

**BATCH**

**EX**

**1.**

**CELL : FUNDAMENTAL  
UNIT OF LIFE**

# CONTENTS

S. NO.	DETAIL	PAGE NO.
1.	DPPs (DAILY PRACTICE PROBLEMS)	
	• CONCEPT BASED	03 – 13
	• NCERT EXEMPLAR BASED	14 – 17
	• PREVIOUS YEARS QUESTIONS	18 – 21
2.	MODULE EXERCISES	
	• EXERCISE – I	22
	• EXERCISE – II	23 – 24
3.	ANSWER KEY	25 – 26

### CELL

**Concepts : Cell, Cell shape and size, Cell theory**

1. The smallest cell in the living world is  
 (A) Ostrich egg (B) Mycoplasma  
 (C) Nerve cell (D) Cork cell
2. The shape of an erythrocyte is  
 (A) Spherical (B) Polygonal  
 (C) Biconcave (D) Cuboidal
3. Which of the following is an unicellular organism ?  
 (A) *Spirogyra* (B) *Amoeba*  
 (C) *Rhizopus* (D) *Mucor*
4. Electron microscope discovered by  
 (A) Robert Hooke (B) Purkinje  
 (C) Huxley (D) Knoll and Ruska
5. The idea 'Omnis cellula-e-cellula' which means that all living cells arise from pre-existing cell was given by  
 (A) Robert Brown (B) Rudolf Virchow  
 (C) Purkinje (D) Schleiden
6. Red blood cell when placed in a hypotonic solution will \_\_\_\_\_. This process is known as \_\_\_\_\_.  
 (A) Shrink, crenation (B) Swell up, plasmolysis  
 (C) Turgid, deplasmolysis (D) Burst, haemolysis
7. A plant cell becomes turgid due to  
 (A) Plasmolysis (B) Exosmosis  
 (C) Endosmosis (D) Electrolysis
8. Which of the following compounds forms an integral component of cell wall in bacteria ?  
 (A) Cellulose (B) Chitin (C) Calcium pectate (D) Peptidoglycan
9. Pinocytosis is a type of endocytosis which can be referred to as  
 (A) Intake of liquid food by the cell (B) Cell vomiting  
 (C) Cell drinking (D) Both (A) and (C)
10. Which of following is called as "brain of the cell" ?  
 (A) Nucleus (B) Mitochondria (C) Ribosomes (D) Plasma membrane

### CELL

**Concepts : Cell, Cell organelles, Nucleus**

1. A chromatid is made up of
 

(A) DNA
(B) DNA + histone proteins

(C) RNA
(D) RNA + histone proteins
2. Fluid mosaic model of plasma membrane was given by
 

(A) Rudolf Virchow
(B) Schleiden and Schwann

(C) Knoll and Ruska
(D) Singer and Nicolson
3. Elaioplasts are reservoirs of
 

(A) Oil
(B) RNA

(C) Protein
(D) Enzyme
4. Which of the following stores salts, sugar, amino acids, organic acids, etc. in the cell ?
 

(A) Ribosome
(B) Mitochondria

(C) Golgi body
(D) Vacuole
5. The sap vacuole is surrounded by a membrane called
 

(A) Cisternae
(B) Tonoplast

(C) Cristae
(D) Plasma membrane
6. Smooth endoplasmic reticulum is well developed in the cells which synthesize
 

(A) Lipids
(B) Proteins

(C) Enzymes
(D) Minerals
7. Amyloplasts are the plastids that store
 

(A) Starch
(B) Lipids

(C) Proteins
(D) Both (A) and (B)
8. Ribosomes are present inside certain other cell organelle(s), like
 

(A) Plastids
(B) Lysosomes

(C) Mitochondria
(D) Both (A) and (C)
9. The powerful oxidative enzyme present in peroxisomes is
 

(A) Hydrolase
(B) Catalase
(C) Pepsin
(D) Trypsin
10. "Suicidal bags" of the cell are
 

(A) Lysosomes
(B) Mitochondria
(C) Golgi bodies
(D) ER

**CELL****Concepts : Cell organelles**

1. Root hair of plants absorb water from soil by
  - (A) Osmosis
  - (B) Phagocytosis
  - (C) Pinocytosis
  - (D) Exocytosis
2. In case, the ribosomes of a cells are destroyed then
  - (A) Respiration will take place
  - (B) Fats will not be stored
  - (C) Carbon assimilation will occur
  - (D) Proteins synthesis will not occur
3. Which of the following cell organelles is not involved in membrane biogenesis ?
  - (A) Golgi apparatus
  - (B) RER
  - (C) SER
  - (D) Centrosome
4. Which of the following is a characteristic of mitochondria that is similar to a prokaryotic cell ?
  - (A) Presence of circular DNA without any covering
  - (B) Presence of cristae
  - (C) Presence of 70S ribosomes
  - (D) Both (A) and (C)
5. Aleuroplasts store
  - (A) Protein
  - (B) Starch
  - (C) Oil
  - (D) Pigments
6. A plant cell differs from an animal cell in the absence of
  - (A) Endoplasmic reticulum
  - (B) Mitochondria
  - (C) Ribosomes
  - (D) Centrioles
7. Arrange the following organelles in the decreasing order of number of membranous covering(s) surrounding them  
Mitochondria, Golgi bodies, Ribosomes
  - (A) Mitochondria, Ribosomes, Golgi bodies
  - (B) Mitochondria, Golgi bodies, Ribosomes
  - (C) Golgi bodies, Ribosomes, Mitochondria
  - (D) Ribosomes, Mitochondria, Golgi bodies

8. A plant cell and an animal cell were placed in distilled water. What would you expect to happen if the solute concentration of the animal cell's cytoplasm was the same as the fluid in the vacuole of the plant cell ?
- (A) Both cells would decrease in size and collapse
  - (B) The animal cell would decrease in size but plant cell would remain the same
  - (C) Both cells would remain of the same size
  - (D) Animal cell would increase in size and burst but the plant cell would remain nearly of the same size
9. The phenomenon where the living plant cell loses water through osmosis and results in shrinkage or contraction of the contents of the cell away from the cell wall is called \_\_\_\_\_ and it occurs due to \_\_\_\_\_.
- (A) Crenation, endosmosis
  - (B) Plasmolysis, exosmosis
  - (C) Diffusion, exosmosis
  - (D) Pinocytosis, endosmosis
10. Which of the following statements is not true about ribosomes ?
- (A) They are ribonucleoprotein complexes formed in the nucleolus
  - (B) 70S ribosomes are present in prokaryotic cells only
  - (C) Each ribosome is always made up of a larger and a smaller subunit
  - (D) 80S ribosomes are present in eukaryotic cells

**CELL****Concepts : Cell, Cell Organelles**

1. Detoxification of many poisons and drugs is done by liver cells in human body due to presence of an organelle
  - (A) Which is also involved in synthesis of steroid hormone
  - (B) Which is found attached to nuclear membrane
  - (C) Which has attached to it smallest organelle of the cell
  - (D) More than one option can be correct
2. Unicellular organisms are not capable of
  - (A) Independent existence
  - (B) Performing essential functions of life
  - (C) Both (A) and (B)
  - (D) None of these
3. All of the following structures are surrounded by a single membrane, except
  - (A) Lysosome
  - (B) Centrosome
  - (C) Gas vacuoles
  - (D) Both (B) and (C)
4. 70S ribosomes are absent in
  - (A) Endoplasmic reticulum
  - (B) Chloroplast
  - (C) Bacterial cell
  - (D) Mitochondrion
5. The smallest cell organelle
  - (A) Is surrounded by an outer membranous covering
  - (B) Is found in both prokaryotic and eukaryotic cells
  - (C) Is always made up of two equal subunits
  - (D) Is semi-autonomous
6. Rough endoplasmic reticulum remains in connection with the
  - (A) Nucleus
  - (B) Lysosomes
  - (C) Mitochondria
  - (D) Golgi bodies

7. Active transport occurs
- (A) Along the concentration gradient and does not require ATP
  - (B) Against the concentration gradient and does not require ATP
  - (C) Along the concentration gradient and requires ATP
  - (D) Against the concentration gradient and requires ATP
8. The organelle which bears xanthophylls and carotene is
- (A) Mitochondrion
  - (B) Chromoplast
  - (C) Vacuole
  - (D) Elaioplast
9. A feature common to nucleus, chloroplast and mitochondria, is the presence of
- (A) Lamellae
  - (B) Cristae
  - (C) Nucleic acids
  - (D) Oxysomes
10. How many of the following are membrane bound organelles?  
*Lysosomes, Ribosomes, Mitochondria, Vacuoles*
- (A) 2
  - (B) 3
  - (C) 4
  - (D) 0



**Concepts : Cell, Cell Organelles**

1. Which of the following statements is not correct ?  
 (A) RBCs will remain normal in size when kept in Ringer's solution  
 (B) RBCs will be crenated when placed in a hypertonic solution  
 (C) Plant cells are plasmolysed due to endosmosis  
 (D) RBCs will haemolyse when kept in a hypotonic solution
2. 50S and 30S are the subunits of  
 (A) Cristae (B) 80S ribosomes (C) Oxysomes (D) 70S ribosomes
3. If living cells similar to those found on the earth were found on another planet where oxygen is absent, which of these would most probably be absent ?  
 (A) Ribosomes (B) Cell membrane (C) Mitochondria (D) Chromosomes
4. Which organelle helps in the synthesis of cholesterol and steroids ?  
 (A) Golgi bodies (B) RER (C) SER (D) Dictyosome
5. Eukaryotic anaerobic cells that do not possess mitochondria are  
 (A) Liver cells (B) Kidney cells (C) Erythrocytes (D) Leucocytes
6. Decomposition of hydrogen peroxide ( $H_2O_2$ ) occurs in  
 (A) Peroxisomes (B) Lysosomes (C) Mitochondria (D) Ribosomes
7. Read the following statements and select the correct alternative.  
 (i) Mitochondria contain DNA  
 (ii) 70S ribosomes occur in prokaryotes only  
 (iii) Ribosomes are made up of phospholipids and proteins  
 (iv) Ribosomes are not found in bacteria  
 (A) (i), (ii) and (iii) are correct (B) (i) and (ii) are correct  
 (C) Only (i) is correct (D) (i) and (iv) are correct
8. A cell contains enzymes, DNA, ribosomes, plasma membrane, mitochondria. It could be a cell from  
 (A) A bacterium (B) An animal but not a plant  
 (C) A plant but not an animal (D) A plant or an animal
9. The mature RBC in the mammalian body loses its capacity of  
 (A) Aerobic respiration (B) DNA replication (C) RNA synthesis (D) All of these
10. Chloroplasts fix  
 (A)  $N_2$  (B)  $H_2$  (C)  $O_2$  (D)  $CO_2$

### CELL

**Concepts : Cell, Cell Organelles, Cell membrane**

1. Which of the following is true about fluid–mosaic model of plasma membrane ?  
 (A) Phospholipid bilayer is present over protein layer  
 (B) Proteins are embedded in a phospholipid bilayer  
 (C) Phospholipid monolayer is present over protein layer  
 (D) Phospholipid layer is sandwiched between two protein layers
2. Which of the following statements is correct ?  
 (A) Ribosomes do not contain DNA  
 (B) Eukaryotic 80S ribosomes break into 50S and 30S ribosomes  
 (C) Plasmodesmata are found as intercellular junction between two animal cells  
 (D) Ribosomes were discovered by Beadle and Tatum
3. Which organelle can clear the worn out cell organelles ?  
 (A) Oxysome (B) Lysosome  
 (C) Mitochondria (D) Peroxisome
4. The prokaryotic component(s) within a eukaryotic cell is/are  
 (A) Nucleus (B) Mitochondria  
 (C) Chloroplast (D) Both (B) and (C)
5. Which of the following statements is not true:  
 (A) Both mitochondria and chloroplasts provide energy to cells in the same way.  
 (B) Both mitochondria and chloroplasts have more than one membrane.  
 (C) Only chloroplasts contain the pigment chlorophyll  
 (D) Both animal and plant cells contain mitochondria.
6. The organelle important in spindle formation during nuclear division is  
 (A) Centrosome (B) Chloroplast  
 (C) Endoplasmic reticulum (D) Peroxisome
7. Which organelle is called protein factory?  
 (A) Mitochondria (B) Nucleus (C) Ribosome (D) Chloroplast
8. Oxysomes are present on the  
 (A) Cell membrane (B) Outer membrane of mitochondria  
 (C) Inner membrane of mitochondria (D) Cell wall

9. Which among the following are present in both plant and animal cells ?
- (A) Cell membrane and centrioles (B) Cell membrane and nucleolus  
(C) Nucleolus and chloroplast (D) Nucleus and cell wall
10. Match the following :
- | Column – I      | Column – II                           |
|-----------------|---------------------------------------|
| a. Lysosomes    | (i) Protein synthesis                 |
| b. Ribosomes    | (ii) Hydrolytic activity              |
| c. Mitochondria | (iii) ATP synthesis                   |
| d. Centriole    | (iv) Osmoregulation                   |
| e. Chromosomes  | (v) Repository of genetic information |
|                 | (vi) Formation of spindle apparatus   |
- (A) a(ii), b(i), c(iii), d(vi), e(v)  
(B) a(vi), b(iii), c(iv), d(v), e(i)  
(C) a(i), b(iv), c(iii), d(vi), e(ii)  
(D) a(iv), b(iii), c(i), d(ii), e(vi)

### CELL

**Concepts : Cell Organells**

1. Match the following :

Column – I

a. Robert Hooke

b. Genes

c. Chloroplasts

d. Robert Brown

e. Vacuole

(A) a(iii), b(i), c(ii), d(v), e(iv)

(C) a(v), b(iii), c(i), d(iv), e(ii)

Column – II

(i) Inheritance

(ii) Sunlight

(iii) Cell

(iv) Storage sac

(v) Nucleus

(B) a(iii), b(ii), c(i), d(iv), e(v)

(D) a(v), b(i), c(iv), d(ii), e(iii)

2. Match the following :

Column – I

a. Smooth muscle fibre

b. Nerve cell

c. Erythrocytes

d. Germ cells

e. Egg of many animals

(A) a(i), b(ii), c(iii), d(iv), e(v)

(C) a(i), b(ii), c(iv), d(iii), e(v)

Column – II

(i) Spindle shaped

(ii) Elongated cell

(iii) Spherical

(iv) Cuboidal

(v) Discoidal

(B) a(i), b(ii), c(v), d(iv), e(iii)

(D) a(i), b(ii), c(v), d(iii), e(iv)

3. Match the following :

Column – I

a. Chloroplast

b. Mitochondria

c. Paramecium

d. Nucleolus

e. Chromosomes

(A) a(ii), b(i), c(v), d(iv), e(iii)

(C) a(iv), b(ii), c(iii), d(v), e(i)

Column – II

(i) RNA

(ii) DNA

(iii) Chlorophyll

(iv) Oxysomes

(v) Unicellular organism

(B) a(i), b(iii), c(v), d(iv), e(ii)

(D) a(iii), b(iv), c(v), d(i), e(ii)

4. Match the following :

Column – I

- a. Cristae
- b. Cisternae
- c. Thylakoids
- d. Tonoplast
- e. Centrioles

(A) a(ii), b(iii), c(i), d(iv), e(v)

(C) a(iii), b(v), c(iv), d(i), e(ii)

Column – II

- (i) Flat membranous sacs in stroma
- (ii) Foldings of mitochondrial inner membrane
- (iii) Disc shaped sacs in golgi apparatus
- (iv) Membrane surrounding sap vacuole
- (v) Microtubular structures

(B) a(v), b(iii), c(ii), d(iv), e(i)

(D) a(i), b(iv), c(v), d(ii), e(iii)

**CELL****Concepts : NCERT Exemplar Based**

1. Which of the following can be made into crystal?  
(A) A Bacterium (B) An Amoeba  
(C) A Virus (D) A Sperm
2. A cell will swell up if  
(A) The concentration of water molecules in the cell is higher than the concentration of water molecules in surrounding medium.  
(B) The concentration of water molecules in surrounding medium is higher than water molecules concentration in the cell.  
(C) The concentration of water molecules is same in the cell and in the surrounding medium.  
(D) Concentration of water molecules does not matter.
3. Chromosomes are made up of  
(A) DNA (B) protein  
(C) DNA and protein (D) RNA
4. 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) (iv) and (i)
5. Which of these is not related to endoplasmic reticulum?  
(A) It behaves as transport channel for proteins between nucleus and cytoplasm.  
(B) It transports materials between various regions in cytoplasm.  
(C) It can be the site of energy generation.  
(D) It can be the site for some biochemical activities of the cell.

6. 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.
- (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.
7. Plasmolysis in a plant cell is defined as :
- (A) break down (lysis ) of plasma membrane in hypotonic medium
- (B) shrinkage of cytoplasm in hypertonic medium
- (C) shrinkage of nucleoplasm
- (D) none of them
8. Which of the following are covered by a single membrane?
- (A) Mitochondria      (B) Vacuole      (C) Lysosome      (D) Plastid
9. Find out the false sentences :
- (A) Golgi apparatus is involved with 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 the cell as ATP is generated in them.
- (D) Cytoplasm is called as protoplasm
10. Find out the correct sentence
- (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
11. 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
12. The proteins and lipids, essential for building the cell membrane, are manufactured by :
- (A) rough endoplasmic reticulum      (B) golgi apparatus
- (C) plasma membrane      (D) mitochondria

13. The undefined nuclear region of prokaryotes are also known as :  
 (A) nucleus (B) nucleolus (C) nucleic acid (D) nucleoid
14. The cell organelle involved in forming complex sugars from simple sugars are  
 (A) endoplasmic reticulum (B) ribosomes  
 (C) plastids (D) golgi apparatus
15. Which out of the following is not a function of vacuole?  
 (A) Storage (B) Providing turgidity and rigidity to the cell  
 (C) Waste excretion (D) Locomotion
16. Amoeba acquires its food through a process, termed :  
 (A) exocytosis (B) endocytosis (C) plasmolysis (D) exocytosis and endocytosis both
17. Cell wall of which one of these is not made up of cellulose?  
 (A) Bacteria (B) Hydrilla (C) Mango tree (D) Cactus
18. Silver nitrate solution is used to study :  
 (A) endoplasmic reticulum (B) golgi apparatus  
 (C) nucleus (D) mitochondria
19. Organelle other than nucleus, containing DNA is :  
 (A) endoplasmic reticulum (B) golgi apparatus  
 (C) mitochondria (D) lysosome
20. Kitchen of the cell is :  
 (A) mitochondria (B) endoplasmic reticulum  
 (C) chloroplast (D) golgi apparatus
21. Lipid molecules in the cell are synthesized by :  
 (A) smooth endoplasmic reticulum (B) rough endoplasmic reticulum  
 (C) golgi apparatus (D) plastids
22. Cell arises from pre-existing cell was stated by :  
 (A) Haeckel (B) Virchow (C) Hooke (D) Schleiden
23. Cell theory was given by :  
 (A) Schleiden and Schwann (B) Virchow  
 (C) Hooke (D) Haeckel
24. The only cell organelle seen in prokaryotic cell is :  
 (A) mitochondria (B) ribosomes (C) plastids (D) lysosomes



25. Organelle without a cell membrane is :  
(A) ribosome (B) golgi apparatus  
(C) chloroplast (D) nucleus
26. 1  $\mu\text{m}$  is :  
(A)  $10^{-6}$  m (B)  $10^{-9}$  m  
(C)  $10^{-10}$  m (D)  $10^{-3}$  m
27. Lysosome arises from :  
(A) endoplasmic reticulum (B) golgi apparatus  
(C) nucleus (D) mitochondria
28. Living cells were discovered by :  
(A) Robert Hooke (B) Purkinje  
(C) Leeuwenhoek (D) Robert Brown
29. Select the odd one out :  
(A) The movement of water across a semi permeable 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) Plasma membranes contain chitin sugar in plants

### CELL

**Concepts : Previous years questions**

1. Cell organelle which differentiates plant cell from animal cell is: [Raj/NTSE Stage-I/13]  
 (A) Cell Membrane      (B) Plastids      (C) Nucleolus      (D) Vacuoles
2. Example of cell organelle which do not have a unit membrane is: [Raj/NTSE Stage-I/07]  
 (A) Mitochondria      (B) Lysosome      (C) Ribosome      (D) Plastid
3. Chromosome reaches the equator during which stage of cell division: [Raj/NTSE Stage-I/07]  
 (A) Prophase      (B) Metaphase      (C) Anaphase      (D) Telophase
4. Decreasing order of size is: [Raj/NTSE Stage-I/06]  
 (A) DNA, t RNA, m RNA      (B) m RNA, DNA, t RNA  
 (C) t RNA, DNA, m RNA      (D) DNA, m RNA, t RNA
5. Sequence of cell cycle is: [RAJ/NTSE Stage-I/07]  
 (A)  $G_I, G_{II}, S$       (B)  $S, S_I, G_{II}$       (C)  $G_I, S, G_{II}$       (D)  $G_I, G_{II}, G_{III}$
6. Mitosis: [DELHI/NTSE Stage-I/13]  
 (A) Leads to recombinant daughter cells  
 (B) Is a reduction division  
 (C) Leads to formation of parental type of daughter cells  
 (D) Occurs in gametes
7. Mitochondria and chloroplasts are similar because: [DELHI/NTSE Stage-I/13]  
 (A) Both have nuclei      (B) Both have 80s ribosomes  
 (C) Both have DNA      (D) Both have single membrane envelope
8. Ribosome is present in both eukaryotic and prokaryotic cells, it refers that ribosome is [HARYANA/NTSE Stage-I/13]  
 (A) Necessary for protein synthesis  
 (B) A membrane less organelle  
 (C) Independent of nucleus  
 (D) Meeting body's energy requirement in all the above conditions

9. What happens when a cell placed in hypertonic solution? **[MP/NTSE Stage-I/13]**  
 (A) Endosmosis (B) Exosmosis (C) Deplasmolysis (D) Imbibition
10. Organisms lacking nuclear membrane and cell organelles is called as: **[MP/NTSE Stage-I/13]**  
 (A) Prokaryotes (B) Eukaryotes (C) Protozoa (D) Fungi
11. Ribosomes are the centre for: **[MP/NTSE Stage-I/13]**  
 (A) Respiration (B) Protein synthesis (C) Photosynthesis (D) Fat synthesis
12. Lipids and proteins constituting the cell membrane are synthesized at: **[CHANDIGARH/NTSE Stage-I/13]**  
 (A) Endoplasmic reticulum (B) Mitochondria  
 (C) Golgi apparatus (D) Lysosomes
13. Which one of the following cell organelle does not participate in cellular division : **[PUNJAB/NTSE Stage-I/13]**  
 (A) Ribosomes (B) Chromosomes (C) Cytoplasm (D) Nucleus
14. Cell organelle 'Bioplast' was given another name by Benda, which is:  
 (A) Chloroplast (B) Mitochondria (C) Ribosome (D) Lysosome
15. Cell organelle that allows certain substances to enter or come out from the cell is: **[RAJ/NTSE Stage-I/13]**  
 (A) Ribosome (B) Plasma membrane (C) Centrosome (D) Golgi body
16. Which cell organelle is known as "Suicidal bag": **[MP/NTSE Stage-I/13]**  
 (A) Centrosome (B) Mesosome (C) Lysosome (D) Chromosome
17. Crossing over takes place in ..... stage. **[MP/NTSE Stage-I/13]**  
 (A) Leptotene (B) Pachytene (C) Diplotene (D) Zygotene
18. Mitochondria and Plastids are able of synthesis some of their proteins because they have: **[HARYANA/NTSE Stage-I/15]**  
 (A) DNA (B) RNA  
 (C) DNA and Ribosomes (D) RNA and Ribosomes
19. The cell organelle storing substances like starch, oil and proteins is: **[RAJ/NTSE Stage-I/15]**  
 (A) Vacuole (B) Lysosome (C) Plastid (D) Nucleus
20. The common component of nuclear membrane of organelles like Mitochondria, Endoplasmic reticulum and Nucleus is: **[RAJ/NTSE Stage-I/15]**  
 (A) Glycolipid (B) Glycoprotein (C) Nucleoprotein (D) Lipoprotein

21. During rainy season, wooden doors are difficult to open or close. It is due to:  
[BIHAR/NTSE Stage-I/2015]  
(A) Plasmolysis (B) Osmosis (C) Imbibition (D) Dehydration
22. The capsule present in Bacteria is mainly made of:  
[BIHAR/NTSE Stage-I/2015]  
(A) Glycolipids and proteins (B) Phospholipids and proein  
(C) Poly saccharide and proteins (D) All of above
23. Which is a prokaryotic cell amongst the following?  
[MP/NTSE Stage-I/2015]  
(A) Amoeba (B) Bacteria (C) Yeast (D) Euglena
24. A cell will plasmolyse, if it is placed in:  
[DELHI/NTSE Stage-I/2015]  
(A) Hypertonic solution (B) Hypotonic solution  
(C) Isotonic solution (D) Concentration of water molecules does not matter
25. If a cell has twice as much DNA as in the normal functional cell, it shows that?  
(A) Cell has completed division (B) Cell is preparing to divide  
(C) Cell is preparing to die (D) Cell is preparing to modify
26. Number of mitotic divisions required to produce 128 cells from a single cell is:  
[MP/NTSE Stage-I/2015-16]  
(A) 7 (B) 8 (C) 6 (D) 4
27. The number of daughter cells formed end of meiosis from a cell \_\_\_\_\_.  
[GOA/NTSE STAGE-I/2018]  
(A) 2 haploid cells (B) heart muscle (C) 4 haploid cells (D) 4 diploid cells
28. Pick out the items which has sequential arrangment.  
[TAMIL NADU/NTSE STAGE-I/2018]  
(A) Zygotene → Leptotene → Pachytene → Diplotene → Diakinesis  
(B) Diakinesis → Zygotene → Leptotene → Pachytene → Diplotene  
(C) Leptotene → Zygotene → Pachytene → Diplotene → Diakinesis  
(D) Leptotene → Pachytene → Diplotene → Diakinesis → Zygotene
29. Match the words in column I with those which are msot appropriate in column II.  
[WEST BENGAL/NTSE STAGE-I/2017]
- | Column I                       | Column II                      |
|--------------------------------|--------------------------------|
| (A) Karyokinesis               | (1) Meiocytes                  |
| (B) Cytokinesis                | (2) Plant cell                 |
| (C) Meiosis                    | (3) Nuclear division           |
| (D) Cell plate                 | (4) Cytoplasmic division       |
| (A) A = 1, B = 2, C = 3, D = 4 | (B) A = 2, B = 1, C = 4, D = 3 |
| (C) A = 3, B = 4, C = 1, D = 2 | (D) A = 4, B = 3, C = 2, D = 1 |

30. Choose the correct statement/statements from the following. **[TELANGANA/NTSE STAGE-I/2016]**
- (a) Interphase has three phases.  
 (b) Interphase is the resting stage between two divisions.  
 (c) Interphase is the period when genetic material makes its copy.  
 (d) Interphase is the active phase between two divisions.
- (A) A, B (B) B, C  
 (C) A, B, C (D) A, C, D
31. The stage of cell division in which chromosomes get aligned at the centre is **[UTTARAKHAND/NTSE STAGE-I/2016]**
- (A) Metaphase (B) Anaphase  
 (C) Prophase (D) Telophase
32. The current sequence of cell cycle is **[HARYANA/NTSE STAGE-I/2015]**
- (A) S, G<sub>1</sub>, G<sub>2</sub>, M (B) S, M, G<sub>1</sub>, G<sub>2</sub>  
 (C) G<sub>1</sub>, S, G<sub>2</sub>, M (D) G<sub>2</sub>, S, M, G<sub>1</sub>
33. DNA replication mainly takes place in **[PUNJAB/NTSE STAGE-I/2015]**
- (A) G<sub>1</sub> phase (B) G<sub>2</sub> phase  
 (C) S phase (D) M phase
34. Which of the following statements are correct? **[TELANGANA/NTSE STAGE-I/2015]**
1. Spindle equator is formed in Telophase.
  2. Meiosis results 4 haploid daughter cells of the parent cell.
  3. Mitosis does not occur during the formation of gametes in sexual reproduction.
  4. Pairing of chromosomes takes place in Prophase I.
- (A) 1,2,4 (B) 1,3,4  
 (C) 2,3,4 (D) 2,4

## EXERCISE – I

1. 'Physical basis of life' is the term used for  
(A) Cytoplasm (B) Protoplasm  
(C) Nucleoplasm (D) Sarcoplasm
2. Cell was discovered by  
(A) Robert Brown (B) Robert Hooke  
(C) Leewenhoek (D) Whittaker
3. Prokaryotic cell is  
(A) bacterial cell  
(B) amoeba  
(C) nerve cell  
(D) human bone cell
4. Who proposed the cell theory ?  
(A) Schleiden (B) Schwann  
(C) A and B both (D) None of the above
5. Smallest cell so far known is  
(A) Bacteria (B) Cyanobacteria  
(C) PPLO (D) Virus
6. Who proposed the cell theory ?  
(A) Schleiden and Schwann  
(B) Watson and Crick  
(C) Darwin and Wallace  
(D) Mendel and Morgan
7. The history of the cell began in 1665 with the publication of Micrographia in London by :  
(A) Robert Hooke (B) Robert Brown  
(C) Strasburger (D) Dujardin
8. Ordinarily the size of typical animal / plant cell varies from :  
(A) 1 - 200 mm (B) 3 - 10 mm  
(C) 1 mm - 2 mm (D) None of these
9. Cell was discovered by :  
(A) Robert Brown (B) Robert Hooke  
(C) Purkinje (D) Darwin
10. The limiting membrane found in an animal cell is :  
(A) nuclear membrane (B) plasma membrane  
(C) tonoplast (D) cell wall
11. The barrier between the cell contents and the external environment is formed by :  
(A) plasma membrane (B) tonoplast  
(C) endoplasmic reticulum (D) cell wall
12. Which one of the following belongs to prokaryotic category ?  
(A) Amoeba (B) Euglena  
(C) Bacteria (D) Chlamydomonas
13. A plant cell differs from an animal cell in the absence of:  
(A) endoplasmic reticulum (B) centrioles  
(C) ribosomes (D) mitochondria
14. The largest cell in human body is :  
(A) liver cell (B) nerve cell  
(C) muscle cell (D) kidney cell

## EXERCISE – II

1. Centrosome is found in :  
(A) Cytoplasm (B) Nucleus  
(C) Chromosomes (D) Nucleolus
2. Within a cell the site of respiration (oxidation) is :  
(A) Ribosome (B) Golgi apparatus  
(C) Mitochondria (D) Endoplasmic reticulum
3. Organisms lacking nucleus and membrane bound organelles are :  
(A) Diploids (B) Prokaryotes  
(C) Haploids (D) Eukaryotes
4. The membrane surrounding the vacuole of a plant cell is called :  
(A) Tonoplast (B) Plasma membrane  
(C) Nuclear membrane (D) Cell wall
5. Which of the following organelles does not have membrane ?  
(A) Ribosome (B) Nucleus  
(C) Chloroplast (D) Mitochondria
6. The membrane surrounding the vacuole is termed as :  
(A) cell membrane (B) tonoplast  
(C) nuclear membrane (D) plasma membrane
7. Organisms in which nuclear material is not surrounded by a nuclear membrane are called :  
(A) eukaryotes (B) diploids  
(C) haploids (D) prokaryotes
8. Which one of the following cell organelles is commonly called 'cell kitchen' ?  
(A) Mitochondria (B) Chloroplasts  
(C) Ribosomes (D) Endoplasmic reticulum
9. Protein is synthesized by  
(A) ribosomes (B) Golgi apparatus  
(C) plastids (D) mitochondria
10. The cell organelle known as the "Power house of the cell" is :  
(A) ribosome (B) lysosome  
(C) mitochondria (D) Golgi body
11. Which of the cell organelles is termed as "Suicide bag of the cell" ?  
(A) Lysosome (B) Ribosome  
(C) Centrosome (D) Chromosome
12. Centriole in the cell is associated with  
(A) spindle formation (B) DNA synthesis  
(C) protein formation (D) cell respiration
13. Cell secretion is done by  
(A) Golgi apparatus (B) nucleolus  
(C) mitochondria (D) endoplasmic reticulum
14. Network of endoplasmic reticulum is found in :  
(A) nucleus (B) cytoplasm  
(C) chromosomes (D) nucleolus
15. Inside the cells, the hydrolytic enzymes are contained in  
(A) ribosomes (B) lysosomes  
(C) chromosomes (D) Golgi apparatus
16. Genes are located on the :  
(A) nuclear membrane (B) cell membrane  
(C) chromosomes (D) mitochondria
17. The cellular structure concerned with intra cellular digestion is  
(A) mitochondria (B) chloroplast  
(C) ribosome (D) lysosome
18. The red colour of the tomato is due to  
(A) leucoplast (B) chromoplast  
(C) chloroplast (D) none of these

19. Power house of the cell is  
(A) Mitochondria (B) Ribosome  
(C) Lysosome (D) Golgi body
20. Centrioles and centrosomes occur in the cell of  
(A) green plants  
(B) animals  
(C) bacteria and cyanobacteria  
(D) both B and C
21. Lysosomes are store house of -  
(A) proteins (B) hydrolytic enzymes  
(C) ATP (D) sugar
22. Semi autonomous organelle is  
(A) endoplasmic reticulum  
(B) lysosome  
(C) peroxisome  
(D) chloroplast
23. Enzymes are absent in  
(A) algae (B) plants  
(C) viruses (D) bacteria
24. Cell organelle surrounded by a single unit membrane is  
(A) mitochondria (B) chloroplast  
(C) lysosome (D) nucleus
25. In which of the following nucleoid is present ?  
(A) Plant cell (B) Animal cell  
(C) Green algae cell (D) Bacterial cell.
26. The basic unit of a nucleic acid is  
(A) nucleoside (B) nucleotide  
(C) nucleoid (D) pentose sugar



## ANSWER KEY

### CELL

#### DPP\_01

- |      |      |       |      |      |      |      |
|------|------|-------|------|------|------|------|
| 1. B | 2. C | 3. B  | 4. D | 5. B | 6. D | 7. C |
| 8. D | 9. D | 10. A |      |      |      |      |

#### DPP\_02

- |      |      |       |      |      |      |      |
|------|------|-------|------|------|------|------|
| 1. B | 2. D | 3. A  | 4. D | 5. B | 6. A | 7. A |
| 8. D | 9. B | 10. A |      |      |      |      |

#### DPP\_03

- |      |      |       |      |      |      |      |
|------|------|-------|------|------|------|------|
| 1. A | 2. D | 3. D  | 4. D | 5. A | 6. D | 7. B |
| 8. C | 9. B | 10. B |      |      |      |      |

#### DPP\_04

- |      |      |       |      |      |      |      |
|------|------|-------|------|------|------|------|
| 1. D | 2. C | 3. B  | 4. A | 5. B | 6. A | 7. D |
| 8. B | 9. C | 10. B |      |      |      |      |

#### DPP\_05

- |      |      |       |      |      |      |      |
|------|------|-------|------|------|------|------|
| 1. C | 2. D | 3. C  | 4. C | 5. C | 6. A | 7. B |
| 8. D | 9. D | 10. D |      |      |      |      |

#### DPP\_06

- |      |      |       |      |      |      |      |
|------|------|-------|------|------|------|------|
| 1. B | 2. A | 3. B  | 4. D | 5. A | 6. A | 7. C |
| 8. C | 9. B | 10. A |      |      |      |      |

#### DPP\_07

- |      |      |      |      |
|------|------|------|------|
| 1. A | 2. B | 3. D | 4. A |
|------|------|------|------|

#### DPP\_08

- |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|
| 1. C  | 2. B  | 3. C  | 4. C  | 5. C  | 6. A  | 7. B  |
| 8. C  | 9. D  | 10. A | 11. C | 12. A | 13. D | 14. D |
| 15. B | 16. B | 17. A | 18. D | 19. C | 20. C | 21. A |
| 22. B | 23. A | 24. B | 25. A | 26. A | 27. B | 28. C |
| 29. D |       |       |       |       |       |       |

#### DPP\_09

- |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|
| 1 B  | 2 C  | 3 B  | 4 D  | 5 C  | 6 C  | 7 C  |
| 8 A  | 9 B  | 10 A | 11 B | 12 A | 13 A | 14 B |
| 15 B | 16 C | 17 B | 18 C | 19 A | 20 D | 21 C |
| 22 C | 23 B | 24 A | 25 B | 26 C | 27 C | 28 C |
| 29 C | 30 D | 31 A | 32 C | 33 C | 34 A |      |

## Answer Key

### EXERCISE-I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	
B	B	A	C	C	A	A	D	B	B	A	C	B	B	

### EXERCISE-II

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	C	B	A	A	B	D	B	A	C	A	A	A	B	B
16	17	18	19	20	21	22	23	24	25	26				
C	D	B	A	B	B	D	C	C	D	B				

## SELF PROGRESS ASSESSMENT FRAMEWORK

(CHAPTER : CELL)

CONTENT	STATUS	DATE OF COMPLETION	SELF SIGNATURE
Theory			
DPP-1			
DPP-2			
DPP-3			
DPP-4			
DPP-5			
DPP-6			
DPP-7			
DPP-8			
DPP-9			
Revision - 1			
Revision - 2			
Remark			

### NOTES :

1. In the status, put “completed” only when you have thoroughly worked through this particular section.
2. Always remember to put down the date of completion correctly. It will help you in future at the time of revision.



*Space for Notes :*

A series of 24 horizontal dotted lines providing space for notes.

