

**2020**  
**ZOOLOGY**  
**[HONOURS]**  
**Paper : V**

Full Marks : 50

Time : 2 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) What do you mean by Law of Priority?
  - b) What is metalloprotein? Give an example.
  - c) Distinguish between homonym and synonym.
  - d) Why sucrose is known as "invert sugar"?
  - e) Define peripatric speciation.
  - f) What is isoenzyme? Give examples.
  - g) What do you mean by essential fatty acid? Give example.
  - h) What is the role of H<sub>1</sub> protein in nucleosome?

2. Answer any **two** questions: 5×2=10
- a) Define Gibbs-Donnan membrane equilibrium. How pH and osmotic pressure are affected by this equilibrium? 1+2+2=5
  - b) What is RB protein? How RB influences the eukaryotic cell cycle?
  - c) What do you mean by "taxonomic type"? Define primary type. Distinguish between "holotype" and "Neotype". 1+2+2=5
3. Answer any **three** questions: 10×3=30
- a) What do you mean by K<sub>m</sub> and V<sub>max</sub>? Briefly describe the Michaelis-Menten equation of enzyme kinetics. How do enzyme action vary with change in temperature? 2+5+3=10
  - b) Distinguish between A-DNA and Z-DNA. Describe the ultrastructure of Eukaryotic chromosome with the help of nucleosome model. 2+8=10
  - c) What is MPF? Describe the role of MPF in mitosis cell division. State the features of G<sub>0</sub> state. 1+6+3=10
  - d) Why biological species concept is more accepted than typological species concept?

State the limitations of biological species concept. State the salient rules of binomial nomenclature.

$$2+4+4=10$$

- e) Distinguish the inner and outer membranes of mitochondria in respect to structure and function. What is GERL region and synaptonemal complex? Write down the chemical composition of plasma membrane.

$$2+(2+3)+3=10$$

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