2022

ZOOLOGY

(Honours)

Paper Code : VI - A & B

[Cell Biology & Genetics]

(New Syllabus)

Full Marks : 50   Time : Two Hours

Paper Code : VI - A

(Marks : 10)

Choose the correct answer.

Each question carries 1 Mark.

1. At metaphase, chromosomes are attached to the spindle fibres by their —

    (A) Centromere

    (B) Satellite

    (C) Secondary constriction

    (D) Kinetochore

2. In electron transport system the final acceptor is —

    (A) Cytochrome b

    (B) Cytochrome c

    (C) Ubiquinone

    (D) Oxygen

3. All are membrane bounded cell organelles except —

    (A) Mitochondria

    (B) Spherosomes

    (C) Ribosomes

    (D) Lysosomes

4. Which cell organelle is involved in apoptosis?

(A) Lysosome

(B) ER

(C) Golgi

(D) Mitochondria

5. Lysosomes are produced by which of the following cell organelles?

(A) Mitochondria

(B) Endoplasmic Reticulum

(C) Golgi Complex

(D) DNA

6. Which of the following may not apply when the gene controlling two different traits are located on same chromosome ?

(A) Law of segregation

(B) Incomplete dominance

(C) Law of dominance

(D) Law of independent assortment

7. A person with the sex chromosome XXY suffers from —

(A) Gynandromorphism

(B) Klinefelter's syndrome

(C) Down's syndrome

(D) Turner's syndrome

8. Kappa particles indicate —

(A) Cytoplasmic inheritance

(B) Mutation

(C) Nuclear inheritance

(D) Nucleo-cytoplasmic inheritance

9. Which of the following is not heritable?

   (A) Point mutation

   (B) Chromosome mutation

   (C) Somatic mutation

   (D) Gene mutation

10. How many linkage groups are found in male human nuclear genome?

   (A) 23

   (B) 24

   (C) 46

   (D) 25

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Paper Code : VI - B

(Marks : 40)

The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.

Unit - I : Cell Biology

1. Answer any *two* questions : 4×2=8

   (a) Write a short note on nucleosome.

   (b) Describe the polymerization process of actin filament.

   (c) State the significance of meiotic cell division.

   (d) Briefly write on endocytosis.

2. Answer any *one* question : 12×1=12

   (a) Describe the different events of prophase-I of meiotic cell division.

   (b) What is Lamp brush chromosome? Why it is so named? Describe the structure and functions of Lamp brush chromosome. 2+2+(4+4)=12

   (c) With proper diagram describe the ultrastructure and function of Golgi apparatus. What are the functions of lysosome? 4+4+4=12

Unit - II : Genetics

3. Answer any *two* questions : 4×2=8

   (a) Explain sex-limited trait with example.

   (b) Based on ABO blood grouping explain codominance.

   (c) Write a short note on Turner's syndrome.

   (d) What is aneuploidy? Explain with an example.

4. Answer any *one* questions : 12×1=12

   (a) Describe the experiment performed by Frederick Griffith in 1928. Write the inference of that classic experiment. 10+2=12

   (b) What is chromosomal aberration? Describe the different types of structural aberration in chromosomes. 2+10=12

   (c) What is genic balance theory? Explain the process of sex determination in *Drosophila*. State the role of Y chromosome in sex determination of *Drosophila*.
   2+8+2=12

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