

St. Joseph's Degree College

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SUBJECT-COURSE-I

UNIT- 4- Cell biology, Genetics and Evolution

MULTIPLE CHOICE QUESTIONS:

1.What is a cell?

- (A). Smallest and advanced unit of life (B). Smallest and basic unit of life
(C). Largest and basic unit of life (D). Largest and advanced unit of life

2.Who proposed the cell theory?

- (A). Robert Hooke (B). Schwann and Schleiden
(C). Darwin and Wallace (D). Watson and Crick

3.Cell wall is found around the

- (A). Prokaryotic cells (B). Algal cells
(C). Plant cells (D). All the above

4.All the following statements are true regarding the cell theory except

- (A). All living things or organisms are made of cell (B). All cells arise spontaneously
(C). Cell is the basic structural and functional unit of life (D). All cells arise from preexisting cell

5. Which of the following cell organelles is absent in animal cells and present in a plant cell?

- (A) Cell wall (B) Cytoplasm
(C) Vacuoles (D) Mitochondria

6. Which of the following cell organelles does not contain DNA?

- (A) Nucleus (B) Lysosomes
(C) Chloroplast (D) Mitochondria

7.Which of the following cell organelles is called the powerhouse of the cell?

- (A) Nucleus (B) Lysosomes
(C) Chloroplast (D) Mitochondria

8.Which of the following cell organelles is called a suicidal bag?

- (A) Lysosomes (B) Golgi bodies
(C) Cell membrane (D) Mitochondria

9. Which of the following cell organelles is absent in prokaryotic cells?

- (A) Nucleus (B) Lysosome
(C) Endoplasmic Reticulum **(D) All of the above**

10. Which of the following cell organelles is involved in the storage of food, and other nutrients, required for a cell to survive?

- (A) Vacuoles (B) Lysosome
(C) Mitochondria (D) Cell membrane

11. Which of the following statements is true about chromosomes?

- (A) It is present within the nucleus (B) It carries genes and helps in inheritance
(C) It is composed of DNA in the form of Chromatin and protein (D) All of the above

12. Which of the following is a single membrane-bound organelle?

- (A) Vacuole (B) Golgi Apparatus
(C) Endoplasmic Reticulum (D) All of the above

13. Which of the following statements is true about the Nucleus?

- (A) It is absent in prokaryotes (B) It is called the brain of the cell
(C) It contains DNA and other genetic materials. (D) All of the above

14. The function of the centrosome is

- (A) Formation of spindle fibres (B) Osmoregulation
(C) Secretion (D) Protein synthesis

15. Who is known as the "Father of Genetics"?

- (A). Mendel (B). Morgan
(C). Bateson (D). Watson

16. Which of the following most accurately describes the central dogma of biology?

- (A) RNA to protein to DNA (B) Protein to RNA to DNA
(C) DNA to protein to RNA (D) DNA to RNA to protein

17. Which of the following best illustrates the central dogma of biology in terms of how a cell makes **proteins**?

- (A) DNA → Transcription RNA → Translation Protein (B) RNA → Transcription DNA → Translation Protein
(C) DNA → Translation RNA → Transcription Protein (D) DNA → Replication DNA → Translation Protein

18. In which phase protons are synthesized which are necessary for chromosomes manipulation.

- (A). G₁ (B). G₂
(C). 0 (D). G₀

19. The length of Eukaryotic cycle is

- (A). 24h (B). 48h
(C). 72h (D). 96h

20. Small structure in the chromosome marked by a constriction which is a permanent structure.

- (A). Centrosome (B). Centromere
(c). Telomere (D). Chromatid

21. Who was the first person to observe the chromosomes?

- (A) Fleming (B) Waldeyer
(C) Strasburger (D) Hofmeister

22. A prokaryotic cell differs from eukaryotic cell due to lack of

- (A). Nucleolus (B). Nuclear membrane
(C). Membrane bound cell organelle **(D). All of the above**

23. The theory of abiogenesis is also known as

(A). Germplasms theory **(B).** Theory of spontaneous generations

(C). Theory of panspermia (D). Oparin-Haldane theory

24. Theory of origin of life was proposed by

(A) Tansley **(B) Oparin**

(C) Darwin (D) Malthus

25. The first experiment regarding the evolution of life was performed by

(A) Watson and Crick (B) Oparin and Haldane

(C) Urey and Miller (D) Meselson and Stahl

26. Which was the first catalytic molecules during evolution of life.

(A) DNA (B) rRNA

(C) tRNA (D) mRNA

27. During DNA replication the synthesis of the leading strand of DNA results in fragments known as

(A). Okazaki fragments (B). Satellite segments

(C). Kornberg segment (D). Double-helix segment

28. Which of the following base-pairing rule is correct?

(A). Adenine with guanine and thymine with cytosine (B). DNA base pairing is non-specific

(C). Adenine with cytosine and guanine with thymine (D). Adenine with thymine and guanine with cytosine

29. Which of the following processes does not occur in prokaryotes?

(A) . Transcription **(B). Splicing**

(C) . Translation (D) . Replication

30. Which enzyme is used to join nicks in the DNA strand?

(A). Primase (B). DNA polymerase

(C). DNA ligase (D). Endonuclease

FILL IN THE BLANKS

1. _____ is a jelly like substance found floating inside the plasma membrane.
2. _____ is the study of the cell, its types, structure, functions and its organelles.
3. _____ is involved in the synthesis of phospholipids.
4. The term chromosome was coined by _____
5. The thread-like structures, which appear inside the nucleus at the time of cell division, are called _____.
6. Chromatin is made up of _____
7. What is the central dogma of biology? _____
8. Human have 23 pairs of chromosomes in their cells, of which _____ are autosomes
9. When did Life originate on earth _____
10. Chromatin fibre is made up of DNA and _____

TRUE/FALSE

1. Cell wall of a plant cell is a living structure.
2. Plant cells are bounded by a wall composed of cellulose.
3. A nucleus is smaller than a chloroplast.
4. Unicellular organisms have one-celled body.
5. Genes are the number of chromosomes determine the characteristics of a species.
6. Replication of DNA ends are carried out by polymerase.
7. Multiple copies of RNA could be formed at the same time
8. Plant cells are bounded by a wall composed of cellulose.
9. Cells are the building blocks of all living things.
10. Plants and animals have the same type of cells.

MATCH OF THE FOLLOWING:

Column-I	Column-II
A). Smooth endoplasmic reticulum	i. Amoeba
B). Lysosome	ii. Nucleus
C). Nucleoid	iii. Bacteria
D). Food vacuoles	iv. Detoxification
E). Chromatin material and nucleolus	v. Suicidal bag

Answers: A=iv ,B=v ,C=iii ,D=i,E=ii

Column-I	Column-II
A). Genetics	i). Single set of chromosomes
B). Gene	ii). Heredity and variations.
C). Haploid	iii). Units of inheritance
D). Allele	iv). Factors which control contrasting expression of a character

Answers: A=ii ,B=iii, C= i ,4D=iv

VERY SHORT QUESTIONS

1. The study of the structure and composition of cells is called?
2. What is the functional unit of the chromosome?
3. Pigments containing bodies that are bounded by the membrane are called?
4. Food substances are digested with the help of enzymes that are present in?
5. Name an Organelle which serves as a primary packaging area for molecules that will be distributed throughout the cell?
6. Name an organism that contains a single chromosome and cell division occurs through fission or budding?
7. Who were the first to suggest that one strand of DNA might act as a template for the synthesis of its complementary strand?
8. What is the major type of RNA produced in the cell required for translation?
9. Which is the most important element for origin of life?
10. According to spontaneous generation, life originated?

KEY

MULTIPLE CHOICE QUESTIONS:

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

BLANKS

1. **Cytoplasm**
2. **Cell Biology**
3. **Smooth Endoplasmic Reticulum**
4. **Waldeyer**
5. **Chromosomes**
6. **DNA, RNA and proteins**
7. **DNA-RNA-Protein**
8. **22**
9. **Billion years ago**
10. **histone proteins**

TRUE/FALSE

1. False
2. True
3. False
4. True
5. False

6. False

7. True

8. True

9. True

10. False

VSQ ANSWERS

1. Cytology

2. Gene

3. Plastids

4. Lysosomes

5. Golgi apparatus

6. Prokaryotes

7. Watson and crick

8. rRNA

9. Carbon

10. Only spontaneously

