REV-01
BSZ/32/37

2023/06

SET A

B.Sc. ZOOLOGY
SIXTH SEMESTER
EVOLUTIONARY BIOLOGY
BSZ-602

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. Full Marks: 70

Objective

Time: 30 mins. Marks: 20

Choose the correct answer from the following: *1×20=20*

1. An intermediate form of life formed out of combination of nucleic acids and other macromolecules is called:
   a. Co-existants b. Protists
   c. Co-acervates d. Protobionts

2. As per Oparin and Haldane, the presence of _____prevented evolution of life during spontaneous generation of life.
   a. Oxygen b. Nitrogen
   c. Methane d. Carbon dioxide

3. The condensation and polymerization of hydrocarbons led to formation of_____ as final product.
   a. Ethylene b. Acetaldehyde
   c. Sugar d. Methane

4. The evolution of eukaryotes from prokaryotes cannot be justified from:
   a. Presence of DNA-RNA in both b. Presence of 20 amino acids in both
   c. Presence of D amino acids and L sugars in both d. Presence of ribosomes in both

5. The discovery of Endosymbiotic theory in 1960 was given by:
   a. JBS Haldane b. Jan Ingenhousz
   c. Lynn Margulis d. Motoo Kimura

6. Which among these is the most common type of fossil?
   a. Petrification b. Incrustation
   c. Amber d. Impression

7. The process of photosynthesis was discovered in the year:
   a. 1779 b. 1889
   c. 1797 d. 1898

8. The total number of sense codons_____ coding for 20 amino acids.
   a. 64 b. 4
   c. 61 d. 10

9. As per Carl Woese classification, the total number of kingdoms present are:
   a. 10 b. 8
   c. 7 d. 6

10. Which among these is not a disadvantage of molecular clock?
    a. Not as smooth as neutral theory
    b. Irregular from natural selection
    c. Uncertainty of evolutionary divergence
    d. Estimation of time scales

11. Which of the following does not belong to the Hardy Weinberg principle?
    a. Frequency remained fixed through generations
    b. Used algebraic equations
    c. Allele frequency varies from species
    d. Gene pool remains a constant

12. Which of the following represents the Hardy Weinberg equation?
    a. $p^2 + q^2 = 1$
    b. $p^2 + 2pq + q^2 = 1$
    c. $p^2 + q^2 = 0$
    d. $(p^2 + q^2)^2 = 1$

13. Gene drift occurs when gene migration occurs_____.
    a. By chance
    b. Spontaneously
    c. Slowly
    d. Due to disaster

14. In which theory of speciation does a new species emerge from within the geographic range of its ancestor?
    a. Allopatric speciation
    b. Parapatric speciation
    c. Sympatric speciation
    d. Peripatric speciation

15. What stops a new chromosome variant appearing as a unique mutation from increasing in frequency?
    a. It is because polyploidy is a rare process
    b. It will interbreed with majority form causing heterozygotes to be inferior
    c. Allopatric speciation does not necessitate reinforcement
    d. All of these

16. Which of the following is included in the concept of genetic bottlenecks?
    a. A loss of genetic diversity in descendent populations
    b. Sharing genetic material between two populations
    c. Extensive gene flow
    d. Increased ability to resist new diseases

17. What happens when alien species are introduced unintentionally or deliberately?
    a. Decrease of alien species
    b. Increase in habitat
    c. They turn invasive and cause increase species
    d. They turn invasive and cause decline or extinction of indigenous species

18. Man belongs to the super family_____.
    a. Hominidae
    b. Hominoidae
    c. Primates
    d. Mammalia

19. What did Darwin explain in his book "The descent of man"?
    a. Ancestry of man
    b. Evolution of organism
    c. Origin of life
    d. Production of man

20. Rhesus monkey belongs to_____.
    a. New world monkeys
    b. Old world monkeys
    c. Parallel world monkeys
    d. Future world monkeys

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Descriptive

Time : 2 hr. 30 mins. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1.	What is genetic code? Explain the various types and functionaries of genetic code.	2+8=10
2.	Discuss in detail about the origin of photosynthesis.	10
3.	Discuss Darwin's theory of evolution and Neo-Darwinism aspects related to it with suitable examples.	10
4.	What are fossils? Elucidate the different types of fossils based on fossilization process.	2+8=10
5.	What is mass extinction? Explain the different mass extinctions that have occurred.	2+8=10
6.	How do you differentiate between Ape and *Australopithecus*? Explain the evolutionary lineage for the Genus *Australopithecus*.	10
7.	How speciation does occur? Explain the different types of Isolation mechanisms that play active role in speciation.	10
8.	In a population that is in Hardy-Weinberg equilibrium, 38% of the individuals are recessive homozygotes for a certain trait. In a population of 14,500, calculate the percentage of homozygous dominant individuals and heterozygous individuals.	10

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