

## Cell: The Unit of Life

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### I. Select the correct answer from the following questions:

Question 1.

Ribosomes were discovered by

- (a) Golgi
- (b) Porter
- (c) Robertis
- (d) Palade

▼ Answer

Answer: (d) Palade.

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Question 2.

In which component of a mitochondrion ATP is synthesised?

- (a) Matrix
- (b) outer membrane
- (c) crista
- (d)  $F_0-F_1$  complex (Oxysome)

▼ Answer

Answer: (d)  $F_0-F_1$  complex (Oxysome)

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Question 3.

Tonoplast, a differentially permeable membrane, surround the

- (a) nucleus
- (b) Cytoplasm
- (c) Lysosomes
- (d) Vacuole

▼ Answer

Answer: (d) Vacuole.

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Question 4.

Addition of the new cell wall material in the existing one is

- (a) Deposition
- (b) Aggregation
- (c) Intussusception
- (d) apposition

▼ Answer

Answer: (c) Intussusception.

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Question 5.

The interphase nucleus is enclosed in

- (a) a porous double membrane
- (b) a non-porous single membrane
- (c) a porous double membrane
- (d) many membranes

▼ Answer

Answer: (c) A porous double membrane.

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Question 6.

The chloroplast thylakoids are in the form of

- (a) interconnected sacs
- (b) independent discs
- (c) interconnected tabules
- (d) stalked discs.

▼ Answer

Answer: (a) Interconnected sacs.

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Question 7.

Aerobic respiration is performed by

- (a) glyoxisome
- (b) lysosomes

- (c) mitochondria
- (d) stalked discs.

▼ Answer

Answer: (c) Mitochondria.

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- Question 8.  
Plant cell differ from animal cell in having
- (a) mitochondria
  - (b) cell wall
  - (c) golgi bodies
  - (d) ribosomes

▼ Answer

Answer: (b) Cell wall

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- Question 9.  
The cell wall of certain fungi is made of
- (a) lignin
  - (b) pectin
  - (c) suberin
  - (d) chitin

▼ Answer

Answer: (d) Chitin

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- Question 10.  
Desmosomes are connected with
- (a) cytolysis
  - (b) cell division
  - (c) cell excretion
  - (d) cell adherence.

▼ Answer

Answer: (d) Cell adherence.

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- Question 11.  
Fluid mosaic model of cell membrane state that it has lipid bilayer with
- (a) proteins on the outer surface only.
  - (b) Some proteins embedded and some on the surface.
  - (c) Proteins on both the surfaces.
  - (d) Proteins embedded and some on the surface.

▼ Answer

Answer: (b) Some proteins embedded and some on the surface.

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- Question 12.  
Fluid mosaic model of cell membrane was proposed by
- (a) Singer and Nicholson
  - (b) waston and crick
  - (c) Robertson
  - (d) danielli and davson

▼ Answer

Answer: (c) Robertson.

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- Question 13.  
Ribosomes are centres
- (a) Photosynthesis
  - (b) liquid synthesis
  - (c) Respiration
  - (d) protein synthesis

▼ Answer

Answer: (d) Protein synthesis.

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- Question 14.  
A membrahe covering

- (a) Mitochondrion
- (b) nucleolus
- (c) Plastid
- (d) Lysosome

▼ Answer

Answer: (b) Nucleolus.

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Question 15.

Solar energy is converted into ATP/chemical energy by

- (a) Chloroplast
- (b) Ribosome
- (c) Mitochondria
- (d) Peroxisome

▼ Answer

Answer: (a) Chloroplast.

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Question 16.

The organelle regarded a sugar factory in an autotrophic eukaryotic cell is

- (a) Mitochondrion
- (b) Ribosome
- (c) Chloroplast
- (d) Endoplasmic reticulum.

▼ Answer

Answer: (c) Chloroplast.

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Question 17.

Cell wall shows

- (a) Permeability
- (b) Semi permeability
- (c) Impermeability
- (d) Differential permeability

▼ Answer

Answer: (a) Permeability

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Question 18.

Golgi apparatus is lacking in

- (a) Higher plants
- (b) yeasts
- (c) Liver cells
- (d) Blue green algae.

▼ Answer

Answer: (d) Blue green algae.

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Question 19.

Outer and inner membranes of mitochondria are

- (a) structurally and functionally different
- (b) structurally different but functionally similar
- (c) structurally and functionally similar
- (d) structurally similar but functionally different

▼ Answer

Answer: (a) Structurally and functionally different

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Question 20.

Smallest unit in cell wall is

- (a) Middle lamella
- (b) Microfibril
- (c) Micelle
- (d) Fibril

▼ Answer

Answer: (c) Micelle.

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Question 21.  
Mitochondria are absent in  
(a) Green algae  
(b) Brown algae  
(c) Red algae  
(d) Bacteria

▼ Answer

Answer: (d) Bacteria

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Question 22.  
Polymorphic cell organelle is  
(a) Golgi complex  
(b) lysosome  
(c) Glyoxysome  
(d) peroxisome

▼ Answer

Answer: (b) Lysosome.

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Question 23.  
Organelle covered  
(a) Glyoxysome  
(b) lysosome  
(c) Glyoxysome  
(d) All of these

▼ Answer

Answer: (d) All of these.

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Question 24.  
Lysosome contain  
(a) Carbohydrates  
(b) nucleic acids  
(c) Hydrolases  
(d) Hormones

▼ Answer

Answer: (c) Hydrolases.

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Question 25.  
Which cell organelle reduces the number of other organelles?  
(a) Mitochondria  
(b) Lysosome  
(c) Oxysome  
(d) None of these

▼ Answer

Answer: (b) Lysosome.

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Question 26.  
The plant cell wall possesses  
(a) Hemicellulose  
(b) Cellulose  
(c) Pectin  
(d) All of these

▼ Answer

Answer: (d) All of these.

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## II. Fill in the blanks:

Question 1.  
All organisms are composed of ..... Some are composed of a single cell and called ..... organisms while others, like us, are composed of many cells and called ..... organisms.

▼ Answer

Answer: cells, unicellular, multicellular

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Question 2.

The study of structure, composition, functions and life processes of the cell is called .....

▼ [Answer](#)

Answer: cell biology

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Question 3.

..... was the first person to describe the cell in 1865 when he used a microscope built by him to examine a thin slice of cork

▼ [Answer](#)

Answer: Robert Hooke

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Question 4.

In 1831, ..... made an important discovery when he reported the presence of a small sphere in the cells of the orchid root

▼ [Answer](#)

Answer: Robert Brown

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Question 5.

..... and ..... combined their views and formulated the cell theory

▼ [Answer](#)

Answer: Schleiden, Schwann

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Question 6.

The presence of several types of organ systems in the body of a multicellular organism is a unique example of .....

▼ [Answer](#)

Answer: division of labour

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Question 7.

Since most of the activities of an organism are present in miniature form in each and every cell, the cell can be called a .....

▼ [Answer](#)

Answer: functional unit of life

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Question 8.

Every cell has its own life span. Old and weak cells die and are replaced by new ones which are formed by the ..... of the younger cells

▼ [Answer](#)

Answer: division

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Question 9.

In general, cells can be divided into two main types (a) ..... (b) .....

▼ [Answer](#)

Answer: prokaryotic, eukaryotic cells

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Question 10.

The prokaryotic cells are represented by the bacteria, blue-green algae, mycoplasma or PPLO (pleuro pneumonia like organisms) ..... and .....

▼ [Answer](#)

Answer: spirochete, rickettsiae

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Question 11.

The bacteria can be classified into two groups on the basis of the differences in the cell envelopes viz the ..... and .....

▼ [Answer](#)

Answer: Gram positive, Gram negative

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Question 12.

One such structure is the mesosome which is formed by the extensions of plasma membrane into the cell in the ....., ..... and .....

▼ [Answer](#)

Answer: form of vesicles, tubules, lamellae

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Question 13.

Several ribosomes may attach to a single mRNA and form a chain called ..... or .....

▼ [Answer](#)

Answer: polyribosomes, polysome.

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Question 14.

Bacterial flagellum is composed of three parts- ....., ..... and .....

▼ [Answer](#)

Answer: filament, hook, basal body

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Question 15.

In fact, the plant cells possess a conspicuous thick layer of cellulose covering the cell membrane called the .....

▼ [Answer](#)

Answer: cell wall

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### III. Mark the statements True (T) or False (F)

Question 1.

Sometimes a few chromosomes have secondary constrictions at a constant location, which are their non-staining region and give the appearance of a small fragment called the satellite.

▼ [Answer](#)

Answer: True

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Question 2.

Every chromosome essentially has a primary constriction or the centromere on the sides of which disc shaped structures called kinetochores, for the attachment of the spindle fibres, is also present.

▼ [Answer](#)

Answer: True

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Question 3.

The biochemical analysis of the isolated chromatin has revealed that it contains DNA, some basic protein called histones, some nonhistone proteins and also RNA.

▼ [Answer](#)

Answer: True

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Question 4.

The electron microscope has revealed that the nuclear envelope, which consists of two parallel membranes spaced by 10 to 50nm called the perinuclear space.

▼ [Answer](#)

Answer: True

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Question 5.

The eukaryotic cells usually possess a large sized, almost centrally located and densely stained organelle containing the genetic material called nucleus.

▼ [Answer](#)

Answer: True

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Question 6.

The central part of the centriole is also proteinaceous called the hub, which is connected with a tubules of the peripheral triplet by radial spokes made up of protein.

▼ [Answer](#)

Answer: True

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Question 7.

The electron microscopic studies of the cross section of a cilium or the flagellum shows that it is covered with plasma membrane and its core

called the axoneme possesses a number of microtubules running parallel to the long axis of the organelle.

▼ Answer

Answer: True

Question 8.

Cilia and flagella are the hair-like microtubular organelle projected in the form of an out growth of the cell membrane used either for the movement of the cell or the movement of the surrounding\* fluid.

▼ Answer

Answer: True

Question 9.

Inside the space lined by the inner membrane of the chloroplast, called the ribosomes a number of organized flattened membranous sacs are present called the cytoskeleton.

▼ Answer

Answer: False

Question 10.

Based on the type of pigments present in them plastids can be classified into chloroplasts, chromoplasts and leucoplasts.

▼ Answer

Answer: True

Question 11.

Vacuoles also exert a hydrostatic pressure called the vacuole pressure that gives the mechanical support to the cell.

▼ Answer

Answer: False

Question 12.

The primary wall consists of a very fine network of the microfibrils made up of cellulose and pectic polysachharides embedded in the gellike matrix.

▼ Answer

Answer: True

Question 13.

Many cells exhibit the rough surface endoplasmic reticulum, whereas such granular structures are not present in many of them in the smooth endoplasmic reticulum (SER).

▼ Answer

Answer: True

#### IV. Match the column I with column II.

Column I	Column II
(a) All organisms are composed	1. Two dutch scientist E. Gorter and F. Grendel in 1925.
(b) Robert Hooke was the first person to	2. extracted lipid would cover the surface of water.
(c) Cell theory	3. of cell.
(d) The presence of several types of organ systems in the body of multicellular organisms is	4. describe the cell in 1965 when he used a microscope built by him to examine a thin slice of cork.
(e) The initial evidence that the cell membrane contains lipid came after the study of	5. and muscle contraction by release and up take of Ca <sup>2+</sup>
(f) After the extraction of lipid from human RBCs they measured surface area the	6. a unique example of division of labour.
(g) Mitochondria typically it appears as sausage shaped or cylindrical with 0.2-1.0/xm (average 0.5 Jim)	7. in its diameter and 1.0-4. 1 pm in length.
(h) In human beings the eryth-rocyte's membrane has approximately 52% protein.	8. Present all along the length and breadth in almost all the eukary-otic cells consisting mainly of the tubulion protein.
(i) Microtubules are the hollow, cylindrical and stiff structure of approximately 25nm diameter	9. and 40% of lipid whereas the myelinated neuron has approxi-mately 20% of protein and 80% of lipid.
(j) Microfilaments are solid and cylindrical structure of 8-1 Onm diameters made up of	10. other cytaskkeletal filaments.

(k) Intermediate filament are solid and unbranched filamentous structure often interconnected to the	11. the helical polymer of atin protein.
(l) Based on the type of pigments present in them plastids can be classified into	12. Chloroplasts, chromoplasts and leucoplasts.
(m) The central part of the centriole is also	13. proteinaceous called the hub.
(n) The biochemical analysis of the isolated chromatin has revealed that it contains DNA,	14. some basic protein called histones, some non-histone protains and also RNA.
(o) The other important roles SER play in the cell is detoxi fication of a variety of organic compounds	15. (i) All living arganisms are composed of cells and products of cells. (ii) All cells arise from pre-existing cells.

▼ Answer

Answer:

Column I	Column II
(a) All organisms are composed	3. of cell.
(b) Robert Hooke was the first person to	4. describe the cell in 1665 when he used a microscope built by him to examine a thin slice of cork.
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