

Class-11th- Test
Cell Cycle & division { Meiosis } & Biomolecules

M.M-35

TIME-1.5 HR

SECTION A

Multiple Choice Questions

[1X 10=10]

1. Lecithin is a

- (a) sterol
- (b) glycolipid
- (c) phospholipid
- (d) sphingolipid

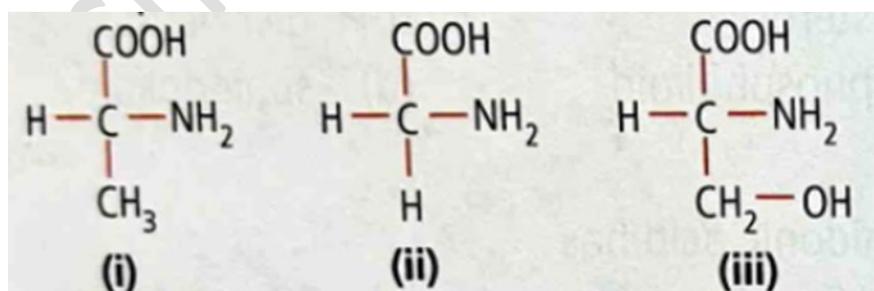
2. Cytidine is a

- (a) nitrogenous base
- (b) nucleoside
- (c) nucleotide
- (d) nucleic acid

3. Arachidonic acid has

- (a) 16 carbon atoms
- (b) 18 carbon atoms
- (c) 20 carbon atoms
- (d) 22 carbon atoms

4. Identify the amino acids given below and select the correct option



- (a) Glycine Serine Alanine
- (b) Alanine Glycine Serine
- (c) Alanine Serine Glycine

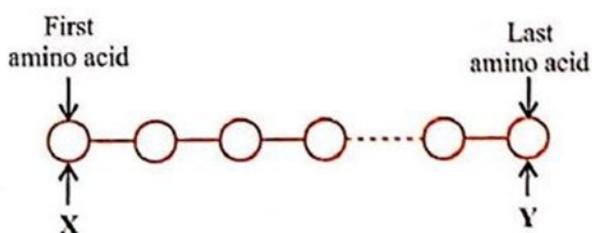


(d) Serine Alanine Glycine

5. Purines have nitrogen atoms at ____ positions.

- (a) 1', 3', 7', 9'
- (b) 1', 5', 7', 9'
- (c) 1', 3'
- (d) 1', 9'

6. Identify X and Y in the given sequence.



- (a) N-terminal amino acid, C-terminal amino acid
- (b) N-terminal amino acid, N-terminal amino acid
- (c) C-terminal amino acid, N-terminal amino acid
- (d) C-terminal amino acid, C-terminal amino acid

7. Meiosis consists of

- (a) Two cell divisions without any DNA replication
- (b) Two cell divisions in which chromosome number is reduced to half
- (c) Two cell divisions with only two rounds of chromosome replication
- (d) A single cell division with chromosome replication

8. An anther has 1200 pollen grains. How many PMCs must have been there to produce them?

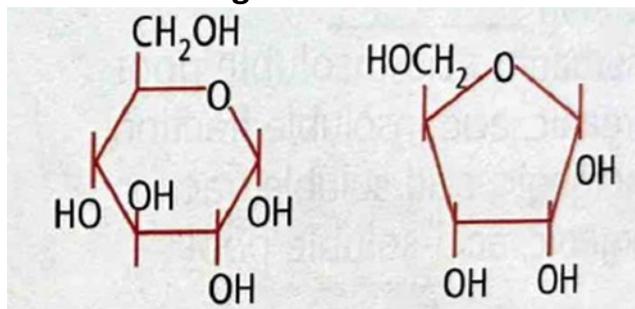
- (a) 1200
- (b) 300
- (c) 150
- (d) 2400

9. Zygotene of prophase I is characterised by

- (a) Formation of chiasmata
- (b) Synaptonemal complex
- (c) Crossing over
- (d) Terminalisation of chiasmata



10. Which of the following options correctly identifies the structural formulae shown in figure?



- | | |
|--------------|-------------|
| A | B |
| (a) Fructose | Ribose |
| (b) Glucose | Deoxyribose |
| (c) Glucose | Ribose |
| (d) Glucose | Fructose |

SECTION – B

[2X3= 6]

11. Define Zwitter ion .& draw its chemical structure.

12. What is apoenzyme ?

13. Define Interkinesis phase.

SECTION-C

[3X 3= 9]

14. How substrate concentration affect the velocity of enzyme reaction ?

15. Describe Metaphase -I of Meiosis & also discuss how it is different from Metaphase of Mitosis ?

16. What are lipids ? Classify them.

SECTION-D

[5X1= 5]

17. Write about Prophase-I of Meiosis in details with diagram.

CASE STUDY

[1X5= 5]

18. The production of offspring by sexual reproduction includes the fusion of two gametes, each with a complete haploid set of chromosomes. Gametes are formed from specialised diploid cells. This specialised kind of cell division that



reduces the chromosome number by half results in the production of haploid daughter cells. This kind of division is called meiosis. Meiosis ensures the production of haploid phase in the life cycle of sexually reproducing organisms whereas fertilisation restores the diploid phase. We come across meiosis during gametogenesis in plants and animals. This leads to the formation of haploid gametes. The key features of meiosis are as follows:

Meiosis involves two sequential cycles of nuclear and cell division called meiosis I and meiosis II but only a single cycle of DNA replication.

Meiosis I is initiated after the parental chromosomes have replicated to produce identical sister chromatids at the S phase.

Meiosis involves pairing of homologous chromosomes and recombination between non-sister chromatids of homologous chromosomes.

Four haploid cells are formed at the end of meiosis II. Meiotic events can be grouped under the following phases:

Meiosis 1 – Prophase 1 – Metaphase 1 – Anaphase 1 – Telophase 1

Meiosis 1 – Prophase 2 – Metaphase 2 – Anaphase 2 – Telophase 2

1.) Progeny or offspring produced by fusion of two gametes, each gametes contains _____ set of chromosomes.

- a) Diploid
- b) Haploid
- c) Triploid
- d) Both a and b

2.) Identify incorrect statement

Statement 1 – Gametes are formed from diploid cells.

Statement 2 – Sexual reproduction includes the fusion of two gametes.

Statement 3 – Meiosis across during gametogenesis in plants and animals.

Statement 4 – Meiosis involves three sequential cycles i.e. prophase, anaphase, telophase

- 1.) Only 1
- 2.) Both 3 & 4
- 3.) Only 4
- 4.) None of the above



- 3.) Define meiosis.
- 4.) Enlist the cycles involved meiosis.
- 5.) Explain the key features of meiosis? Name the Meiotic events.

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