34. Which of the following is false regarding eukaryotic cells?

a) The nucleus exists in the cells.
b) They are generally multicellular organisms.
c) A single chromosome is present.
d) They undergo sexual as well as a sexual reproduction.

Question No. 35 to 39 are based on the given text. Read the text carefully and answer the questions: **[5]**

Leeuwenhoek discovered the free-living cells in pond water for the first time. Robert Brown discovered the nucleus in the cell. A single cell may constitute a whole organism as in Amoeba. These organisms are called unicellular organisms. On the other hand, many cells group together in a single body and assume different functions in it to form various body parts in multicellular organisms. The shape and size of cells are related to the specific function they perform. Each living cell has the capacity to perform certain basic functions that are characteristic of all living forms. Each kind of cell organelle performs a special function, such as making new material in the cell, clearing up the waste material from the cell and so on.

35. Cells were first discovered by:

a) Leeuwenhoek
b) Virchow
c) Robert Hooke
d) Schleiden

36. Which of the following is a unicellular organism?

a) Plants
b) Fungi
c) Animal
d) Chlamydomonas

37. Who suggested that all cells arise from pre-existing cells?

a) Leeuwenhoek
b) Schleiden
c) Robert Hooke
d) Virchow

38. Which of the following is an incorrect statement?

I. Each living cell has the capacity to perform certain basic functions

II. There is a division of labour in multicellular organisms

III. Each kind of cell organelle performs a special function

IV. All activities inside the cell do not interact with the environment.

a) (II) and (III)

b) (I) and (II)

c) (III) and (IV)

d) Only (IV)

39. Identify the given cell.

a) Blood cell

b) Nerve cell

c) Fat cell

d) Ovum