



# BIOLOGY

## BOOKS - MTG IIT JEE FOUNDATION

### CELL-THE FUNDAMENTAL UNIT OF LIFE

#### Illustrations

1. Name the smallest sized organism.



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2. Who discovered cells, and how?



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3. Why is the cell called the structural and functional unit of life



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4. Fill in the gaps in the following table illustrating differences between prokaryotic and eukaryotic cells.

S. No.	Prokaryotic cell	Eukaryotic cell
(i)	Size : generally small (1 – 10 $\mu\text{m}$ ).	Size : generally large (5 – 100 $\mu\text{m}$ ).
(ii)	Nuclear region : _____ and known as _____	Nuclear region : well defined and surrounded by a nuclear membrane.
(iii)	Chromosome : single	More than one chromosome
(iv)	Membrane bound cell organelles absent.	_____



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5. Why is the plasma membrane called a selectively permeable membrane



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6. Give the chemical nature of plasma membrane.



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7. What is a semipermeable membrane?



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8. What is endosmosis and exosmosis?





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9. Differentiate between diffusion and osmosis.



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10. Tabulate difference between active transport and diffusion.



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**11.** How do substances like CO<sub>2</sub> and water move in and out of the cell? Discuss



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**12.** If the organisation of a cell is destroyed due to some physical or chemical influence, what will happen?



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**13.** Why are lysosomes known as suicide bags?



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**14.** Where are proteins synthesised inside the cell?



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## Solved Examples

**1.** Name the chief constituent of plant cell wall.



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2. Distinguish between nucleolus and nucleus



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3. What are cilia and flagella?



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4. What are plasmodesmata?



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5. Why are mitochondria called semi-autonomous organelles?



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6. Why is glycerine used for preparing a temporary mount?



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7. Why should one put the coverslip very carefully while preparing a mount?



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8. Differentiate between leucoplasts and chromoplasts.



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9. Differentiate between cell organelles and cell inclusions.



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10. Name three functional regions of a cell.



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**Ncert Section**

1. Make a comparison and write down ways in which plant cells are different from animal cells.



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2. How is a prokaryotic cell different from a eukaryotic cell?



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3. What would happen if the plasma membrane ruptures or breaks down?



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4. What would happen to the life of a cell if there was no Golgi apparatus



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5. Which organelle is known as the powerhouse of the cell? Why?



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6. Where do the lipids and proteins constituting the cell membrane get synthesised?



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**7. How does an Amoeba obtain its food?**



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**8. What is osmosis?**



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**9. Carry out the following osmosis experiment:**

Take four peeled potato halves and scoop each one out to make potato cups. One of these

potato cups should be made from a boiled potato. Put each potato cup in a trough containing water. Now,

(a) Keep cup A empty (b) Put one teaspoon sugar in cup B

(c) Put one teaspoon salt in cup C

(d) Put one teaspoon sugar in the boiled potato cup D.

Keep these for two hours. Then observe the four potato cups and answer the following:

Explain why water gathers in the hollowed portion of B and C



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**10.** Carry out the following osmosis experiment: Take four peeled potato halves and scoop each one out to make potato cups.

One of these potato cups should be made from a boiled potato. Put each potato cup in a trough containing water. Now,

(a) Keep cup A empty (b) Put one teaspoon sugar in cup B

(c) Put one teaspoon salt in cup C

(d) Put one teaspoon sugar in the boiled potato cup D.

Keep these for two hours. Then observe the four potato cups and answer the following:

Why is potato A necessary for this experiment?



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**11.** Carry out the following osmosis experiment: Take four peeled potato halves and scoop each one out to make potato cups. One of these potato cups should be made from a boiled potato. Put each potato cup in a

trough containing water. Now,

(a) Keep cup A empty (b) Put one teaspoon sugar in cup B

(c) Put one teaspoon salt in cup C

(d) Put one teaspoon sugar in the boiled potato cup D.

Keep these for two hours. Then observe the four potato cups and answer the following:

Explain why water does not gather in the hollowed out portions of A and D.



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## Exercise Multiple Choice Questions Level 1

1. Normally, in the process of osmosis, the net flow of water molecules in or out of the cell depends upon differences in the

A. concentration of water molecules inside and outside the cell

B. concentration of enzymes on either side of the cell membrane

C. rate of molecular motion on either side  
of the cell membrane

D. rate of movement of insoluble molecules  
inside the cell.

**Answer:**



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2. The rough ER is so named because it has an  
abundance of

A. mitochondria

B. lysosomes

C. Golgi bodies

D. ribosomes.

**Answer:**



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**3. Bacterial cell wall is composed of**

A. phospholipid

B. cellulose

C. chitin

D. peptidoglycan

**Answer:**



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4. Most cell membranes are composed principally of

A. DNA and ATP

B. protein and lipids

C. chitin and starch

D. nucleotides and amino acids.

**Answer:**



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5. Root hair absorbs water from soil through

A. osmosis

B. exocytosis



C. diffusion

D. endocytosis

**Answer:**



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**6. Cell wall is present in :-**

A. plant cell

B. prokaryotic cell

C. algal cell

D. all of these

**Answer:**



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7. Mitochondria were first seen by

A. Benda

B. Kolliker

C. Schwann

D. R.G. Harrison

**Answer:**



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**8. The cell wall of fungi is made up of**

A. lignin

B. suberin

C. chitin

D. pectin

**Answer:**



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9. Aerobic respiration is performed by :-

- A. ribosomes
- B. mitochondria
- C. lysosomes
- D. chloroplasts

**Answer:**



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**10.** Which of the following organelles in the cell is referred to as the suicidal bags or disposal units?

A. Lysosomes

B. Nucleus

C. Chloroplast

D. None of these

**Answer:**



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11. Which of the following is useful for the synthesis of proteins and enzymes?

A. Smooth endoplasmic reticulum

B. Golgi complex

C. Rough endoplasmic reticulum

D. Mitochondria

**Answer:**



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12. Besides nucleus, DNA is also present in

A. ribosomes

B. mitochondria

C. lysosomes

D. Golgi complex.

**Answer:**



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**13.** If the ribosomes of a cell are destroyed then

A. respiration will not take place

B. fats will not be stored

C. carbon assimilation will not occur

D. proteins will not be formed.

**Answer:**



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**14.** The inner membrane of mitochondria is folded because it

A. has no space inside

B. helps in transportation of materials

C. increases the surface area

D. stores more food.

**Answer:**



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15. The solution in which a cell when placed will gain water by osmosis is termed as

- A. isotonic solution
- B. hyper tonic solution
- C. hypo tonic solution
- D. both (a) and (b).

**Answer:**



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**16.** The animal cell which does not possess nucleus is

- A. egg of hen
- B. white blood cell
- C. red blood cell
- D. nerve cell.

**Answer:**



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17. The plant cells do not burst when kept in hypotonic solution due to presence of

A. cell wall

B. vacuoles

C. plastids

D. both (a) and (b).

**Answer:**



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**18.** The longest cell in the human body is

A. nerve cell

B. muscle cell

C. liver cell

D. kidney cell.

**Answer:**



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**19.** Human cheek cells are commonly stained with

A. methylene blue

B. safranin

C. acetocarmine

D. eosine

**Answer:**



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20. Double membrane is absent in

A. mitochondrion

B. chloroplast

C. nucleus

D. lysosome

**Answer:**



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21. We generally mount the material on the slide

A. in the centre

B. on left corner of slide

C. on right corner of slide

D. both (b) and (c).

**Answer:**



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22. Which among the following is an acellular organism?

A. Trypanosoma

B. Chlamydomonas

C. Virus

D. Amoeba

**Answer:**



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23. Well defined nucleus is absent in

A. Paramecium

B. Pseudomonas

C. Algae

D. Fungi

**Answer:**



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24. Cell theory was proposed by -

A. Robert Hooke

B. Beadle and Tatum

C. Schleiden and Schwarm

D. Hargovind Khorana.

**Answer:**



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**25.** Which of these options are not a function of ribosomes?

I. It helps in manufacture of protein molecules.

II. It helps in manufacture of enzymes.

III. It helps in manufacture of hormones.

IV. It helps in manufacture of starch molecules.

A. (i) and (ii)

B. (ii) and (iii)

C. (iii) and (iv)

D. (i) and (iv)

**Answer:**



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**26.** Select the false statement.

A. Golgi apparatus is involved in the formation of lysosomes.

B. Nucleus, mitochondria and plastid have DNA, hence they are able to make their

own structural proteins.

C. Mitochondria is said to be the power house of cell as ATP is generated in them.

D. Cytoplasm is also called protoplasm.

**Answer:**



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27. Which cell organelle plays a crucial role in detoxifying many poisons and drugs in a cell ?

A. Golgi apparatus

B. Lysosomes

C. Smooth endoplasmic reticulum

D. Vacuoles

**Answer:**



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28. The undefined nuclear region of prokaryotes are also known as

A. nucleus

B. nucleolus

C. nucleic acid

D. nucleoid

**Answer:**



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29. The cell organelle involved in forming complex sugars from simple sugars are



A. endoplasmic reticulum

B. ribosomes

C. plastids

D. Golgi apparatus.

**Answer:**



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30. Kitchen of the cell is

A. mitochondria

B. endoplasmic reticulum

C. chloroplast

D. Golgi apparatus

**Answer:**



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1. Organelle X bears ribosomes on its outer surface. Organelle X and organelle Y together give rise to organelle Z which is often referred to as 'suicide bag' of cells. Identify organelles X, Y and Z and select the incorrect option regarding them.

A. Organelle X takes part in formation of proteins

B. Organelle Z is bound by single membrane.

C. Organelle Y is the main site of cellular respiration.

D. Organelle Z is involved in autophagy.

**Answer:**



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2. Within chloroplasts, light is captured by

A. Within chloroplasts, light is captured by

B. stroma or matrix

C. grana within thylakoids

D. none of these.

**Answer:**



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**3. Ribosomes are found**

A. only in the nucleus

B. in the cytoplasm

C. only in eukaryotic cells

D. both (b) and (c )

**Answer:**



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4. The part of the cell responsible for maintaining cell shape, internal organisation and cell movement is the

A. vesicle

B. nucleus

C. vacuole

D. cytoskeleton

**Answer:**



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**5. A mature plant cell has**

A. protoplasm and vacuole but no cell wall

B. vacuole and cell wall but no protoplasm

C. cell wall and protoplasm but no vacuole

D. protoplasm, cell wall and vacuole.

**Answer:**



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6. Due to some mutation, sperms of animal X lack an organelle that also plays an important role in digesting limiting membrane of egg to facilitate entry of sperm. This organelle is filled with hydrolytic enzymes. Identify this



organelle and select the correct option regarding it.

A. Tadpoles lacking this organelle in their cells do not transform into adult frogs

B. During starvation this organelle brings about autophagy to provide the necessary energy.

C. This organelle possesses photosynthetic pigments on its membrane.

D. Both (a) and (b)

**Answer:**



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7. Find out the incorrect statement.

A. Osmosis is a slow process, occurs down the concentration gradient and does not expend energy.

B. Electron microscope uses electromagnets instead of glass lenses

and beam of electrons instead of light.

C. A semipermeable membrane does not allow both solvent and solute molecules to pass through it.

D. Active transport of materials is rapid and usually occurs against the concentration gradient involving carrier proteins and energy in the form of ATP.

**Answer:**



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8. Which of the following cell organelles liberate heat for the maintenance of constant body temperature in birds and mammals?

A. Lysosomes

B. Ribosomes

C. Endoplasmic reticulum

D. Mitochondria

**Answer:**



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9. A plant cell differs from an animal cell in the absence of

A. endoplasmic reticulum

B. mitochondria

C. ribosomes

D. centrioles

**Answer:**



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**10. Find out the false statement**

A. Nucleus, plastids and mitochondria contain DNA and hence are able to make their own structural proteins

B. Mitochondria are said to be the 'power house' of the cell

C. Lysosomes are chlorophyll containing bags surrounded by a single unit membrane.

D. Ribosomes are also called Palade particles and are the 'protein factories' of the cell.

**Answer:**



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**11.** Find out the correct statement.

A. Enzymes packed in lysosomes are made through RER (rough endoplasmic

reticulum).

B. Rough endoplasmic reticulum and smooth endoplasmic reticulum produce lipid and protein respectively.

C. Endoplasmic reticulum is related with the destruction of plasma membrane.

D. Nucleoid is present inside the nucleoplasm of eukaryotic nucleus.

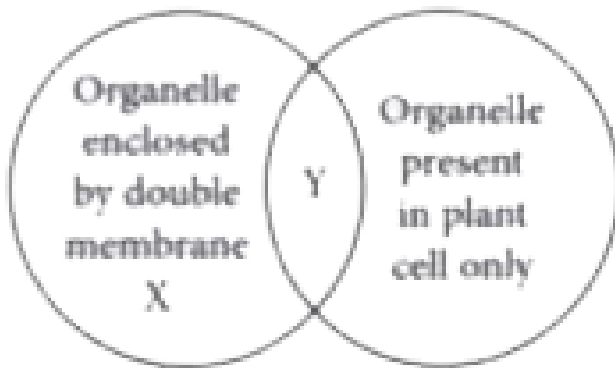
**Answer:**



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12. Refer to the given Venn diagram.



Select the correct option regarding organelle X and Y.

A. Organelle X could be the largest organelle which is absent in mature mammalian RBCs.

B. Organelle X has inner membrane infolded into finger like processes called cristae which bear oxysomes.

C. Organelle Y is a semi-autonomous organelle, often referred to as kitchen of cells.

D. All of these

**Answer:**



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13. Which of the following is the function of vacuole?

- A. Osmoregulation
- B. Provide turgidity
- C. Storage of cell by products
- D. All of these

**Answer:**



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**14.** Animal cells do not show plasmolysis because

- A. they do not exhibit osmosis
- B. they do not possess cell wall
- C. they are living cells
- D. they have intercellular spaces

**Answer:**



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15. Select the incorrect statement regarding phagocytosis.

- A. Vesicles formed in phagocytosis are 1 to 2  $\mu\text{m}$  or more wide.
- B. It is a nutritive and defensive process.
- C. It is the intake of extracellular particles.
- D. None of these

**Answer:**



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**16.** Following are a few definitions of osmosis.

Read carefully and select the correct definition.

A. Movement of water molecules from a region of higher concentration to a region of lower concentration through a semipermeable membrane.

B. Movement of solvent molecules from its higher concentration to lower

concentration in a solution

C. Movement of solvent molecules from higher concentration to lower concentration of solution through a permeable membrane.

D. Movement of solute molecules from lower concentration to higher concentration of solution through a semipermeable membrane.

**Answer:**



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17. Find out the incorrect statement.

- A. The movement of water across a semipermeable membrane is affected by the amount of substances dissolved in it.
- B. Membranes are made of organic molecules like proteins and lipids
- C. Molecules soluble in organic solvents can easily pass through the membrane.



D. Cell walls contain chitin sugar in plants.

**Answer:**



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**18.** A student put five raisins each in two beakers A and B. eaker A contained 50 mL of distilled water and beaker B had 50 mL of saturated sugar solution. After some time the student would observe that

A. raisins in beaker A were more swollen than those in beaker B

B. raisins in beaker B were more swollen than those in beaker A

C. raisins in both beakers A and B were equally swollen

D. raisins in beaker A did not swell up at all.

**Answer:**



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**19.** Cell wall of which one of these is not made us of cellulose ?

A. Bacteria

B. Hydrilla

C. Mango tree

D. Cactus

**Answer:**



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20. \_\_\_\_\_ in eukaryotes is separated from the cytoplasm by double layered membrane and it directs the life process of the cell.

A. Ribosome

B. Golgi apparatus

C. Nucleus

D. Endoplasmic reticulum

**Answer:**



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## Exercise Assertion Reason Type

1. Assertion : A cell membrane shows fluid behaviour.

Reason : A membrane is a mosaic or composite of diverse lipids and proteins.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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2. Assertion : Mitochondria are known as "power house" of the cell

Reason : Mitochondria are used to bring about energy requiring activities of the cell.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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**3. Assertion :** Plasma membrane is selectively permeable.

**Reason :** Plasma membrane allows some molecules to pass through more easily than others.



A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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4. Assertion : Mitochondria provide important intermediates for the synthesis of several biochemicals.

Reason : Mitochondria are capable of self duplication.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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5. Assertion : Plant cell does not burst on account of end osmosis when kept in hypotonic solution.

Reason: Plant cell possess large vacuoles that remove excess water entering the cell and prevent it from bursting.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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**6. Assertion :** Multicellular organisms have higher survival value than the unicellular organisms.

**Reason :** Dead cells are replaced by new cells in multicellular organisms.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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**7. Assertion :** Larger cells are more efficient.

**Reason :** Surface volume ratio is more in large

cells

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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**8. Assertion :** ER acts as a circulatory system.

**Reason :** ER functions as cytoskeleton.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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**9. Assertion :** Cell wall is a non-living part of the cell.

**Reason :** Cell wall offers protection, definite shape and support.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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**10. Assertion :** Active transport moves substances against their concentration gradient.

**Reason :** Active transport requires energy.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer:**



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## Exercise Subjective Questions Very Short Answer Type

1. What is the function of leucoplasts?



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**2. Define endocytosis.**



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**3. Name two semi-autonomous organelles.**



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4. What are three main functional regions of the cell ?



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5. Who discovered cell?



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6. Is there any difference between animal and plant vacuoles?



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7. Who proposed the cell theory?



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8. What is prokaryotic cell ?



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9. Give two examples of unicellular organisms.





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**10.** Which organelles are called ribonucleoprotein particles?



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**11.** Who discovered the nucleus?



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**12. Define osmosis**



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**13. Name the cell organelle rich in acid hydrolases.**



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**14. Which structure is called little nucleus?**



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15. Define theory of cell lineage.



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## Exercise Subjective Questions Short Answer Type

1. Name a cell organelle found only in a plant cell and enlist its type



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2. How is a prokaryotic cell different from a eukaryotic cell?



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3. How does a cell perform its functions?



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4. What are the functions of lysosomes?



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5. Do you agree that 'A cell is a building unit of an organism'. If yes, explain why?



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6. Why does the skin of your finger shrink when you wash clothes for a long time?



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7. Why are lysosomes also known as scavengers of the cells?



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8. Why do plant cells possess large sized vacuole?



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**9.** If cells of onion peel and RBC are separately kept in hypotonic solution, what among the following will take place? Explain the reason for your answer.

RBC and onion peel cell will shrink and plasmolyse.



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**10.** If cells of onion peel and RBC are separately kept in hypotonic solution, what among the

following will take place? Explain the reason for your answer.

RBC will burst easily while cells of onion peel cells will resist the bursting.



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**11.** If cells of onion peel and RBC are separately kept in hypotonic solution, what among the following will take place? Explain the reason for your answer.



RBC and onion peel cell will shrink and plasmolyse.



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12. Name is the main difference between a bacterial cell and an onion peel cell ?



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13. What is the function of nucleus in a cell?



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**14.** What are ribosomes? Where are they located in the cell? What is their function?



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**15.** What is membrane biogenesis?



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**16.** What are genes?



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## Exercise Subjective Questions Long Answer Type

1. Draw a neat labelled diagram of plant cell and label its parts.



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2. Draw a neat labelled diagram of an animal cell.



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3. Draw a well labelled diagram of an eukaryotic nucleus. How is it different from nucleoid?



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4. In brief, state what happens when Dry apricots are left for sometime in pure water and later transferred to sugar solution?



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**5.** In brief, state what happens when

A red blood cell is kept in concentrated saline solution?



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**6.** In brief, state what happens when

The plasma membrane of a cell breaks down?



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**7.** In brief, state what happens when Rhoen leaves are boiled in water first and then a drop of sugar syrup is put on it?



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**8.** In brief, state what happens when Golgi apparatus is removed from the cell?



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**9.** Justify each of the following statements.

It is said that every multicellular organism has come from a single cell.



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**10.** Justify each of the following statements.

Cell membrane or plasma membrane is described as selectively permeable membrane.



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**11.** Justify each of the following statements.

Chloroplast is an organelle that has lead to photoautotrophic mode of nutrition among organisms.

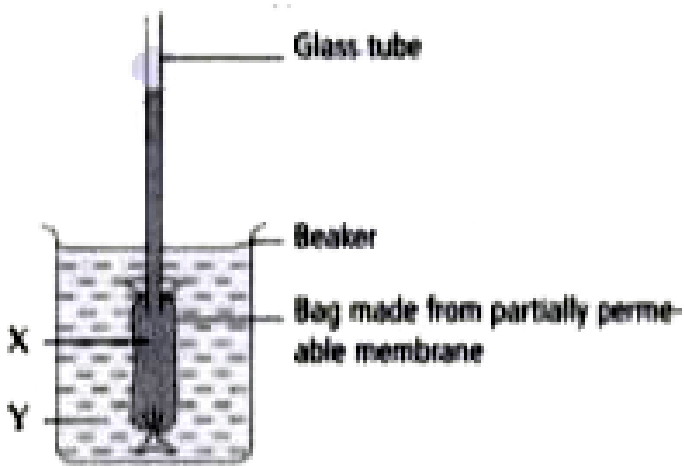


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## Olympiad Hots Corner

**1.** The diagram below shows an experimental set-up to investigate osmosis.





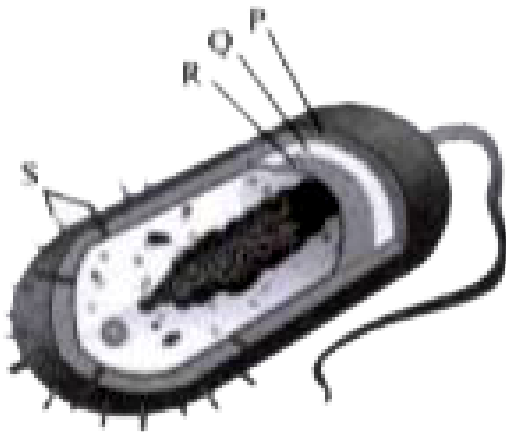
Which of the following combinations of liquids would cause X to rise to the highest level in the glass tube after three hours?

- | Liquid X                          | Liquid Y                      |
|-----------------------------------|-------------------------------|
| (a) Concentrated sucrose solution | Dilute sucrose solution       |
| (b) Concentrated sucrose solution | Water                         |
| (c) Dilute sucrose solution       | Concentrated sucrose solution |
| (d) Water                         | Concentrated sucrose solution |



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2. Refer to the given structure of a prokaryotic cell and select the correct statement regarding it.



A. P is a layer of non-cellulosic polysaccharides

B. Q is double layered in Gram +ve bacteria  
whereas it is single layered in Gram - ve  
bacteria

C. R is an impermeable covering that  
restricts entry and exit of molecules into  
and out of the cell.

D. S could be tubular outgrowths that are  
involved in locomotion only.

**Answer:**



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3. Features of different cell components are given as follows. Identify the cell components and select the correct option.

Cell component	Features
P	Helps in the manufacture of fat molecules or lipids
Q	They have their own DNA
R	Protein synthesis cannot take place without them
S	Contains membrane bound living parts called organelles

- | P                         | Q            | R                     | S                     |
|---------------------------|--------------|-----------------------|-----------------------|
| (a) Mitochondria          | Ribosomes    | Cytoplasm             | Endoplasmic reticulum |
| (b) Endoplasmic reticulum | Mitochondria | Ribosomes             | Cytoplasm             |
| (c) Ribosomes             | Lysosome     | Endoplasmic reticulum | Nucleoplasm           |
| (d) Mitochondria          | Ribosomes    | Endoplasmic reticulum | Nucleoplasm           |



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4. According to cell theory

A. new cells originate from dead cells

B. all cell originate from pre-existing cells

C. every organism starts its life as  
multicellular form

D. none of these.

**Answer:**



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5. Select the correct statement regarding cell wall of plant cells

A. Primary cell wall is chiefly composed of a soluble fibrous polysaccharide called suberin.

B. Secondary cell wall is mainly composed of lignin and is deposited on the outer surface of primary wall.

C. Pits are present in primary walls whereas they are absent in secondary walls.

D. The primary cell walls of adjacent cells are cemented through middle lamella which is composed of calcium and magnesium pectate.

**Answer:**



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6. While observing a stained mount of onion peel under high power compound microscope, the central part of the cell does not take stain. Which of the following options correctly identifies this central part of the cell?

A. Nucleus

B. Cell wall

C. Vacuole

D. Chloroplast

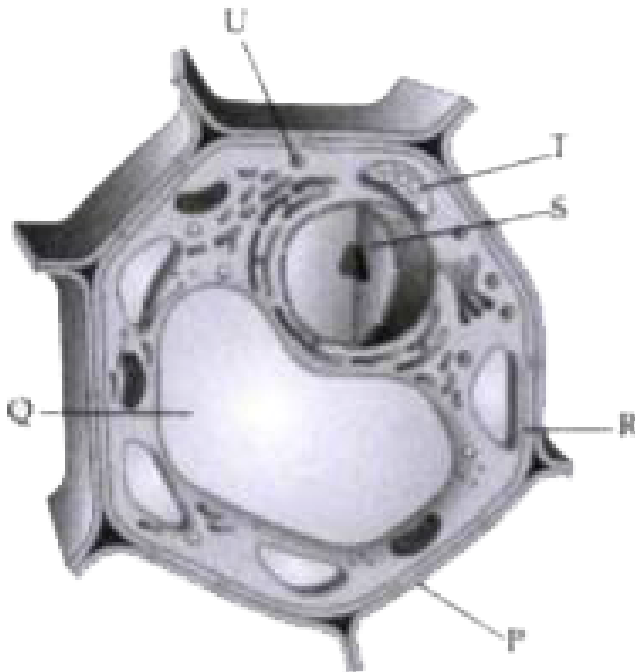
**Answer:**





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7. Refer to the given figure and answer the following questions



Which of the following statement is correct?

A. Part marked as P is present in all prokaryotes and eukaryotes.

B. Both the parts P and Q are present in animal cells.

C. Plant cells lack the part marked as S.

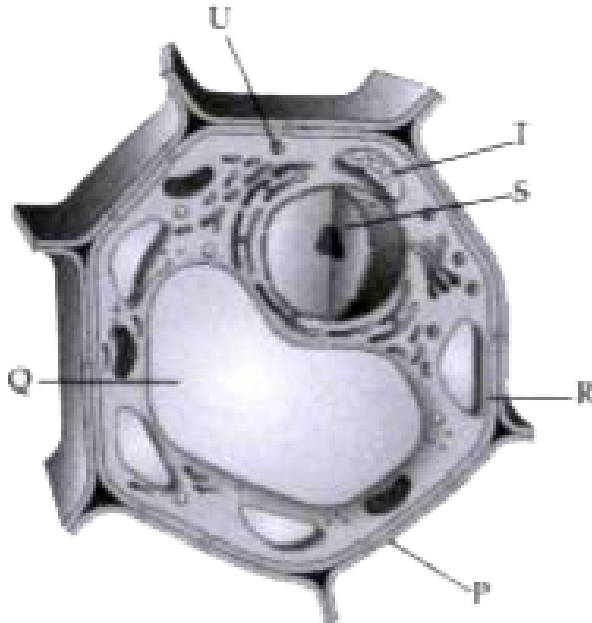
D. Part marked as R is selectively permeable in both prokaryotes and eukaryotes.

**Answer:**



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8. Refer to the given figure and answer the following questions



Select the correct match

	<b>Labelled organelle</b>	<b>Role</b>
(a)	R	Helps in the synthesis of ATP
(b)	Q	Provides rigidity and turgidity to the cell
(c)	U	Involved in the formation of lysosomes
(d)	S	Responsible for protein synthesis



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**9.** Read the given passage.

Each cell has got certain specific components within it known as cell organelles. 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. Select the correct statements regarding the passage.

(i) All cell organelles are found in the cytoplasm of the cell.

(ii) Any cell can perform all functions due to the presence of the cell organelles.

(iii) Cell organelles are membrane-bound, subcellular components within the cell.

(iv) Cell organelles are absent in all unicellular organisms.

A. (i), (ii) and (iii)

B. (i) and (ii)

C. (ii) and (iv)

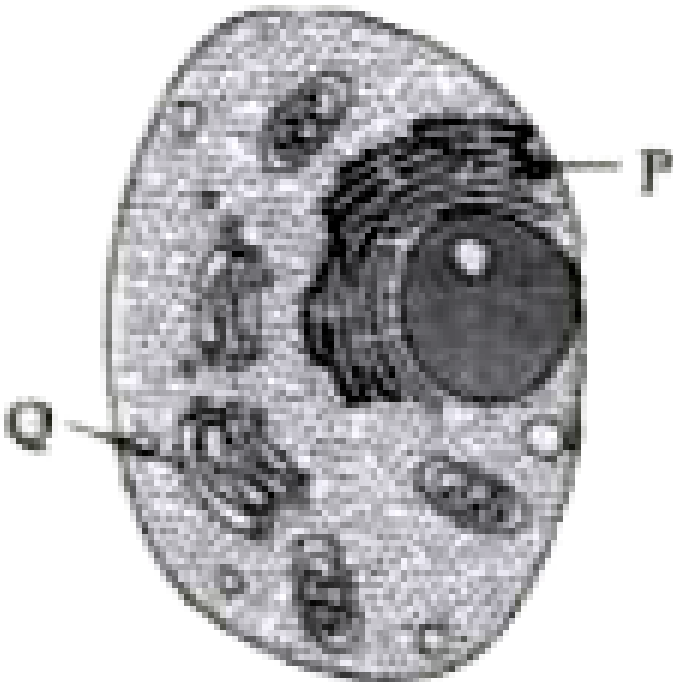
D. (iii) and (iv)

**Answer:**



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10. Refer to the given diagram of an animal cell and select the correct option regarding P and Q



A. Some of the vesicles of P store digestive enzymes obtained Q from Q in inactive state to form primary lysosome

B. Polypeptides synthesised at Q are transported to P where they are modified into functional proteins for secretion

C. Q synthesises acrosome which plays an important role in the fertilisation process in humans

D. P is absent in pancreatic cells and cells of salivary glands whereas Q is absent in liver cells.

**Answer:**



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**11.** Match column I with column II and select the correct option from the given codes.



<b>Column I</b>	<b>Column II</b>
(A) Ribosomes	(i) Jelly like substance
(B) Lysosomes	(ii) Powerhouse of the cell
(C) Endoplasmic reticulum	(iii) Site of protein synthesis
(D) Cytoplasm	(iv) Synthesis of lipids
(E) Mitochondria	(v) Suicide bags

A. A) - (iii), (B) - (v), (C) - (iv), (D) - (i), (E) - (ii)

B. (A) - (iv), (B) - (v), (C) - (iii), (D) - (i), (E) - (ii)

C. (A) - (iii), (B) - (iv), (C) - (i), (D) - (v), (E) - (ii)

D. (A) - (iv), (B) - (v), (C) - (ii), (D) - (i), (E) - (iii)

**Answer:**



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**12.** Select the incorrect statements.

(i) Cell wall is the site of energy production in a plant cell.

(ii) Lysosomes are the reservoirs of starch, oil and protein granules.

(iii) A plant cell becomes turgid due to plasmolysis.

(iv) Chemically plasma membrane is composed of fats and lipids.

(v) The functional segments of DNA are called genes.

A. (i), (ii) and (iv)

B. (i), (ii), (iii) and (iv)

C. (ii), (iv) and (v)

D. (iii), (iv) and (v)

**Answer:**



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