

India's Number 1 Education App

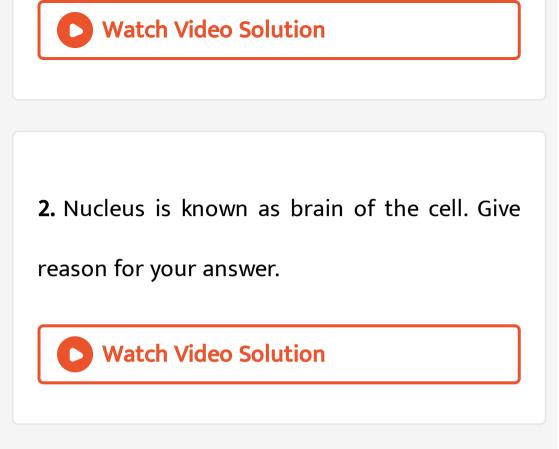
BIOLOGY

BOOKS - PEARSON IIT JEE FOUNDATION

CELL - FUNDAMENTAL UNIT OF LIFE

Quick Recap

1. Explain the role of flexibility of plasma membrane in the activity of the cell.



3. Why do raw green mangoes turn to yellow

colour on ripening?

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4. Name the two organelles which possess their own genetic material

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5. Write main differences between plant and animal cells.

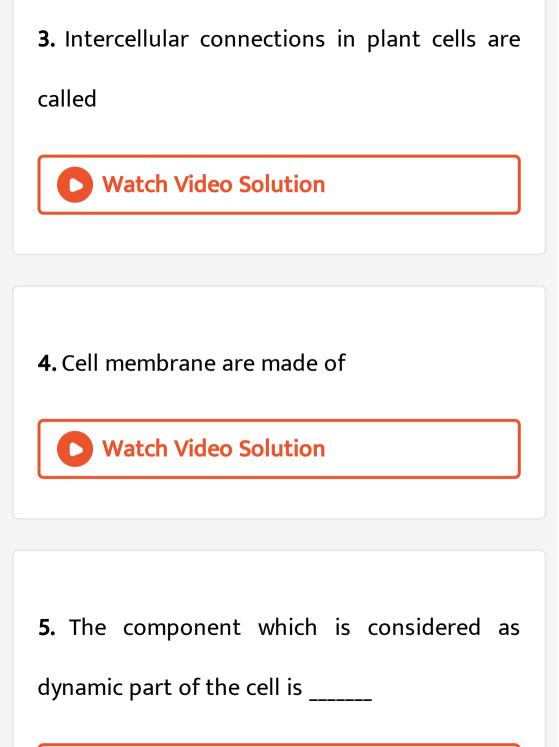
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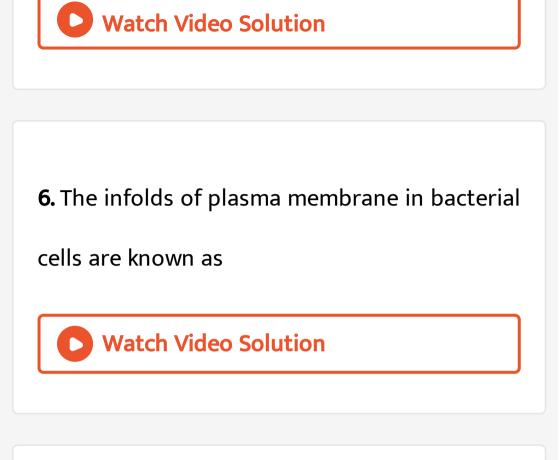
Test Your Concepts Fill In The Blanks

Rigid non-living component of the cell is
 called _____
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2. The outer most layer of the cell wall connecting the two adjoining cells is known as





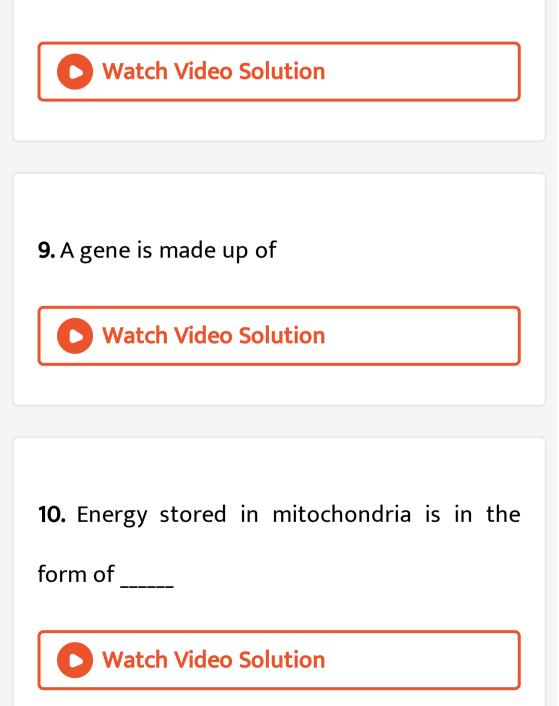


7. The part of the cytoplasm excluding the

organelles is called _____

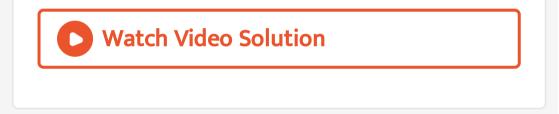
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8. Homeostasis is maintained by



11. The membrane covering the vacuole is

known as





1. Metabolism of fats in the cell takes place by



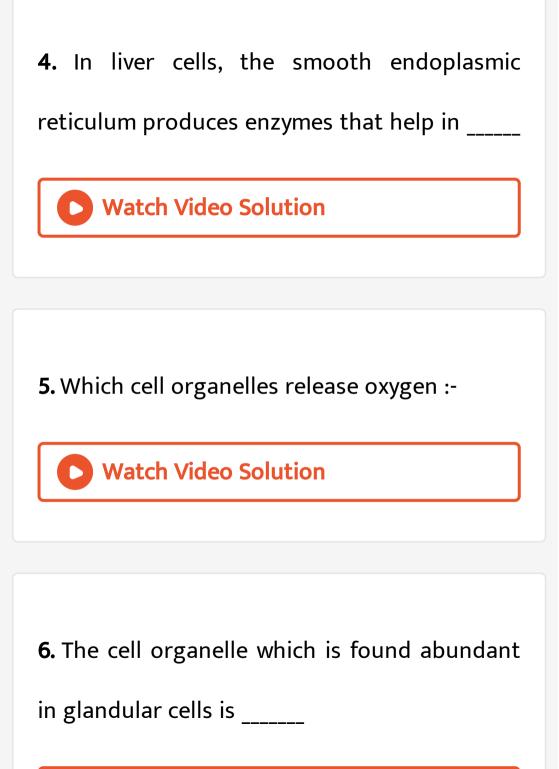
2. Groups of ribosomes in the cell are known

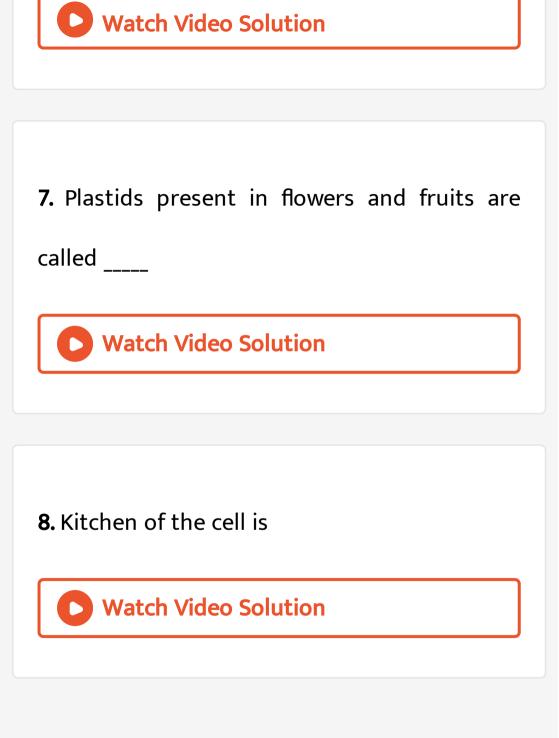
as ____



3. A cell organelle containing hydrolytic enzymes is :

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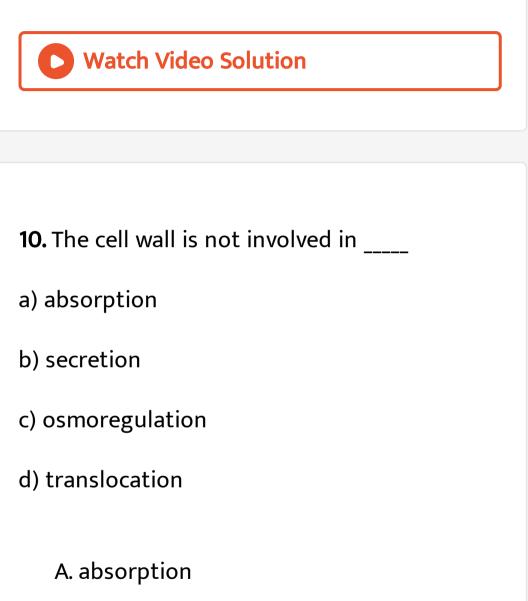


9. Master control of the cell' or 'cell brain' is

- a) mitochondria
- b) ribosomes
- c) nucleus

- d) plastids
 - A. mitochondria
 - B. ribosomes
 - C. nucleus
 - D. plastids

Answer: C



B. secretion

C. osmoregulation

D. translocation

Answer: D



11. In certain fungi, many nuclei are present in

their single large body. This is known as _____ condition.

A. syncytium

B. multicellular

C. coenocytic

D. unicellular

Answer: C

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12. What happens to the cell when it is placed

in salt solution?

A. Bursts

B. Shrinks

C. Swells

D. No effect

Answer: C

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13. Cell theory states that cells are structural

and fundamental units of _____

A. plants

B. animals

C. both plants and animals

D. only microorganisms

Answer: C

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14. The structure that imparts turgidity and

rigidity to the cell is _____

A. vacuole

B. ribosome

C. cell wall

D. cell membrane

Answer: A

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15. The physiological process that helps in the

uptake of water and salts in plants is _____

A. diffusion

B. photosynthesis

C. respiration

D. osmosis

Answer: B

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16. Which one of the following cell organelles

is enclosed by a single membrane

A. Nuclei

B. Lysosomes

C. Chloroplasts

D. Mitochondria

Answer: B

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17. Identify the organelle which is commonly seen in both plant cell and animal cell.

A. Centriole

B. Tonoplast

C. Mitochondria

D. Both (a) and (b)

Answer: C

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18. Which one are the protein factories of the

cells?

A. Lysosomes

B. Chloroplasts

C. Mitochondria

D. Ribosomes

Answer: D

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19. Identify the incorrect match.

A. Vesicles - Golgi complex

B. Grana-chloroplast

C. Ribosomes—mitochondria

D. Chromosomes-nucleus

Answer: C

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20. The packet of thylakoids in a chloroplast is

called

A. matrix

B. granum

C. stroma

D. oxysomes

Answer: B



21. Liquid content of a vacuole is called

A. nuclear sap

B. cytoplasm

C. cell sap

D. latex

Answer: C

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22. Which cell organelle is the major site for synthesis of lipid?

A. smooth endoplasmic reticulum

B. rough endoplasmic reticulum

C. mitochondria

D. adipocytes

Answer: A

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23. Synthesis of ATP in mitochondria takes place in/on ____

A. matrix

B. cristae

C. outer membrane

D. between membrane

Answer: A

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24. Energy currency of the cell is

A. mitochondria

B. ATP

C. FAD

D. glucose





25. The fluid containing proteinaceous matrix of chloroplast is

A. grana

B. cytoplasm

C. thylakoids

D. stroma





26. Mature erythrocyte cannot utilise glucose because they lack

A. enzymes

- B. Golgi complex
- C. mitochondria
- D. nucleus

Answer: C



- **27.** In which of the following cases, conversion of leucoplasts to chloroplasts is observed?
- (i) Tubers of radish
- (ii) Potato tubers
- (iii) Ovary of tomato
- (iv) Maize kernels
 - A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iv)

D. (ii) and (iv)

Answer: A

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28. What would happen if lysosomes get ruptured inside the cells in which they are present

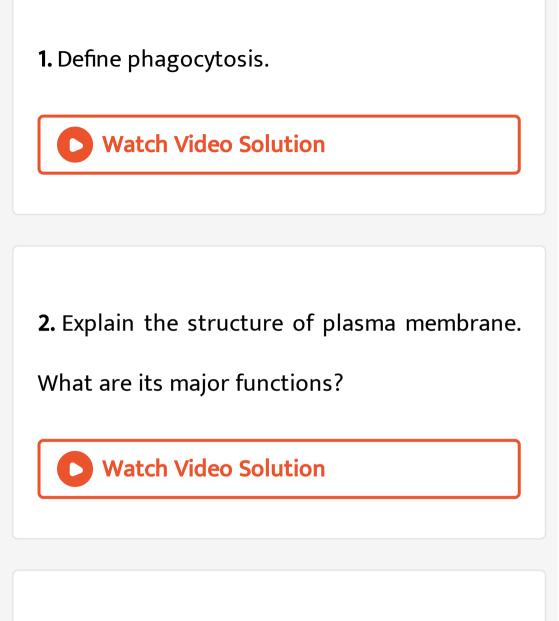
A. Cell dies

- B. Cell swells
- C. Cell shrinks
- D. No change

Answer: B







3. Define Diffusion.

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4. Define osmosis

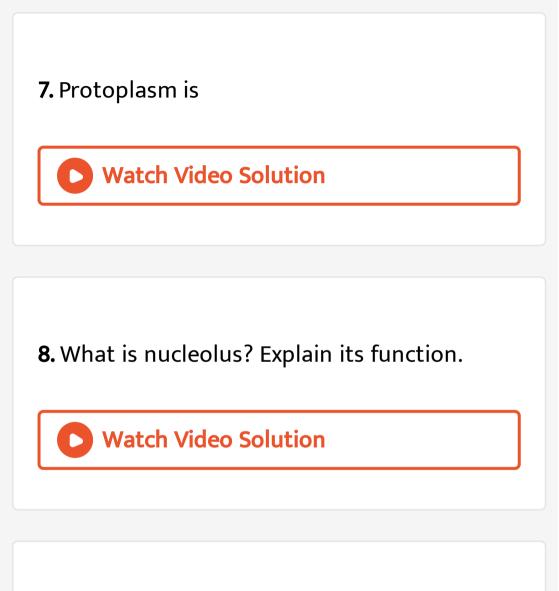
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5. Define plasmolysis ?

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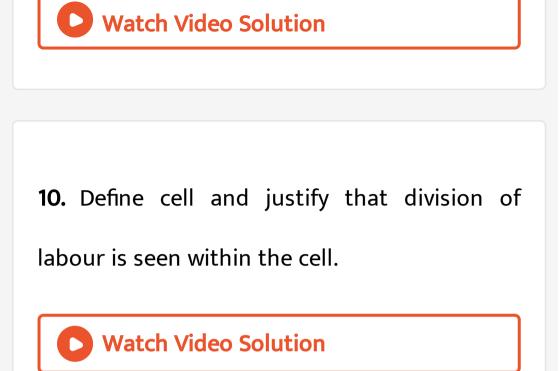
6. Define imbibition.

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9. Explain the structure of a bacterial cell in

brief.



11. There is no relation between the size of an

animal and the size of cell. Justify your answer



12. When does the plant lose stiffness and

droop?



13. Distinguish between exocytosis and endocytosis.

14. Why is nucleus considered as the most

important part of the cell?

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15. Differentiate between chromosome and

chromatin network.



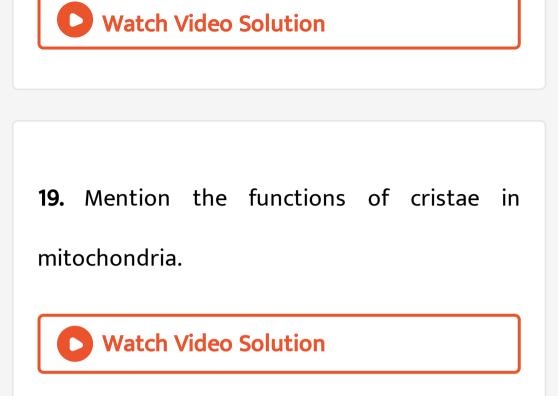
16. Cell is the basic unit of life. Justify the statement.
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17. Plasma membrane has fluid-mosaic model.

Justify your statement.



18. Write short notes on Golgi complex.



20. Define autolysis. Name the cell organelle

involved in it.

21. Enlist the functions of endoplasmic

reticulum.



22. Mention the functions of the following

organelle: Golgi complex

23. Which of the following are the functions of

mitochondria ?

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24. Explain the structures of: Mitochodria

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25. What do chloroplasts contain? Explain the

structure of chloroplast in brief.



26. What are the different kinds of plastids?

Mention their location and function.

27. Complete the following table:

	Made up of lipid bilayer	Gives shape to the cell
Golgi complex		
Ne Ka	Extends from the nuclear membrane	
	Fluid-filled or solid- filled spaces covered by tonoplast	



28. Differentiate between centrosome and

centrioles.



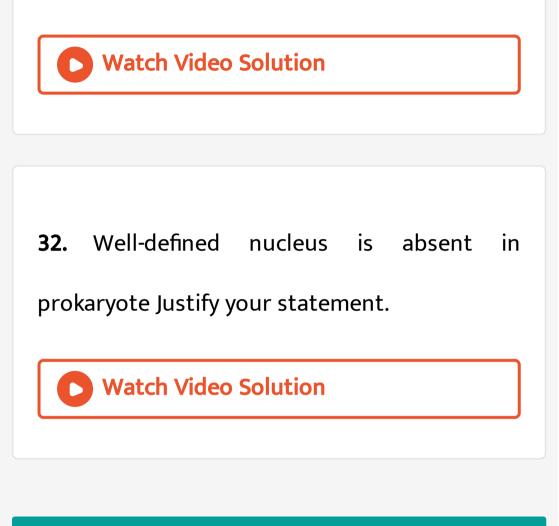
29. Where do you find vaccuoles? Give their function

Iunction



30. Potatoes are generally brown in colour. But, we find some green areas on potatoes. Give reason.

31. What are mesosomes? Give their functions.





1. Why do you consider RBC as living cell though it lacks nucleus?
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2. What happens when Rhoeo leaf is placed in boiling water and later transferred to strong sugar solution?

3. Viruses are living organisms without cells.

Give reason.

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4. Why is salt added to the vegetables with

high water content before cooking?

5. Cells without nuclei cannot survive for a

longer period. Give reason.

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6. Plasmids help in survival of bacteria. Give

reason.

7. Comment upon the following :

Large quantity of salts in pickles and sugar in

jams and jellies is added .



8. Kidney beans are soaked overnight before cooking.

(a)What is the observation you find after soaking?

(b) Name the phenomenon involved in the

above observation. Explain the reason.

(c) Do you find the same change when a raw

egg is placed in water? Justify that.

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9. What will be the result if the cells of onion peel and RBC are kept in hypotonic solution seperately?

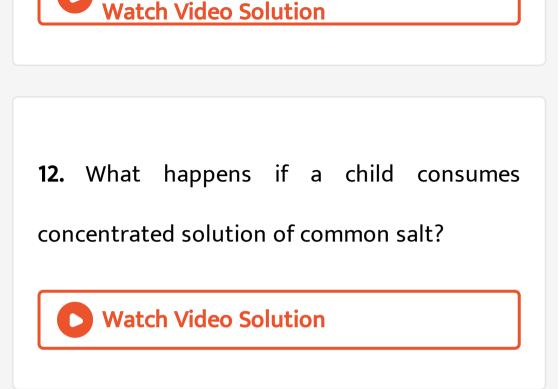
10. Few dried apricots are placed in beaker 'A' and beaker 'B' for some time. It is found that they shrank in beaker 'A' and became swollen in beaker 'B'. What conclusions can you draw regarding the nature of liquids in beakers 'A' and 'B'? Give justification.



11. When we was clothes for a long time our

fingers shrink. Explain.





13. Identify the odd one among the following

and justify that.

Bacteria, Insect, Earthworm, Hydra

14. Identify the odd one among the following and justify that.
Polythene, Egg membrane, Cell membrane, Onion peel
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15. Identify the odd one among the following

and justify that.

Nucleus, Chromosomes, Genes, Lysosomes

16. Identify the odd one among the following and justify that.

Cellulose, Hemicellulose, Suberin, Protein



17. Mitochondria are called as the power

houses of the cell because.

18. Why are lysosomes called 'suicide bags' of

the cell ?



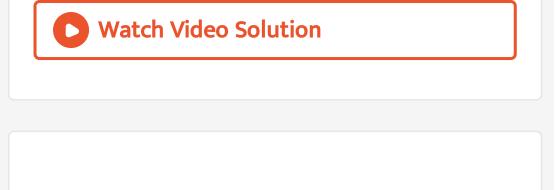
19. The inner membrane of mitochondria bears

folding/finger like projections, these-

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20. More number of mitochondria are found in

actively dividing cells. Give reason.



21. Identify the odd one among the following

and justify. Chloroplast, Mitochondria,

Leucoplast, Chromoplast



22. Semi-autonomous organelle is



 Assertion (A): Plasma membrane contains bimolecular lipid layer, the surface of which is interrupted by proteins
 Reason (R): Selective permeability of plasma membrane is explained with the help of fluid mosaic model.

A. Both Assertion and Reason are true and Reason is the correct explanation for Assertion. B. Both Assertion and Reason are true but

Reason is not the correct explanation for

Assertion.

C. Assertion is true and Reason is false.

D. Assertion is false and Reason is true.

Answer:

2. Assertion (A): Deposition of suberin on the walls makes them impermeable to water.Reason (R): Cell wall is multilayered with usually three layers.

A. Both Assertion and Reason are true and

Reason is the correct explanation for

Assertion.

B. Both Assertion and Reason are true but Reason is not the correct explanation for Assertion. C. Assertion is true and Reason is false.

D. Assertion is false and Reason is true.

Answer:



3. Assertion (A): Human RBCs lack nucleus.

Reason (R): RBCs perform the function of transportation of food materials.

A. Both Assertion and Reason are true and

Reason is the correct explanation for Assertion.

- B. Both Assertion and Reason are true but Reason is not the correct explanation for Assertion.
- C. Assertion is true and Reason is false.
- D. Assertion is false and Reason is true.

Answer:



4. Assertion (A): Endocytosis takes place only in animal cells.

Reason (R): Animal cell does not possess cell wall.

A. Both Assertion and Reason are true and Reason is the correct explanation for Assertion.

B. Both Assertion and Reason are true but

Reason is not the correct explanation for

Assertion.

C. Assertion is true and Reason is false.

D. Assertion is false and Reason is true.

Answer:

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5. Assertion (A): Phagocytosis is the intake of solid material by the cell through cell membrane.

Reason (R): Phagocytosis leads to the

formation of food vacuole.

a) Both Assertion and Reason are true and Reason is the correct explanation for Assertion.

b) Both Assertion and Reason are true but
 Reason is not the correct explanation for
 Assertion.

c) Assertion is true and Reason is false.

d) Assertion is false and Reason is true.

A. Both Assertion and Reason are true and

Reason is the correct explanation for

Assertion.

B. Both Assertion and Reason are true but

Reason is not the correct explanation for

Assertion.

C. Assertion is true and Reason is false.

D. Assertion is false and Reason is true.

Answer:

6. Assertion (A): Smooth endoplasmic reticulum is associated with synthesis of lipids.
Reason (R): Smooth endoplasmic reticulum possesses ribosomes.

A. Both Assertion and Reason are true and

Reason is the correct explanation for

Assertion.

B. Both Assertion and Reason are true but Reason is not the correct explanation for Assertion. C. Assertion is true and Reason is false.

D. Assertion is false and Reason is true.

Answer:



7. Assertion (A): Lysosomal enzymes work best

at acidic pH.

Reason (R): Lysosomes contain as many as 4

kinds of hydrolytic enzymes.

A. Both Assertion and Reason are true and

Reason is the correct explanation for Assertion.

- B. Both Assertion and Reason are true but Reason is not the correct explanation for Assertion.
- C. Assertion is true and Reason is false.
- D. Assertion is false and Reason is true.

Answer:



8. Assertion (A): Energy is stored in mitochondria in the form of ATP.

Reason (R): Mitochondria possess DNA.

A. Both Assertion and Reason are true and

Reason is the correct explanation for

Assertion.

B. Both Assertion and Reason are true but Reason is not the correct explanation for Assertion. C. Assertion is true and Reason is false.

D. Assertion is false and Reason is true.

Answer:



9. Assertion (A): Chromoplasts do not help in

photosynthesis.

Reason (R): Chromoplasts contain green coloured pigment.

A. Both Assertion and Reason are true and

Reason is the correct explanation for Assertion.

- B. Both Assertion and Reason are true but Reason is not the correct explanation for Assertion.
- C. Assertion is true and Reason is false.
- D. Assertion is false and Reason is true.

Answer:



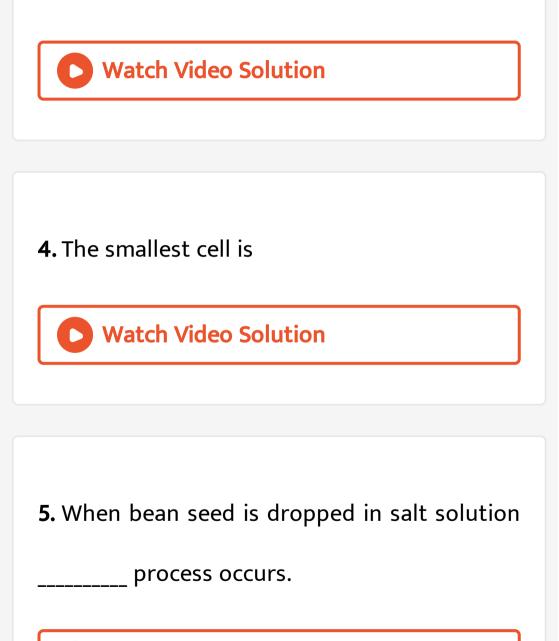
Assessment Tests Fill In The Blanks

1. When tadpole transforms into frog, the tail

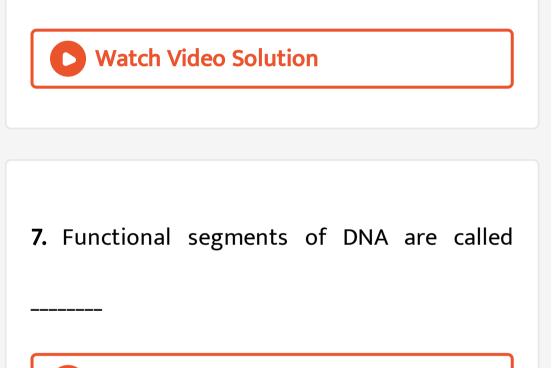
is digested by _____

2. Cell theory was proposed by and
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3. Nucleus was discovered by



6. Single chromosome is present in _____



8. Mitosis takes place in somatic cells and
_____takes place in _____cells.
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Assessment Tests Select The Correct Alternatives

1. Identify the longest cell.

A. Blood cell

B. Muscle cell

C. Nerve cell

D. Epithelial cell

Answer:



2. Identify a prokaryote.

A. Muscle cell

B. Bacterial cell

C. Blood cell

D. Nerve cell

Answer:

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3. Cell theory was first modified by

- A. Robert Hooke
- B. Robert Brown
- C. Leeuwenhoek
- D. Virchow





4. The shape of the red blood cell is

A. convex

B. biconcave

C. irregular

D. spindle

Answer:



5. Which cell organelle is related with protein

synthesis?

A. Ribosome

B. Cell membrane

C. Nucleus

D. Chromatin

Answer:





6. Centrioles in the animal cell participate in

A. cell replication

B. cell division

C. cell formation

D. cell movement

Answer:

7. The cell wall in plant cell is made up of

A. cellulose

B. proteins

C. lipids

D. minerals

Answer:



8. Leucoplasts are present in

A. roots

B. stem

C. leaves

D. flowers

Answer:

9. Tonoplast is a membrane surrounding the

A. nucleus

B. vaccuole

C. plastids

D. lysosomes

Answer:

10. The fluid containing proteinaceous matrix

of chloroplast is

A. grana

B. cytoplasm

C. matrix

D. stroma

Answer:

1. Match the entries of Column 1 with those of

Column 2.

Column 1	Column 2		
A. Plasma membrane	(i) Respiration		
B. Chloroplast	(ii) Maintenance of osmotic pressure		
C. Mitochondria	(iii) Semi-permeable membrane		
D. Genes	(iv) Photosynthesis		
E. Vacuoles	(v) Transfer of hereditary information		



2. Match the entries of Column 1 with those of

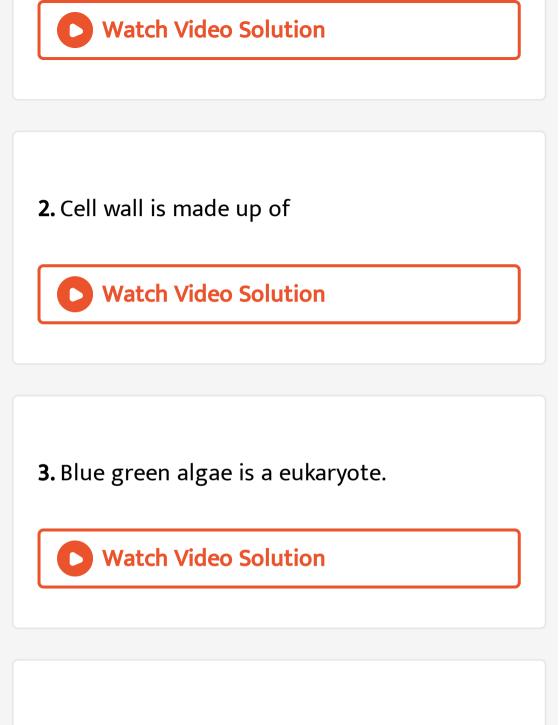
Column 2.

Column 1	Column 2
A. Cell theory	(i) Disposal of wastes from the cell
B. Plasmolysis	(ii) Conduction of nerve impulses
C. Nerve cell	(iii) Packing and forwarding
D. Exocytosis	(iv) Schleiden and Schwann
E. Golgi complex	(v) Shrinking of cell

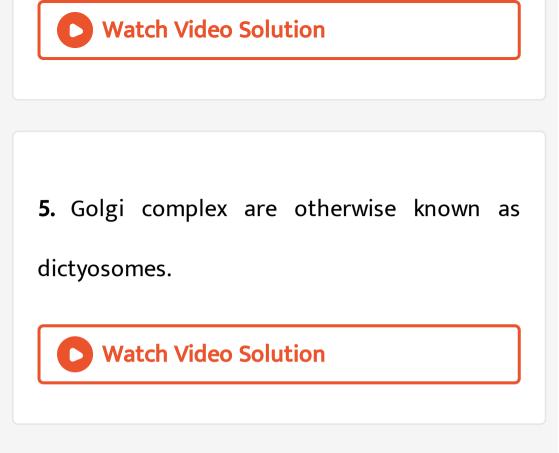
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Assessment Tests Write True Or False

1. All animal cells contain cell wall.



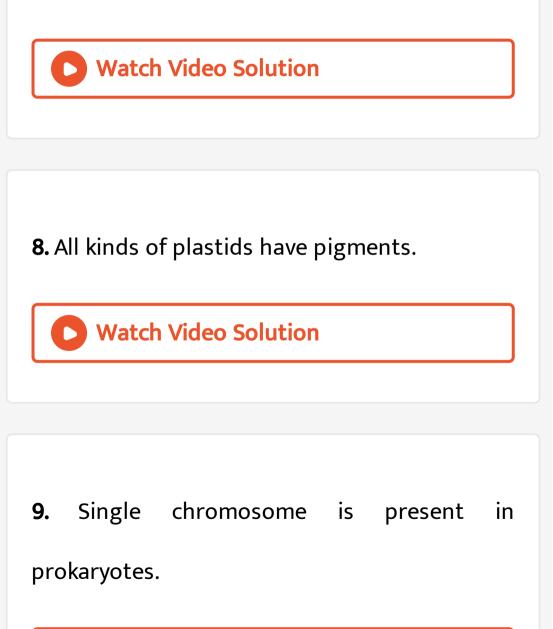
4. Centrosome is present in animal cell.



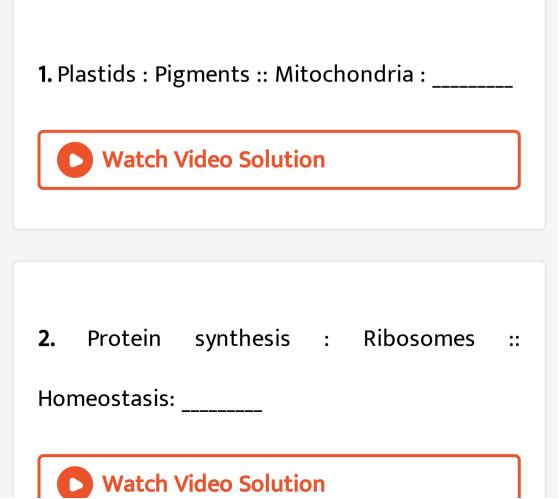
6. Mitochondria regulate cell functioning.

7. Synthesis of proteins is carried out by rough

endoplasmic reticulum.



Assessment Tests Write The Missing Correlated Terms

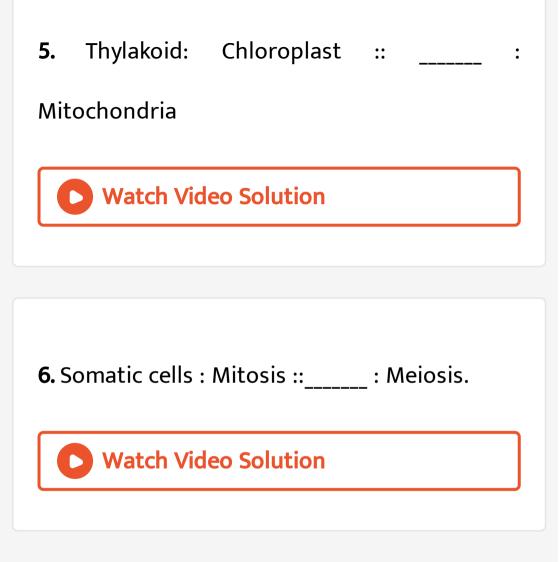


3.____: Nucleus :: Robert Hooke: Cell

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4. Endocytosis : Engulfing food :: _____

Disposal of wastes



Assessment Tests

1. When a bottle stopper and onion peel are placed in water for some time, then cut into slices, what observation is seen under a microscope?

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2. What will happen if dry raisins are kept in pure water for some time and later transferred to concentrated sugar solution ?



3. Mitochondria are called as the power houses of the cell because.

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4. Give two statements of the modern form of

cell theory.

5. Why is plasma membrane known as the semi

permeable membrane?

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6. Which parts of the cell carry out the following activities?

(i) Liberation of energy.

(ii) Transmission of hereditary characters from

parents to offspring.

(iii) Maintains osmotic pressure.

(iv) Controls cell activities.

(v) Produces enzymes for digestion.

(vi) Acts as a semi-permeable membrane.

(vii) Site of protein synthesis.

(viii) Helps in photosynthesis.

(ix) Secretory organs of cell.

(x) Initiates and regulates cell division in animal cells.

7. Define Autolysis. Name the cell organelle

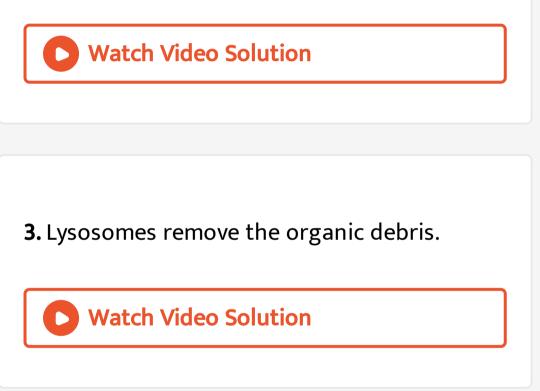
involved in it.

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Assessment Tests Give Scientific Reasons

1. Bacterial cell is prokaryotic cell.

2. The slowly moving fluid inside the cell is cytosol.



4. Plastids are the energy factories of the plant

cell.

