

B.Sc. ZOOLOGY
SIXTH SEMESTER [SPECIAL REPEAT]
EVOLUTIONARY BIOLOGY
BSZ-602

SET
A

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

(Objective)

Marks: 20

Choose the correct answer from the following:

1 × 20 = 20

1. Ichthyostega is a transitional fossil of:
a. Fish & Amphibia
b. Fish & Reptile
c. Fish & Bird
d. Only Fish
2. The formation of successful eukaryotes began with.....
a. Capture of anaerobic bacteria
b. Photosynthetic activity
c. Capture of aerobic bacteria
d. All of the above
3. The total number of..... codons responds to..... amino acids for signaling for transcription initiation and termination.
a. 12, 40
b. 64, 20
c. 40, 12
d. 20, 64
4. Diastema is best described as..... in a horse.
a. Space between eyes
b. Space between ears
c. Space between teeth
d. None of the above
5. The germplasm theory was performed by.....
a. Lamarck
b. Darwin
c. Wisemann
d. Oparin
6. In Miller and Urey experiment, which among these gases was used?
a. Nitrogen and carbon dioxide
b. Methane and nitrogen
c. Carbon dioxide and oxygen
d. Only carbon dioxide
7. In the chemogeny process, which among these steps is not available?
a. Synthesis of simple organic molecules
b. Synthesis of complex polymers
c. Synthesis of simple inorganic molecules
d. Formation of nucleoproteins
8. In the history of evolution of horse, choose the correct sequence.
a. Orohippus, Pliohippus, Parahippus
b. Parahippus, Merychippus, Pliohippus
c. Mesohippus, Epihippus, Pliohippus
d. Orohippus, Miohippus, Epihippus
9. The organic compounds were the basis of life was proved by:
a. Lamarck
b. Darwin
c. Mendel
d. Miller and Urey
10. Which scientist called water of primitive sea as pre biotic soup?
a. Haldane
b. Miller
c. Mendel
d. Stevens

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. The notation p and q of the Hardy Weinberg equation represent..... of a diploid organism.
 - a. Frequency of allele p
 - b. Frequency of only allele A
 - c. Frequency of the only allele a
 - d. Frequency of allele A and a
13. Which is the correct statement regarding Founder effect?
 - a. Named after the scientist John Founder
 - b. No large change in frequency
 - c. The old population become founders
 - d. Formation of new species
14. 72 generations of *Drosophila* were kept in darkness by a scientist. Despite that, the first flies possessed eyes that were normal. This disapproves the theory of.....
 - a. Acquired characters
 - b. Synthetic theory
 - c. Natural selection
 - d. Use and disuse
15. Which of the following is true for genetic bottlenecks?
 - a. They occur when there are major environmental changes that alter natural selection so that most members of a species die before reproducing
 - b. The result is usually increased genetic diversity in a population following a genetic bottleneck
 - c. They reduce the fertility of the survivors
 - d. It is due to mutation rather than natural selection
16. The fact that South and Central American Indians are nearly 100% type O for the ABO blood system is best explained as being the result of:
 - a. Genetic drift
 - b. Natural selection
 - c. The founder principle
 - d. Migration
17. Which of the following factors lead to the development of a new species from an existing one?
 - a. Change in ecosystem
 - b. Genetic drift
 - c. Natural selection
 - d. Geographical isolation
18. Which of the following species is considered to be the root of the Hominid stalk?
 - a. *Australopithecus anamensis*
 - b. *Homo habilis*
 - c. *Ardipithecus ramidus*
 - d. *Hylobates muelleri*
19. Which of the following Ape is found in India?
 - a. *Hoolock hoolock*
 - b. *Pongo pygmaeus*
 - c. *Gorilla gorilla*
 - d. *Pan troglodytes*
20. *Australopithecus afarensis* was discovered by.....
 - a. Raymond Dart
 - b. Don Johanson
 - c. Charles Boise
 - d. Lucy Mohawk

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

1. What is speciation? What are the different types of speciation found? Describe each type with examples and diagrams. 2+6+2=10
2. Discuss in detail about the various stages of evolution of horse. 10
3. What is Lamarckism? Mention the various proposition of Lamarckism. 3+7=10
4. Write in detail about the different factors leading to natural selection of an organism. 10
5. Write a detailed note on the different types of Isolating mechanisms. 10
6. A population of cats can be either black or white; the black allele (B) has complete dominance over the white allele (b). Given a population of 1,000 cats, 840 black and 160 white, determine the allele frequency, the frequency of individuals per genotype, and number of individuals per genotype. 10
7. Describe the evolution of the Hominid stalk upto the Genus *Australopithecus*. 10
8. Write short notes on: 5+5=10
 - a) Genetic code
 - b) Transitional fossils

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