



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.



[Watch Video Solution](#)

2. Nucleus is known as brain of the cell. Give reason for your answer.



[Watch Video Solution](#)

3. Why do raw green mangoes turn to yellow colour on ripening?



[Watch Video Solution](#)

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



Watch Video Solution

5. Write main differences between plant and animal cells.



Watch Video Solution

Test Your Concepts Fill In The Blanks

1. Rigid non-living component of the cell is called _____



Watch Video Solution

2. The outer most layer of the cell wall connecting the two adjoining cells is known as _____



Watch Video Solution

3. Intercellular connections in plant cells are called



[Watch Video Solution](#)

4. Cell membrane are made of



[Watch Video Solution](#)

5. The component which is considered as dynamic part of the cell is _____



[Watch Video Solution](#)

6. The infolds of plasma membrane in bacterial cells are known as



[Watch Video Solution](#)

7. The part of the cytoplasm excluding the organelles is called _____



[Watch Video Solution](#)

8. Homeostasis is maintained by



[Watch Video Solution](#)

9. A gene is made up of



[Watch Video Solution](#)

10. Energy stored in mitochondria is in the form of _____



[Watch Video Solution](#)

11. The membrane covering the vacuole is known as



[Watch Video Solution](#)

Test Your Concepts Select The Correct Alternatives

1. Metabolism of fats in the cell takes place by



[Watch Video Solution](#)

2. Groups of ribosomes in the cell are known as _____



Watch Video Solution

3. A cell organelle containing hydrolytic enzymes is :



Watch Video Solution

4. In liver cells, the smooth endoplasmic reticulum produces enzymes that help in _____



[Watch Video Solution](#)

5. Which cell organelles release oxygen :-



[Watch Video Solution](#)

6. The cell organelle which is found abundant in glandular cells is _____



[Watch Video Solution](#)

7. Plastids present in flowers and fruits are called _____



[Watch Video Solution](#)

8. Kitchen of the cell is



[Watch Video Solution](#)

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



Watch Video Solution

10. The cell wall is not involved in _____

- a) absorption
- b) secretion
- c) osmoregulation
- d) translocation

A. absorption

B. secretion

C. osmoregulation

D. translocation

Answer: D



Watch Video Solution

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



Watch Video Solution

12. What happens to the cell when it is placed in salt solution?

A. Bursts

B. Shrinks

C. Swells

D. No effect

Answer: C



Watch Video Solution

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



Watch Video Solution

14. The structure that imparts turgidity and rigidity to the cell is _____

A. vacuole

B. ribosome

C. cell wall

D. cell membrane

Answer: A



Watch Video Solution

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



Watch Video Solution

16. Which one of the following cell organelles is enclosed by a single membrane

A. Nuclei

B. Lysosomes

C. Chloroplasts

D. Mitochondria

Answer: B



Watch Video Solution

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



Watch Video Solution

18. Which one are the protein factories of the cells?

A. Lysosomes

B. Chloroplasts

C. Mitochondria

D. Ribosomes

Answer: D



Watch Video Solution

19. Identify the incorrect match.

A. Vesicles - Golgi complex

B. Grana-chloroplast

C. Ribosomes—mitochondria

D. Chromosomes-nucleus

Answer: C



Watch Video Solution

20. The packet of thylakoids in a chloroplast is called

A. matrix

B. granum

C. stroma

D. oxysomes

Answer: B



Watch Video Solution

21. Liquid content of a vacuole is called

A. nuclear sap

B. cytoplasm

C. cell sap

D. latex

Answer: C



Watch Video Solution

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



Watch Video Solution

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

A. matrix

B. cristae

C. outer membrane

D. between membrane

Answer: A



Watch Video Solution

24. Energy currency of the cell is

A. mitochondria

B. ATP

C. FAD

D. glucose

Answer: B



Watch Video Solution

25. The fluid containing proteinaceous matrix of chloroplast is

A. grana

B. cytoplasm

C. thylakoids

D. stroma

Answer: C



Watch Video Solution

26. Mature erythrocyte cannot utilise glucose because they lack

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

Answer: C



Watch Video Solution

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



Watch Video Solution

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



Watch Video Solution

**Mastering The Concepts Knowledge And
Understanding**

1. Define phagocytosis.



[Watch Video Solution](#)

2. Explain the structure of plasma membrane.

What are its major functions?



[Watch Video Solution](#)

3. Define Diffusion.



[Watch Video Solution](#)

4. Define osmosis



[Watch Video Solution](#)

5. Define plasmolysis ?



[Watch Video Solution](#)

6. Define imbibition.



[Watch Video Solution](#)

7. Protoplasm is



[Watch Video Solution](#)

8. What is nucleolus? Explain its function.



[Watch Video Solution](#)

9. Explain the structure of a bacterial cell in brief.



[Watch Video Solution](#)

10. Define cell and justify that division of labour is seen within the cell.



[Watch Video Solution](#)

11. There is no relation between the size of an animal and the size of cell. Justify your answer



[Watch Video Solution](#)

12. When does the plant lose stiffness and droop?



Watch Video Solution

13. Distinguish between exocytosis and endocytosis.



Watch Video Solution

14. Why is nucleus considered as the most important part of the cell?



Watch Video Solution

15. Differentiate between chromosome and chromatin network.



Watch Video Solution

16. Cell is the basic unit of life. Justify the statement.



Watch Video Solution

17. Plasma membrane has fluid-mosaic model. Justify your statement.



Watch Video Solution

18. Write short notes on Golgi complex.



[Watch Video Solution](#)

19. Mention the functions of cristae in mitochondria.



[Watch Video Solution](#)

20. Define autolysis. Name the cell organelle involved in it.



[Watch Video Solution](#)

21. Enlist the functions of endoplasmic reticulum.



Watch Video Solution

22. Mention the functions of the following organelle: Golgi complex



Watch Video Solution

23. Which of the following are the functions of mitochondria ?



Watch Video Solution

24. Explain the structures of: Mitochondria



Watch Video Solution

25. What do chloroplasts contain? Explain the structure of chloroplast in brief.



Watch Video Solution

26. What are the different kinds of plastids?

Mention their location and function.



Watch Video Solution

27. Complete the following table:

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



[Watch Video Solution](#)

28. Differentiate between centrosome and centrioles.



[Watch Video Solution](#)

29. Where do you find vacuoles? Give their function



Watch Video Solution

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



Watch Video Solution

31. What are mesosomes? Give their functions.



[Watch Video Solution](#)

32. Well-defined nucleus is absent in prokaryote Justify your statement.



[Watch Video Solution](#)

Mastering The Concepts Application And Analysis

1. Why do you consider RBC as living cell though it lacks nucleus?



Watch Video Solution

2. What happens when Rhoeco leaf is placed in boiling water and later transferred to strong sugar solution?



Watch Video Solution

3. Viruses are living organisms without cells.

Give reason.



[Watch Video Solution](#)

4. Why is salt added to the vegetables with high water content before cooking?



[Watch Video Solution](#)

5. Cells without nuclei cannot survive for a longer period. Give reason.



Watch Video Solution

6. Plasmids help in survival of bacteria. Give reason.



Watch Video Solution

7. Comment upon the following :

Large quantity of salts in pickles and sugar in jams and jellies is added .



[Watch Video Solution](#)

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.



Watch Video Solution

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



Watch Video Solution

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.



Watch Video Solution

11. When we was clothes for a long time our fingers shrink. Explain.





[Watch Video Solution](#)

12. What happens if a child consumes concentrated solution of common salt?



[Watch Video Solution](#)

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

Bacteria, Insect, Earthworm, Hydra



[Watch Video Solution](#)

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

Polythene, Egg membrane, Cell membrane,
Onion peel



Watch Video Solution

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

Nucleus, Chromosomes, Genes, Lysosomes



Watch Video Solution

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

Cellulose, Hemicellulose, Suberin, Protein



Watch Video Solution

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



Watch Video Solution

18. Why are lysosomes called 'suicide bags' of the cell ?



Watch Video Solution

19. The inner membrane of mitochondria bears folding/finger like projections, these-



Watch Video Solution

20. More number of mitochondria are found in actively dividing cells. Give reason.



[Watch Video Solution](#)

21. Identify the odd one among the following and justify. Chloroplast, Mitochondria, Leucoplast, Chromoplast



[Watch Video Solution](#)

22. Semi-autonomous organelle is



[Watch Video Solution](#)

Mastering The Concepts Assertions And Reasons

1. 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:



Watch Video Solution

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:



Watch Video Solution

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:



Watch Video Solution

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:



View Text Solution

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:



Watch Video Solution

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:



Watch Video Solution

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:



Watch Video Solution

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:



Watch Video Solution

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:



Watch Video Solution

Assessment Tests Fill In The Blanks

1. When tadpole transforms into frog, the tail is digested by _____



[Watch Video Solution](#)

2. Cell theory was proposed by _____ and _____



[Watch Video Solution](#)

3. Nucleus was discovered by



[Watch Video Solution](#)

4. The smallest cell is



[Watch Video Solution](#)

5. When bean seed is dropped in salt solution

_____ process occurs.



[Watch Video Solution](#)

6. Single chromosome is present in _____



Watch Video Solution

7. Functional segments of DNA are called



Watch Video Solution

8. Mitosis takes place in somatic cells and _____ takes place in _____ cells.



[Watch Video Solution](#)

Assessment Tests Select The Correct Alternatives

1. Identify the longest cell.

A. Blood cell

B. Muscle cell

C. Nerve cell

D. Epithelial cell

Answer:



Watch Video Solution

2. Identify a prokaryote.

A. Muscle cell

B. Bacterial cell

C. Blood cell

D. Nerve cell

Answer:



Watch Video Solution

3. Cell theory was first modified by

A. Robert Hooke

B. Robert Brown

C. Leeuwenhoek

D. Virchow

Answer:



Watch Video Solution

4. The shape of the red blood cell is

A. convex

B. biconcave

C. irregular

D. spindle

Answer:



Watch Video Solution

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:



Watch Video Solution

8. Leucoplasts are present in

A. roots

B. stem

C. leaves

D. flowers

Answer:



Watch Video Solution

9. Tonoplast is a membrane surrounding the

A. nucleus

B. vacuole

C. plastids

D. lysosomes

Answer:



Watch Video Solution

10. The fluid containing proteinaceous matrix of chloroplast is

A. grana

B. cytoplasm

C. matrix

D. stroma

Answer:



Watch Video Solution

Assessment Tests Matching

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



[Watch Video Solution](#)

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



[Watch Video Solution](#)

Assessment Tests Write True Or False

1. All animal cells contain cell wall.



Watch Video Solution

2. Cell wall is made up of



Watch Video Solution

3. Blue green algae is a eukaryote.



Watch Video Solution

4. Centrosome is present in animal cell.



Watch Video Solution

5. Golgi complex are otherwise known as dictyosomes.



Watch Video Solution

6. Mitochondria regulate cell functioning.



Watch Video Solution

7. Synthesis of proteins is carried out by rough endoplasmic reticulum.



[Watch Video Solution](#)

8. All kinds of plastids have pigments.



[Watch Video Solution](#)

9. Single chromosome is present in prokaryotes.



Watch Video Solution

Assessment Tests Write The Missing Correlated Terms

1. Plastids : Pigments :: Mitochondria : _____



Watch Video Solution

2. Protein synthesis : Ribosomes ::

Homeostasis: _____



Watch Video Solution

3. _____ : Nucleus :: Robert Hooke: Cell



[Watch Video Solution](#)

4. Endocytosis : Engulfing food :: _____ :

Disposal of wastes



[Watch Video Solution](#)

5. Thylakoid: Chloroplast :: _____ :

Mitochondria



[Watch Video Solution](#)

6. Somatic cells : Mitosis :: _____ : Meiosis.



[Watch Video Solution](#)

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?



[Watch Video Solution](#)

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



[Watch Video Solution](#)

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



[Watch Video Solution](#)

4. Give two statements of the modern form of cell theory.



[Watch Video Solution](#)

5. Why is plasma membrane known as the semi permeable membrane?



[Watch Video Solution](#)

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.



Watch Video Solution

7. Define Autolysis. Name the cell organelle involved in it.



[Watch Video Solution](#)

Assessment Tests Give Scientific Reasons

1. Bacterial cell is prokaryotic cell.



[Watch Video Solution](#)

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



[Watch Video Solution](#)

3. Lysosomes remove the organic debris.



[Watch Video Solution](#)

4. Plastids are the energy factories of the plant cell.



Watch Video Solution