



BIOLOGY

BOOKS - KUMAR PRAKASHAN KENDRA

BIOLOGY (GUJRATI ENGLISH)

CELL : THE UNIT OF LIFE

Section A Exam Oriented Questions Answers Form

Darpan

1. What is meant by living organism ? How is it different from non-living objects ?



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2. What is called a cell ? Explain about it in short.



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3. What is meant by cell Theory? Who presented its principles ? Which improvements were done in it ? Describe them.



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4. On the basis of organelles which types of cell are found ?



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5. Explain about diversity found in size, shape and structure of the cell.



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6. Describe structure of prokaryotic cell. OR In which organisms prokaryotic cells are found ? Give information about diversity of their shapes.



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7. Give information about structure of cell membrane and its specific functions.



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8. Write a note on Flagella, Pili, Fimbriae.



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9. Write a note on Ribosomes prokaryotic cell.



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Section A Exam Oriented Questions Answers Form Darpan

1. Give information about Inclusion bodies.



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2. What is included in Eukaryotic cells ?



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3. Discuss in detail the structure of plasma membrane with diagram.



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4. Explain : On what basis substances are transported by plasma membrane/cell membrane ?



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5. Give information about chemical composition and function of cell wall.



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6. What is meant by Endomembrane system?
Which cell organelles are seen in it ? Give information in short.



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7. Describe about Endoplasmic Reticulum.



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8. Write a short note on Golgi Apparatus.



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9. Write a short note on Lysosomes.



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10. Explain : Lysosomes can digest any biomolecules.



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11. Give name and function of membrane bound structure occupying most of the space in plant cell.



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12. Write a note on vacuole.



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13. Give information about structure, location and function of mitochondria.



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14. Where are plastids seen ? Explain its type and functions in short.



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15. Describe structure and function of Chloroplasts.



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16. Give information about ribosomes in short.



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17. What is Cytoskeleton ? Give information about its components, structure and function.



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18. Describe micro structure of cilia and flagella.



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19. Explain Centrosome and Centrioles.



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20. Explain Nucleus is the central point of all activities of cell.



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21. Describe about nucleus in detail.



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22. Show composition, structure and type of chromosomes.



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Section A Exam Oriented Questions Answers Form Darpan Questions

1. What is called multicellular organism?



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2. What is cell?



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3. What is totipotency?



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4. Who used the cell for the first time?



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5. Explain cell theory.



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6. Which information about cell was given by Rudolf Virchow?



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7. What is nucleus ?



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8. What is called prokaryotic cell ?



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9. What is seen in cytoplasm?



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10. Which organelles are called cell organelles ?



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11. Which are the smallest and largest cells?



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12. What are the basic shapes of bacteria ?

A. What are the basic shapes of bacteria?

B.

C.

D.

Answer:



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13. What is plasmid ?



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14. What are called gram +ve bacteria and gram -ve bacteria ?



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15. What are called mesosome?



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16. Give functions of mesosomes.



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17. What is meant by flagella?



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18. What is the function of fimbriae ?



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19. What is the size of ribosomes in prokaryotic cells?



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20. What is included in inclusion bodies ?



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21. Give characteristics of eukaryotic cells.



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22. Of what Lipid component is made up of ?



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23. What percentage of protein and lipid is present in the membrane of human RBC?



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24. What is called passive transport?



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25. Define: Osmosis.



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26. What is active transport?



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27. Of what algae cell wall is made up ?



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28. What is not considered as part of endo membrane system?



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29. What is ER?



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30. What is the function of SER?



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31. Explain cis trans arrangement of Golgi bodies.



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32. What is formed by Golgi bodies?



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33. Which enzymes are seen in Lysosomes ?



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34. In which form are vacuoles present in protists?



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35. Give the size of mitochondria.



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36. What is called cristae ?



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37. Which pigments are seen in chromoplasts?



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38. Explain the types of leucoplasts.



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39. What is called stroma in chloroplasts.



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40. Explain structure of granum.



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41. Who discovered ribosomes ?



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42. Give function of cytoskeleton



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43. Give function of cilia.



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44. What is axoneme?



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45. In what 9 + 2 arrangement is seen?



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46. What are centrioles ?



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47. Give the function of centriole.



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48. What is perinuclear space ?



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49. What is the function of nuclear pores?



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50. How many types of chromosomes are there on the basis of position of centromere?



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Section B Difference Scientific Reasons Give Difference 2 Marks

1. Prokaryotic cell and Eukaryotic cell



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2. Plant cell and Animal cell



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3. Cilia and Flagella



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**Section B Difference Scientific Reasons Give
Scientific Reasons 2 Marks**

1. Why are mitochondria called the powerhouse of the cell?



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2. Why Lysosomes are also called suicidal bags.



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3. Explain Nucleus is the central point of all activities of cell.





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**Section C Definition Explanation Terms Location
Function Contribution Of Scientists Definitions
Explanation 1 Mark**

1. Unicellular organism :



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2. Multicellular organism :



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3. Totipotency:



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4. Prokaryotic cell:



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5. Eukaryotic cell:



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6. What is plasmid ?



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7. What is called passive transport?



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8. Facilitated diffusion :



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9. Active transport :



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10. Define:- Polysome



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11. Inclusion bodies :



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**Section C Definition Explanation Terms Location
Function Contribution Of Scientists Location And
Functions 1 Mark**

1. Define :- Peptidoglycan



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2. Mesosome :



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3. Middle lamella :



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4. Leucoplast :



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5. Kinetochore:



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**Section C Definition Explanation Terms Location
Function Contribution Of Scientists Contribution
Of Scientists 1 Mark**

1. Robert Hook (1665) :



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2. Robert Brown (1831) :



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3. Schleiden and Schwann (1838) :



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4. Rudolf Virchow (1855) :



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5. Robertson :



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6. Singer and Nicolson (1972) :



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7. Camilo Golgi (1898):



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Section D Textual Exercise

1. Which of the following is not correct ?

- A. Robert Brown discovered the cell.
- B. Schleiden and Schwann formulated the cell theory.
- C. Virchow explained that cells are formed from pre-existing cells.
- D. A unicellular organism carries out its life activities within a single cell.

Answer:



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2. New cells generate from

- A. bacterial fermentation
- B. regeneration of old cells
- C. pre-existing cells
- D. abiotic materials

Answer:



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3. Match the following

Column - I		Column - II	
(a)	Cristae	(i)	Flat membranous sacs in stroma
(b)	Cisternae	(ii)	Infoldings in mitochondria
(c)	Thylakoids	(iii)	Disc-shaped sacs in Golgi apparatus



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4. Which of the following is correct :

A. Cells of all living organisms have a nucleus.

B. Both animal and plant cells have a well defined cell wall.

C. In prokaryotes, there are no membrane bound organelles.

D. Cells are formed de novo from abiotic materials.

Answer:



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5. What is a mesosome in a prokaryotic cell ?

Mention the functions that it performs.



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6. How do neutral solutes move across the plasma membrane ? Can the polar molecules also move across it in the same way ? If not, then how are these transported across the membrane ?



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7. Name two cell-organelles that are double membrane bound. What are the characteristics of these two organelles ? State their functions and draw labelled diagrams of both.



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8. What are the characteristics of prokaryotic cells ?



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9. Multicellular organisms have division of labour. Explain.



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10. Cell is the basic unit of life. Discuss in brief.



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11. What are nuclear pores ? State their function.



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12. Both lysosomes and vacuoles are endomembrane structures, yet they differ in terms of their functions. Comment.



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13. Describe the structure of the following with the help of labelled diagrams.

(i) Nucleus

(ii) Centrosome



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14. What is a centromere ? How does the position of centromere form the basis of classification of chromosomes. Support your answer with a diagram showing the position

of centromere on different types of chromosomes.



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Section E Solution Of Ncert Exemplar Multiple Choice Questions Mcqs

1. A common characteristic feature of plant sieve tube cells and most of mammalian erythrocytes is

A. Absence of mitochondria

B. Presence of cell wall

C. Presence of haemoglobin

D. Absence of nucleus

Answer: A::B::C::D



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2. Select one which is not true for ribosome

A. Made up of two sub-units

B. Form polysome

C. May attach to m RNA

D. Have no role in protein synthesis

Answer: A::D



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3. Which one of these is not a eukaryote?

A. Euglena

B. Anabaena

C. Spirogyra

D. Agaricus

Answer: A::B



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4. Which of the following stain is not used for staining chromosomes ?

A. Basic fuschsin

B. Safranin

C. Methylene blue

D. Carmine

Answer:



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5. Different cells have different sizes. Arrange the following cells in an ascending order of their size. Choose the correct option among the followings :

(I) Mycoplasma

(II) Ostrich eggs

(III) Human RBC

(IV) Bacteria

A. I, IV, III, II

B. I, II, III, IV

C. II, I, III, IV

D. III, II, I, IV

Answer: A



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6. Which of the following features is common to prokaryotes and many eukaryotes ?

A. Chromatin material present

B. Cell wall present

C. Nuclear membrane present

D. Membrane bound sub-cellular organelles present

Answer:



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7. Who proposed the fluid mosaic model of plasma membrane ?

A. Camillo Golgi

B. Schleiden and Schwann

C. Singer and Nicolson

D. Robert Brown

Answer: A::C::D



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8. Which of the following statements is true for a secretory cell ?

A. Golgi apparatus is absent

B. Rough Endoplasmic Reticulum (RER) is easily observed in the cell

C. Only Smooth Endoplasmic Reticulum (SER) is present

D. Secretory granules are formed in nucleus.

Answer: A::B::C::D



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9. What is a tonoplast ?

- A. Outer membrane of mitochondria
- B. Inner membrane of chloroplast
- C. Membrane boundary of the vacuole of
plant cells
- D. Cell membrane of a plant cell

Answer:



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10. Which of the following is not true of a eukaryotic cell ?

A. Cell wall is made up of peptidoglycan

B. It has 80S type of ribosome present in the cytoplasm

C. Mitochondria contain circular DNA

D. Membrane bound organelles are present

Answer: A::B::C::D



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11. Which of the following statements is not true for plasma membrane ?

A. It is present in both plant and animal cell

B. Lipid is present as a bilayer in it

C. Proteins are present integrated as well as loosely associated with the lipid bilayer

D. Carbohydrate is never found in it

Answer: A::B::C::D



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12. Plastid differs from mitochondria on the basis of one of the following features. Mark the right answer.

A. Presence of two layers of membrane

B. Presence of ribosome

C. Presence of thylakoids US

D. Presence of DNA

Answer:



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13. Which of the following is not a function of cytoskeleton in a cell ?

A. Intracellular transport

B. Maintenance of cell shape and structure

C. Support of the organelle

D. Cell motility

Answer: A::C



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14. The stain used to visualise mitochondria is

A. Fast green

B. Safranin

C. Acetocarmne

D. Janus green

Answer:



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Section E Solution Of Ncert Exemplar Very Short Answer Type Questions Vsqs

1. What is the significance of vacuole in a plant cell ?



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2. What does 'S' refer in a 70s and an 80S ribosome ?



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3. Mention a single membrane bound organelle which is rich in hydrolytic enzymes.



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4. What are gas vacuoles ? State their functions.



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5. What is the function of a polysome ?

(Gk. Poly = many, Soma = body)



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6. What is the feature of a metacentric chromosome ?



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7. What is referred to as satellite chromosome ?



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Section E Solution Of Ncert Exemplar Short Answer Type Questions

1. Discuss briefly the role of nucleolus in the cells actively involved in protein synthesis.



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2. Explain the association of carbohydrate to the plasma membrane and its significance.



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3. Comment on the cartwheel structure of centriole.



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4. Briefly describe the cell theory,



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5. Differentiate between Rough Endoplasmic Reticulum (RER) and Smooth Endoplasmic Reticulum (SER). Rough Endoplasmic Smooth Endoplasmic



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6. Give the biochemical composition of plasma membrane. How are lipid molecules arranged

in the membrane ?



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7. What are plasmids ? Describe their role in bacteria?



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8. What are histones ? What are their functions ?



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Section E Solution Of Ncert Exemplar Long Answer Type Questions

1. What structural and functional attributes must a cell have to be called a living cell ?



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2. Briefly give the contributions of the following scientists in formulating the cell

theory

(a) Rudolf Virchow

(b) Schleiden and Schwann



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3. Is extragenomic DNA present in prokaryotes and eukaryotes ? If yes, indicate their location in both the types of organisms.



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4. Structure and function are correlatable in living organisms. Can you justify this by taking plasma membrane as an example ?



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5. Eukaryotic cells have organelles which may

- (a) not be bound by a membrane
- (b) bound by a single membrane
- (c) bound by a double membrane

Group the various sub-cellular organelles into these three categories.



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6. The genomic content of the nucleus is constant for a given species where as the extrachromosomal DNA is found to be variable among the members of a population. Explain.



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7. Justify the statement, “Mitochondria are power houses of the cell”.



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8. Is there a species specific or region specific type of plastids ? How does one distinguish one from the other ?



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9. Write the functions of the following

(a) Centromere (b) Cell wall

(c) Smooth ER (d) Golgi apparatus

(e) Centrioles



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10. Are the different types of plastids interchangeable ? If yes, give examples where they are getting converted from one type to another ?



Questions From Module Important Mcq For Neet

1. Who gave the word Protoplasm ? (a) Purkinje
(b) Hook (c) A K Sharma (d) Schwann

A. Purkinje

B. Hook

C. A. K. Sharma

D. Schwann

Answer:



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2. Which role is played by Golgi complex ?

A. Energy transformation organelles.

B. Glycosylation of lipid and adaption of protein are seen in transitional transition phase.

C. Receives light and converts into chemical energy.

D. Proteins digest carbohydrates.

Answer:



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3. Where is lipid mainly synthesized ?

A. Simplast

B. Nucleoplasm

C. Rough ER

D. Smooth ER

Answer:



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4. Which organelle is not bounded by membrane ?

A. Lysosomes

B. Mesosomes

C. Vacuoles

D. Ribosomes

Answer:



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5. Which organelles are covered single membrane layer ?

A. Lysosomes

B. Nucleus

C. Mitochondria

D. Chlorophyll

Answer:



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Questions From Module Question Paper Answer
The Following Questions Each Of 1 Mark

1. Briefly give the contributions of the following scientists in formulating the cell

theory

(a) Rudolf Virchow

(b) Schleiden and Schwann



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2. Name the organelle seen in Prokaryotic cell.



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3. What are polysomes ?



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4. Give the proportion of protein and lipid in red blood cells of human beings.



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5. Write the functions of the following

(a) Centromere (b) Cell wall

(c) Smooth ER (d) Golgi apparatus

(e) Centrioles



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6. Name the components present in matrix of mitochondria.



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**Questions From Module Question Paper Answer
Briefly Each Of 2 Marks**

1. Write information about vacuoles.



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2. Differentiate between active transport and passive transport.



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**Questions From Module Question Paper Answer
The Following Questions Each Of 3 Mark**

1. Describe - Centriole



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2. Justify the statement, “Mitochondria are power houses of the cell”.



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Questions From Module Question Paper
Describe In Detail

1. Describe types of chromosomes with diagram.



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