



# BIOLOGY

## BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)

### BIOMOLECULES

**Text Evaluation Questions Solved Multiple The  
Correct Questions**

**1. The most basic amino acid is**

A. Arginine

B. Histidine

C. glycine

D. Glutamine

**Answer: A**



**Watch Video Solution**

2. An example of feedback inhibition is \_\_\_\_

A. Cyanide action on cytochrome

B. Sulpha drug on folic acid synthesiser  
bacteria

C. Allosteric inhibition of hexokinase by  
glucose-6-phosphate

D. The inhibition of succinic dehydrogenase  
by malonate

**Answer: C**



**Watch Video Solution**

3. Enzymes that catalyse interconversion of optical, geometrical or positional isomers are

A. Ligases

B. Lyases

C. Hyrolases

D. isomerases

**Answer: D**



**Watch Video Solution**

4. Proteins perform many physiological functions. For example some functions as enzymes. One of the following represents an additional function that some proteins discharge :

A. Antibiotics

B. Pigment conferring colour to skin

C. Pigments making colours of flowers

D. Hormones

**Answer: D**





## Text Evaluation Questions Solved

1. Given below is the diagrammatic representation of one of the categories of small molecular weight organic compounds in the living tissues. Identify the category shown & one blank component "X" in it.

Category Compound

Cholesterol Guanine

Amino acid  $NH_2$

Nucleotide Adenine

Nucleoside Uracil



**Watch Video Solution**

2. Distinguish between nitrogenous base and a base found in inorganic chemistry.



**Watch Video Solution**

3. What are the factors affecting the rate of enzyme reaction?



**Watch Video Solution**

**4. Briefly outline the classification of enzymes.**



**Watch Video Solution**

**5. Write the characteristic features of DNA.**



**Watch Video Solution**



6. Explain the structure and function of different types of RNA.



**Watch Video Solution**

**Entrance Examination Questions Solved Choose The Correct Answer**

1. Who invented electron microscope ?

A. Janssen

B. Edison

C. Knoll and Ruska

D. Landsteiner

**Answer: C**



**Watch Video Solution**

2. Specific proteins responsible for the flow of materials and information into the cell are called

A. Membrane receptors

B. Carrier proteins

C. integral proteins

D. none of these

**Answer: B**



**Watch Video Solution**

**3. Omnis -cellula -e-cellula was given by**

A. virchow

B. Hooke

C. Leeuwenhoek

D. Robert Brown

**Answer: A**



**Watch Video Solution**

**4.** Which of the following is responsible for the mechanical support ,protein synthesis and enzyme transport

A. cell membrane

B. mitochondria

C. dictyosomes

D. endoplasmic reticulum

**Answer: D**



**Watch Video Solution**

5. Genes present in the cytoplasm of eukaryotic cells are found in

A. mitochondria and inherited via egg  
cytoplasm

B. Lysosomes and peroxisomes

C. Golgi bodies and smooth endoplasmic  
reticulum

D. Plastids inherited via male gametes

**Answer: A**



**Watch Video Solution**

6. In which one the following would you expect to find glyoxysomes?

A. Endosperm of wheat

B. Endosperm of castor

C. Palisade cells in leaf

D. Root hairs

**Answer: B**



**Watch Video Solution**

7. A quantosome is present in

A. Mitochondria

B. Chloroplast

C. Golgi bodies

D. ER

**Answer: B**



**Watch Video Solution**



8. In mitochondria the enzyme cytochrome oxidase is present in

- A. outer mitochondrial membrane
- B. inner mitochondrial membrane
- C. stroma
- D. grana

**Answer: B**



**Watch Video Solution**

9. Which organelle is present in higher number in secretory cell

A. Mitochondria

B. Chloroplast

C. Nucleus

D. Dictyosomes

**Answer: D**



**Watch Video Solution**

**10. Major site for the synthesis of lipids**

A. Rough ER

B. smooth ER

C. Centriole

D. Lysosome

**Answer: B**



**Watch Video Solution**

**11.** Golgi complex plays a major role in

- A. Post translational modification of proteins and glycosidation of lipids
- B. translation of proteins
- C. Transcription of proteins
- D. Synthesis of lipid

**Answer: A**



**Watch Video Solution**

**12.** Main arena of various types of activities of a cell is

A. Nucleus

B. Mitochondria

C. Cytoplasm

D. Chloroplast

**Answer: C**



**Watch Video Solution**

**13.** The thylakoids in chloroplast are arranged in

- A. regular rings
- B. linear array
- C. diagonal direction
- D. stacked discs

**Answer: D**



**Watch Video Solution**

**14.** Sequences of which of the following is used to know the phylogeny rRNA ?

A. mRNA

B. rRNA

C. tRNA

D. Hn RNA

**Answer: B**



**Watch Video Solution**

**15.** Structures between two adjacent cells which is an effective transport pathway -

- A. Plasmodesmata
- B. Middle lamella
- C. Secondary wall layer
- D. Primary wall layer

**Answer: A**



**Watch Video Solution**



**16.** In active transport carrier proteins are used, which use energy in the form of ATP to

A. transport molecules against  
concentration gradient of cell wall

B. transport molecules along  
concentration gradient of cell  
membrane

C. transport molecules against  
concentration gradient of cell  
membrane

D. transport

molecules

along

concentration gradient of cell wall

**Answer: C**



**Watch Video Solution**

**17.** The main organelle involved in modification and routing of newly synthesised protein to their destinations is

A. Mitochondria

B. Glyoxysomes

C. Sphaerosomes

D. Endoplasmic reticulum

**Answer: D**



**Watch Video Solution**

**18.** Algae have cell wall made up of

A. Cellulose, galactans and mannans

B. Cellulose, chitin and glucan

C. Cellulose, Mannan and peptidoglycan

D. Cellulose, galactans and peptidoglycan

**Answer: A**



**Watch Video Solution**

## Additional Questions Solved

1. The percentage of water in the total cellular mass is \_\_\_\_

A. 0.5

B. 0.6

C. 0.7

D. 0.8

**Answer: C**



**Watch Video Solution**

2. The metabolites which does not show any direct function in growth is called\_\_\_\_\_metabolite.

A. Primary

B. Secondary

C. Tertiary

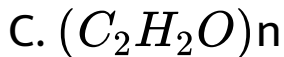
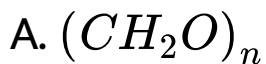
D. Quaternary

**Answer: B**



**Watch Video Solution**

**3. Write the molecular formula for cabohydrates?**



**Answer: A**



**Watch Video Solution**

**4. Number of carbon molecule in glucose is**

.....

A. 4

B. 6

C. 8

D. 12

**Answer: B**



**Watch Video Solution**

5. Number of sugar units in oligo saccharides  
are \_\_\_\_



A. 6 to 10

B. 1 to 10

C. 2 to 8

D. 2 to 10

**Answer: D**



**Watch Video Solution**

**6. Which of the following is a trisaccharide?**

A. Maltose

B. Stachyose

C. Ramnose

D. Aldose

**Answer: C**



**Watch Video Solution**

7. \_\_\_\_\_ are also called as Glycan.

A. Monosaccharides

B. Disaccharides

C. Polysaccharides

D. Multisaccharides

**Answer: C**



**Watch Video Solution**

8. Sucrose is a combination of \_\_\_ and fructose.

A.  $\alpha$ -glucose

B.  $\beta$ -glucose

C. Ketoses

D. Maltose

**Answer: A**



**Watch Video Solution**

9. \_\_\_\_\_ is called animal starch

A. Amylose

B. glycogen

C. glucose

D. Glycerol

**Answer: B**



**Watch Video Solution**

**10. \_\_\_\_ reagent is used in starch test.**

A. Potassium permanganate

B. Potassium iodide

C. Calcium chloride

D. Calcium iodide

**Answer: B**



**Watch Video Solution**

**11. Glycogen is not seen in \_\_\_ cells.**

A. Liver

B. Skeletal

C. muscle

D. brain

**Answer: D**



[Watch Video Solution](#)

12. Benedicts solution is nothing but\_\_\_\_

A. Copper II sulphate

B. Cuprous sulphate

C. Cupric sulphate

D. Copper I sulphate

**Answer: A**



[Watch Video Solution](#)

**13.** Sucrose is a non reducing sugar. Justify.

A. Glucose

B. Fructose

C. Sucrose

D. Ketose

**Answer: C**



**Watch Video Solution**



14. \_\_\_\_ form the exoskeleton of insects & arthropods.

A. N-acetyl glucosamine

B. N-butyl glucosamine

C. N-phenyl glucosamine

D. N-methyl glucosamine

**Answer: A**



**Watch Video Solution**

15. Number of fatty acids in triglyceride is \_\_\_\_\_.

A. 1

B. 2

C. 3

D. 4

**Answer: C**



**Watch Video Solution**

**16.** The major structural component of cell membrane is \_\_\_\_\_

- A. glucolipids
- B. phospholipids
- C. proteolipids
- D. triglycerides

**Answer: B**



**Watch Video Solution**

17. There are \_\_\_\_ different amino acids existing naturally.

A. about 20

B. about 10

C. about 25

D. about 22

**Answer: A**



**Watch Video Solution**

18. A zwitterion also called as \_\_\_ ion.

A. dipolar

B. monopolar

C. tripolar

D. nonpolar

**Answer: A**



**Watch Video Solution**

19. \_\_\_\_\_test is used as an indicator of the presence of protein.

A. Biuret test

B. Iodine test

C. Benedict's test

D. Starch test

**Answer: A**



**Watch Video Solution**

20. The competitive inhibitor is \_\_\_ for succinic dehydrogenase.

A. Malonate

B. Succinate

C. Oxalate

D. Citrate

**Answer: A**



**Watch Video Solution**

21. \_\_\_\_ is the abundant protein in whole biosphere.

A. RUBP

B.  $NAD^+$

C.  $NADPH$

D. RUBISCO

**Answer: D**



**Watch Video Solution**



22. \_\_\_\_\_ is an active enzyme with its non-protein component.

A. Apoenzyme

B. holoenzyme

C. Coenzymes

D. Enzymes

**Answer: B**



**Watch Video Solution**

23. Flavin adenine dinucleotide contains \_\_\_\_ which helps to accept hydrogen.

- A. ascolac acid
- B. cyanocobalamin
- C. riboflavin
- D. keratinine

**Answer: C**



**Watch Video Solution**

24. \_\_\_\_\_ is a catalytic RNA.

A. mRNA

B. Ribozyme

C. Ribonuclease

D. rRNA

**Answer: B**



**Watch Video Solution**

25. \_\_\_\_protects the end of the chromosomes from damage.

A. Satellite

B. Kinetochore

C. Primary constriction

D. Telomere

**Answer: D**



**Watch Video Solution**

**26.** Which is not a pyrimidine base?

A. Cytosine

B. Uracil

C. Guanine

D. Thymine

**Answer: C**



**Watch Video Solution**

27. Which type of DNA was described by Watosn & Crick ?

A. Z-DNA

B.  $\alpha$ -DNA

C. B-DNA

D. A-DNA

**Answer: C**



**Watch Video Solution**

**28.** According to Chargaff's rule, the hydrogen bonding between adenine and thymine is \_\_\_

A. 2

B. 3

C. 4

D. Nil

**Answer: A**



**Watch Video Solution**

**29.** The first clear crystallographic evidence for helical structure of DNA was produced by \_\_\_\_

A. Maurice Wilkins

B. Rosalind Franklin

C. Francis Crick

D. Chargaff

**Answer: B**



**Watch Video Solution**



30. According to Chargaff's rule,  $A:T=G:C=$ \_\_\_

A. 0

B. 1

C.  $> 1$

D.  $< 1$

**Answer: B**



**Watch Video Solution**

**31.** A complete turn of the helix comprises

.....

A. 34nm

B. 3.4nm

C. 20nm

D. 2nm

**Answer: B**



**Watch Video Solution**

32. Diameter of DNA helix is \_\_\_\_

A. 34Å

B. 20 nm

C. 34nm

D. 20Å

**Answer: D**



**Watch Video Solution**

33. RNA is \_\_\_\_

- A. Single stranded and stable
- B. Single stranded and unstable
- C. Double stranded and stable
- D. Double stranded and unstable

**Answer: B**



**Watch Video Solution**

**34.** rRNA constitutes \_\_\_\_ of total RNA.

- A. 0.2

B. 0.7

C. 0.8

D. 0.15

**Answer: C**



**Watch Video Solution**

**35.** Shape to the ribosomes is provided by \_\_\_\_\_

A. rRNA

B. tRNA

C. mRNA

D. DNA

**Answer: A**



**Watch Video Solution**

**36. Which RNA is also called as soluble RNA?**

A. rRNA

B. tRNA

C. mRNA

D. ssRNA

**Answer: B**



**Watch Video Solution**

**37. Which is the left-handed DNA?**

A. B-DNA

B. A-DNA

C. Z-DNA

D. dsDNA

**Answer: C**



**Watch Video Solution**

**38.** Which of the following does not contain cell wall?

A. Fungi

B. Bacteria

C. Mycoplasma

D. Algae



**Answer: C**



**Watch Video Solution**

**39.** The amino acid which is both an acid and a base is called \_\_\_\_

- A. Amphibolic
- B. Amphoteric
- C. Amphipathetic
- D. Anabolic

**Answer: B**



**Watch Video Solution**

**40. \_\_\_\_** leads to the loss of 3D structure of protein.

A. Annealing

B. Extension

C. Denaturation

D. Polymerisation

**Answer: C**



**Watch Video Solution**

**41.** Which of the following polysaccharides is used as solidifying agent in culture medium?

A. Inulin

B. Heparin

C. Agar

D. Keratan sulphate

**Answer: B**



**Watch Video Solution**

**42. Which is an anticoagulant?**

A. sucrose

B. fructose

C. glucose

D. maltose

**Answer: B**



[Watch Video Solution](#)

## Additional Questions Solved Very Short Answer Type Questions

1. Define cell pool and mention its constituents.



[Watch Video Solution](#)

2. Draw the molecular structure of water.





3. Point out the percentage of water in human cell & a plant cell.

A. Water makes upto 70% of human cell  
and upto 95% of mass of a plant cell.

B.

C.

D.

**Answer:**



**Watch Video Solution**

**4. What are metabolites?**



**Watch Video Solution**

**5. Write the molecular formula for cabohydrates?**



**Watch Video Solution**

6. Give an example for simple sugar with its formula.



**Watch Video Solution**

7. Which type of sugar does sucrose belong to? Write its monomer units.



**Watch Video Solution**

8. Classify polysaccharides based on function.





**Watch Video Solution**

**9. What are Glycans?**



**Watch Video Solution**

**10. Which is a common storage polysaccharide made up of repeated units of amylose and amylopectin.**



**Watch Video Solution**

**11.** Which is an animal starch? Where can we see it in our body?



**Watch Video Solution**

**12.** Why oil does not get mixed if added with water?



**Watch Video Solution**

**13.** How saturated fatty acids differ from unsaturated fatty acids?



**Watch Video Solution**

**14.** How waxes are formed?



**Watch Video Solution**

**15.** Amino acids are amphoteric in nature.  
Explain.



**Watch Video Solution**

**16.** name the various groups attached to the 4 valencies of carbon in an amino acid.



**Watch Video Solution**

**17.** Where the peptide bond is formed?



**Watch Video Solution**

**18.** Which was the first sequenced protein?

Who had done it?



**Watch Video Solution**

**19.** Why proteins undergo conformational changes after its synthesis?



**Watch Video Solution**

**20.** Explain different levels of protein organization.



**Watch Video Solution**

**21.** Define enzymes.



**Watch Video Solution**

**22.** Name any four factors that affect enzyme reactions.



**Watch Video Solution**

**23.** What are inhibitors? Mention its types.



**Watch Video Solution**

**24.** Differentiate Apoenzyme from Holoenzyme.



**Watch Video Solution**

**25.** What is a prosthetic group?



**Watch Video Solution**

**26.** Draw a diagram showing the various components of enzymes.



**Watch Video Solution**

**27.** Write a note on Ribozyme.



**Watch Video Solution**



**28.** Give an example for following enzyme groups.



**Watch Video Solution**

**29.** Write is a nculeoside?



**Watch Video Solution**

**30.** What is a nucleoside?



**Watch Video Solution**

**31.** What is a nucleotide?



**Watch Video Solution**

**32.** Name the two types of purines and pyrimidines.



**Watch Video Solution**

**33.** How DNA differs from RNA?



**Watch Video Solution**

**34.** Draw a simple diagram showing basic components of DNA.



**Watch Video Solution**

**35.** Which is the secondary structure of DNA?  
Who discovered it ?



**Watch Video Solution**

**36.** State Chargaff's rule.



**Watch Video Solution**

**37.** Name the three forms of DNA.



**Watch Video Solution**

**38.** Which is the soluble forms of RNA. Write the percentage composition of total RNA.



**Watch Video Solution**

**39.** What are the three types of RNA?



**Watch Video Solution**

**40.** Draw the structure of transfer RNA.



**Watch Video Solution**

**Additional Questions Solved Short Answer Type Questions**

## 1. 1. Differentiate

(a) Kwashiorkor from Marasmus

(b) Macronutrients from micronutrients



**Watch Video Solution**

2. Tabulate the various cellular components with their percentage.



**Watch Video Solution**

3. List out the properties of Water.



**Watch Video Solution**

4. How lattice formation occurs in water molecule?



**Watch Video Solution**

5. Differentiate Primary metabolites and Secondary metabolites .



**Watch Video Solution**

**6. What is polymerization?**



**Watch Video Solution**

**7. Explain the bond formation in sucrose molecule.**



**Watch Video Solution**



**8.** How will you identify the presence of starch in a food sample.



**Watch Video Solution**

**9.** Write a note on steroids.



**Watch Video Solution**

**10.** Draw the structure of basic amino acid.



**Watch Video Solution**

**11.** What is a Zwitterion ? Or what is an isoelectronic point?



**Watch Video Solution**

**12.** Write briefly about denaturation.



**Watch Video Solution**

**13.** Why do some people have curly hair.



**Watch Video Solution**

**14.** Write a note on RUBISCO.



**Watch Video Solution**

**15.** Differentiate Anabolic reaction and Catabolic reaction.



**Watch Video Solution**

**16.** What are allosteric inhibitors?



**Watch Video Solution**

**17.** Explain in brief about End-product inhibitor.  
(Negative Feedback Inhibition)



**Watch Video Solution**

**18.** Draw the structure of Purine & Pyrimidine.



**Watch Video Solution**

**19.** Why the sugar in DNA is a deoxyribose?



**Watch Video Solution**

**20.** How is dinucleotide formed?



**Watch Video Solution**

**21.** Compare Plectonemic & Paranemic Coiling.



**Watch Video Solution**

22. Distinguish monocistronic and polycistronic gene.



**Watch Video Solution**

23. Write about proteins



**Watch Video Solution**

24. How do herbivores digest cellulose?



**Watch Video Solution**

**25.** \_\_\_\_ test is used as an indicator of the presence of protein.



**Watch Video Solution**

**26.** Write a short note on peptide bond.



**Watch Video Solution**

27. Which was the first alkaloid discovered?



**Watch Video Solution**

## Additional Questions Solved Long Answer Type Questions

1. How do you test for glucose in food ?



**Watch Video Solution**



2. Write a note on various levels of protein organisation.



**Watch Video Solution**

3. Write down the properties of enzymes.



**Watch Video Solution**

4. Draw a Flow Chart depicting the Carbohydrate Classification.



**Watch Video Solution**

5. Name the types of chemical bonding in proteins.



**Watch Video Solution**

6. Explain lock and key mechanism.



**Watch Video Solution**

7. What are non-competitive inhibitors?



**Watch Video Solution**

8. Give a detailed account on Enzyme Co-factors.



**Watch Video Solution**

9. Tabulate the various features of different forms DNA.



[Watch Video Solution](#)

**10.** Compare DNA with RNA.



[Watch Video Solution](#)

**Additional Questions Solved Higher Order Thinking Skills**

**1.** In which form does the glucose is stored in animal cells? Specify the cells?



[Watch Video Solution](#)

2. Enumerate the main differences between DNA and RNA.



**Watch Video Solution**

3. Aminoacids are the monomers of proteins. Similarly mention the monomers of nucleic acids along with its composition.



**Watch Video Solution**

4. Complete the equations. (a) Nitrogen base + ..... = Nucleoside. (b) ..... + nucleoside = Nucleotide. (c) Glucose + fructose = ..... .



**Watch Video Solution**

5. What happens if the sucrose is hydrolysed?



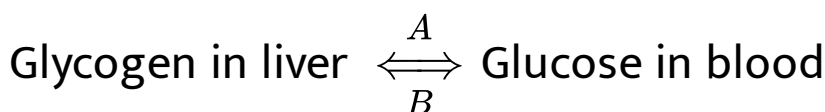
**Watch Video Solution**

6. Name the types of bonds. (a) between amino acids of protein (b) Between carboxyl group and glycerol of fatty acids and (c) Between glucose units of cellulose.



**Watch Video Solution**

7. Study the following equation and name the reaction A and B.



**Watch Video Solution**

8. Whether waxes are found in living organisms?



**Watch Video Solution**

9. If dsDNA has 40% Guanine. Calculate the percentage of Adenine.



**Watch Video Solution**



**10.** In an Eukaryotic cell, totally there are 10000 RNA molecules. Calculate the number of mRNA's and tRNA's if the count of rRNA is 8000.



**Watch Video Solution**

**11.** Despite made of two different monomers amylose and amylopectin, starch is a homopolysaccharide-Comment.



**Watch Video Solution**

**12.** How do you call a fatty acid as saturated or unsaturated?



**Watch Video Solution**

**13.** Enzymes are biocatalysts -Justify.



**Watch Video Solution**

**14.** Starch, cellulose, glycogen and chitin are polysaccharides found among the following. Choose the one appropriate and write against each.

(a) Cotton fibre-\_\_\_\_

(b) Exoskeleton of ant-\_\_\_\_

(c) Liver-\_\_\_\_

(d) Peeled potato-\_\_\_\_



**Watch Video Solution**

**15.** Sucrose is a non reducing sugar. Justify.



**Watch Video Solution**

**16.** A DNA segment has a total of 1000 nucleotides, out of which 240 are adenine containing nucleotides. How many pyrimidine bases this DNA segment possess?



**Watch Video Solution**