

U.G. 3rd Semester Examination-2021

ZOOLOGY

[PROGRAMME]

Course Code : ZOOL-G-CC-T-03

Full Marks : 40

Time : 2½ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** questions: 2×5=10
 - a) Write down the difference between euchromatin and heterochromatin.
 - b) What is F₀ F₁ particle? Where does it found?
 - c) Write down the name of histone proteins found in histone octamer. Which histone protein acts as linker?
 - d) Write down the difference between spontaneous mutation and induced mutation.
 - e) What is the Mesozoic era known as?
 - f) What is pleiotropy?
 - g) What is parapatric speciation? Give example.

- h) Mention any two unique hominid characteristics contrasted with primate characteristics.

2. Answer any **two** questions: 5×2=10
 - a) What are the components of GERL system?
How does it work? 2+3=5
 - b) What is MPF? Mention its role in regulation of cell cycle. 1+4=5
 - c) A fruit fly (*Drosophila*) has the following chromosomes: 1X, 3Y and 3 sets of autosomes. What will be the sex of this fruit fly? Explain. Write down the difference between test cross and back cross. What is sex-limited inheritance? (1+1)+2+1=5
 - d) What advantages did bipedalism offered to early hominins? What were the anatomical changes introduced and perfected in human organisations for bipedalism? 2+3=5
3. Answer any **two** questions: 10×2=20
 - a) Describe point mutations with example. What is mutagen? Which kinds of mutations are most frequently induced by the UV light? Write down the difference between euploidy and aneuploidy. What is Down syndrome? 3+1+2+2+2=10

b) What do you mean by GPCR? Write down the role of second messenger in cell signaling. Write down the difference between complete linkage and incomplete linkage. Briefly explain Holliday model of crossing over.

2+3+2+3=10

c) What are different types of natural selections? Explain with example the role of stabilising selection. How would you define fitness? What is ecotype?

4+3+2+1=10

d) Write short notes on (any **four**): $2\frac{1}{2} \times 4 = 10$

- i) Oxidative phosphorylation
- ii) Cell junctions
- iii) Selection coefficient
- iv) Limitations of 'Biological species concept'
- v) Turner syndrome
