

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. SIXTH SEMESTER EXAMINATION, JUNE 2022

THIRD YEAR [BATCH 2019-22]

ZOOLOGY (HONOURS)

Paper : XIII [CC13]

Date : 17/06/2022

Time : 11 am – 1 pm

Full Marks : 50

Answer **any five** questions:

[5×2]

1. a) Compare between sympatric and allopatric speciations.
b) What is hot dilute soup?
c) What is RNA world hypothesis?
d) Differentiate between Directional and Disruptive Selections with examples.
e) Write a short note on Bathymetric Distribution.
f) State the role of hallux in the evolution of bird.
g) Comment of 'evo-devo-epi' concept.
h) Distinguish between Microtaxonomy & Macrotaxonomy.
i) What is population systematics?

Answer **any four** questions :

[4×10]

2. a) What is allele frequency? How it is calculated?
b) What are founder effect and population bottleneck? How can they influence allele frequency?
c) What are the factors that influence Hardy-Weinberg equilibrium?
d) Which factors suggest that RNA is evolutionarily 'older' than DNA? [2+3+2+3]
3. a) "The contribution of Linnaeus was unique for correct identification of organisms" – justify with reasons.
b) Why 'Upward Classification' could not become a good supplement to the 'Downward' one?
c) Elaborate whether 'Incipient Species' escalates the process of speciation or not.
d) What is 'Deme'? [3+3+3+1]
4. a) In which books of Lamarck and Darwin respectively did they hypothesize their theories on evolution and write down the major differences between Lamarckism and Darwinism.
b) What is modern synthetic theory and how is this different from Darwinism?
c) Define Stabilizing Selection. Give a suitable example. [5+3+2]
5. a) Why did the 'Evolutionary Species Concept' fail to explain the reasons & existence of discontinuities between contemporary species?
b) "All living organisms are not biological species" – justify with reasons.
c) Why 'Isolation' is considered as a good factor for 'Speciation'? [3+4+3]

6. a) What are the zoogeographical realms according to the Wallace Scheme and write down their climatic conditions?
b) What are climatic barriers? How does it affect animal distribution?
c) What are Continuous, Bipolar and Discontinuous distributions? [4+3+3]
7. a) Briefly state the flow process of DNA barcoding.
b) Differentiate between adaptation and mutation.
c) Comment on the evolution of primate to human with reference to locomotion and hand structure.
d) Name two significant adaptive characters of sloth bear related to arboreal adaptation. [3+2+3+2]
8. a) Do you consider *Archaeopteryx* as the true ancestor of bird? Comment on your justification.
b) Mention two important anthropological characters of *Ardipithecus*.
c) Mention two adaptive characters of desert dwelling lizard for sustaining in fluctuating temperature in desert.
d) Mention two anatomical and two physiological adaptive characters of camel in relation to xeric adaptation. [3+2+2+3]

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