

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. SIXTH SEMESTER EXAMINATION, JULY 2021

THIRD YEAR [BATCH 2018-21]

ZOOLOGY (HONOURS)

PAPER : XI

Date : 13/07/2021

Time : 11 am – 2 pm

Full Marks : 75

## Answer all the questions

### Group - A

1. Enumerate how 'Systematics' may be instrumental to address serious issues in pest management & epidemiology. [2.5+2.5]
2. "Incipient species provides an illustration of nearly all stages in a speciation process" – justify with reasons.  
Distinguish between Microtaxonomy & Macrotaxonomy. [3+2]
3. "Geographic isolates may finally evolve as a new species" – elaborate. [5]
4. Why the 'Law of Priority' is considered important in 'Binomial Nomenclature'?  
Differentiate between Paratype & Lectotype. [4+1]

### Group - B

5. Why COI is largely used as a barcoding marker?  
How DNA barcoding is different from that of DNA sequencing?  
What is "TaxI"? [2+2+1]
6. State one anatomical and one physiological character developed in sloth bear?  
"Adaptive radiation takes its origin from negative interaction" - justify.  
What is water cell? [2+2+1]
7. Although being poikilotherm, how does lizard cope up with the fluctuating desert environment?  
"It is not justified to call *Archaeopteryx* as the true ancestor of modern bird" - justify.  
Mention one feature of *Homo sapiens* absent in *Homo sapiens sapiens*. [2+2+1]

### Group - C

8. Elaborate how the mechanism of bottleneck effect may lead to the i) variation of the allele frequency and ii) speciation. [2.5+2.5]
9. A small group of exogenous fish (a fish from a foreign land) has been introduced into a river. How and at what condition may it impact the alleles and genotype frequency of the endogenous fish population (if at all)?  
How does allopatric and sympatric speciations differ? [3.5+1.5]

### **Group – D**

10. Compare bathymetric and discontinuous distributions with suitable examples.

Describe the impact of geographical barriers on animal distribution. [2+3]

11. What is Wallace line?

Write down the avian and mammalian faunal distributions in Ethiopian and Oriental realms. [1+(2+2)]

12. Compare instinctive and learning behaviours.

What is queen substance?

Write down the characteristics of eusociality. [2+1+2]

13. What is alloparental care?

Describe the parental care found in sea horse.

What is parent offspring conflict? [1+2+2]

14. Define kin selection.

What is the significance of waggle dance in honey bee? [2+3]

### **Group – E**

15. Differentiate between arrhenotoky and deuterotoky.

Why parthenogenesis is very common in insect?

What is vavilovian mimicry? [2+2+1]

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