

**UG 3rd Semester Examination 2021**

**ZOOLOGY (Honours)**

**Paper Code : DC 5-T**

**(Cell Biology and Principles of Genetics)**

**[CBCS]**

*(The figures in the margin indicate full marks)*

Full marks: 25

Time: Two Hours

1. Answer *eight* questions taking *four* from *each* group.

$\frac{1}{2} \times 8 = 4$

**(Group A: Cell Biology)**

- (a) \_\_\_\_\_ are the cell's 'garbage disposal system' (Fill in the blank).
- (b) The membrane bound enzyme involved in Krebs cycle in mitochondria is \_\_\_\_\_ (Fill in the blank).
- (c) What is the main structural component of actin filament?
- (d) Polyribosomes are aggregation of \_\_\_\_\_ (Fill in the blank).
- (e) Mostly lysosomes are active in \_\_\_\_\_ pH. (Fill in the blank)
- (f) Condensation of chromosome with clear visible centromere occurs in \_\_\_\_\_ phase (Fill in the blank).

**(Group B: Principles of Genetics)**

- (g) Allele that can express itself only in homozygous condition is called \_\_\_\_\_ (Fill in the blank).
- (h) Mendel used the term \_\_\_\_\_ for the heredity units, which are now known as genes (Fill in the blank).
- (i) Give an example of autosomal recessive trait of Human.
- (j) 9:4:1 phenotypic ratio comes in case of \_\_\_\_\_ (Fill in the blank).
- (k) Kappa particles are involved in \_\_\_\_\_ inheritance (Fill in the blank).
- (l) Mutation occurs randomly at any location within a genome. (True/ False)

2. Answer *two* questions taking *one* from *each* group.

$2\frac{1}{2} \times 2 = 5$

**(Group A: Cell Biology)**

- (a) Differentiate active transport and facilitated diffusion.
- (b) Why cAMP is considered as second messenger?

**(Group B: Principles of Genetics)**

- (c) Give an example of lethal gene with suitable example.
- (d) With a suitable cross explain sex-influenced trait.

3. Answer *four* questions taking *two* from *each* group.

4 × 4=16

**(Group A: Cell Biology)**

- (a) Describe how clathrin coated vesicles are formed.
- (b) With proper diagram, describe the formation of microfilament.
- (c) Write a short note on endosymbiotic theory.
- (d) Illustrate the holocrine, apocrine and merocrine secretory functions of Golgi apparatus.

**(Group B: Principles of Genetics)**

- (e) What do you mean by point mutation? Explain with suitable example.
- (f) Write the role of Y chromosome in sex determination in human.
- (g) Briefly describe the criteria of extrachromosomal inheritance.
- (h) Describe and illustrate 'inversion' in chromosomal aberration.