

B.Sc. ZOOLOGY
SIXTH SEMESTER (SPECIAL REPEAT)
EVOLUTIONARY BIOLOGY
BSZ-602

(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs.

Full Marks : 70

[PART-A: Objective]

Time : 20 min.

Marks : 20

Choose the correct answer from the following:

1X20=20

- Which statement explains Neo-Darwinism?
 - Without mutation there can be no evolution
 - Natural force is the only and supreme force in evolution
 - Evolution occurs because there is struggle for existence leading to the survival of the fittest
 - Natural selection, Mendelism and Mutations work in tandem for evolution
- What did Urey-Millar experiment prove?
 - That life arose on earth through abiogenesis
 - That life could have arisen by abiogenesis
 - That life on earth have arisen through biogenesis
 - That life on earth have not arisen through abiogenesis
- "Speciation is not due to selection of advantageous genotypes but elimination of deleterious alleles and random selection of neutral alleles." This statement was proposed by
 - Sewall Wright
 - Moto Kimura
 - Charles Darwin
 - Alfred Wallace
- First terrestrial plants appeared in
 - Cambrian period
 - Ordovician period
 - Devonian period
 - Silurian period
- The first three toed grazer is represented by
 - Eohippus
 - Hipparion
 - Merychippus
 - Pliohippus
- This type of fossil is formed by hardening of material surrounding the buried organism. Their bodies disintegrate, leaving hollow cavities. This forms the
 - Petrified fossil
 - Cast
 - Moulds
 - Trace fossil
- First reptiles appeared in which period?
 - Triassic period
 - Permian period
 - Carboniferous period
 - Cretaceous period

8. Which of the following is also known as Sewall Wright effect?
- Genetic drift
 - Mutation
 - Natural selection
 - Recapitulation theory
9. According to Oparin which of the following is not present on primitive earth?
- Methane
 - Water vapour
 - Hydrogen
 - Oxygen
10. This type of horse has lost the first and fifth digits entirely and second and fourth digits are represented by splints
- Mesohippus
 - Merychippus
 - Pliohippus
 - Equus
11. What is the bottleneck effect?
- When a new species is introduced that has a higher fitness than the native populations
 - Decrease in genetic variety due to a small number of individuals from a larger population establishing a new population
 - A decrease in genetic variety due to a sudden elimination of part of the population
 - The evolution of a new species
12. The five factors of speciation are gene flow, genetic drift, mutation, natural selection and _____.
- Sexual selection
 - Controlled mating
 - Emigration
 - Immigration
13. All of the following are important aspects of Hardy-Weinberg equilibrium EXCEPT
- Population size
 - Migration
 - Mutations
 - Temperature
14. Combined alleles of all individuals in a population is called _____.
- Phenotype
 - Gene pool
 - Mutation rate
 - Allele frequency
15. Which of the following statement is correct about a population showing evolution?
- Individual will be homozygous
 - Will not follow Hardy-Weinberg equilibrium
 - Will follow Hardy-Weinberg equilibrium
 - Individuals will be in stressful condition
16. Which of the following statements is true about Charles Darwin?
- He believed that evolution was due to the inheritance of acquired characteristics
 - He supported Lamarck's explanation of how evolution occurred
 - He understood that the variation that exists in natural populations of plants or animals is the result of repeated mutations
 - None

17. The reproductive isolating factor occurring when a sperm and an egg are incompatible is
- a. Temporal isolation
 - b. Ecological isolation
 - c. Gametic isolation
 - d. Behavioural isolation
18. First Fossil of African Ape Man was discovered by
- a. E. Dubious
 - b. Arthur Keith
 - c. Dr. Leakey
 - d. Raymond Dart
19. The surviving members of family homonidae are
- a. *Homo habilis*
 - b. *Homo erectus*
 - c. *Homo sapiens*
 - d. All the above
20. The carnial capacity of Java ape man was about
- a. 500 cc
 - b. 1000 cc
 - c. 1300 cc
 - d. 950 cc

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(PART-B : Descriptive)

Time : 2 hrs. 40 min.

Marks : 50

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

1. What is geological time scale? What are the characteristics that divide Palaeozoic era into different periods? 2+8=10
2. Write short notes on: 5+5=10
 - a. Darwinism
 - b. Role of heritable variation in evolution
3. Describe how modern horse evolved from *Hyracotherium* and *Eohippus*. 10
4. What is Chemogeny. Elaborate the concept of chemogeny in supporting the idea of origin of life. 10
5. 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
6. Write an essay on the process of speciation. 10
7. What is isolation? Describe various premating and post mating isolating mechanisms. 2+8=10
8. Give an account of phylogeny of Human. 10

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