

B.Sc. ZOOLOGY
FIFTH SEMESTER (SPECIAL REPEAT)
PRINCIPLES OF GENETICS
BSZ- 502

(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 of the following role is performed by a bacteriophage in transduction?
a. Donor
b. Recipient
c. Vector
d. Episome
- The anticodon is a structure on-
a. mRNA
b. Ribosome
c. tRNA
d. rRNA
- Which of the following is not ionizing radiation?
a. X rays
b. Cosmic ray
c. α - rays
d. UV rays
- Extranuclear inheritance commonly occur in-
a. Nucleus
b. Ribosomes
c. Cytoplasmic organelles
d. Cell membrane
- Point mutation involves-
a. Deletion
b. Duplication
c. Insertion
d. Change in single base pair
- Transfer of 'DNA' from one bacterial cell to another is carried out by-
a. Conjugation
b. Transformation
c. Transduction
d. All of the above
- Law of segregation states that-
a. Allele separates during cytokinesis
b. Alleles segregates during dihybrid cross
c. Two alleles for each trait separates during meiosis
d. None of the above
- It is caused due to a recessive mutant allele on chromosome 12 (autosome) called-
a. Haemophilia
b. Pneumonia
c. Sickle cell anaemia
d. Phenylketonuria

9. Linkage is-
- | | |
|--|-------------------------------------|
| a. Physical association of two or more gen | b. Physical association of one gene |
| c. Mutation in chromosomes | d. All of the above |
10. The generation of non-parental gene combination is called-
- | | |
|------------------|---------------------------|
| a. Polyploidy | b. Independent assortment |
| c. Recombination | d. Mutation |
11. Polyploidy is the failure of-
- | | |
|--------------------------|----------------------|
| a. Meiotic cell division | b. Telophase stage |
| c. Cytokinesis | d. None of the above |
12. A system to analyze the distribution and movement of characters in the family tree is-
- | | |
|---------------|----------------------|
| a. Test cross | b. Pedigree analysis |
| c. Back cross | d. None |
13. It is an autosome linked recessive trait and is due to a mutant allele on chromosome 11
- | | |
|---------------|------------------------|
| a. Aneuploidy | b. Sickle cell anaemia |
| c. Polyploidy | d. None |
14. When IA and IB are present together, both are equally dominant and produce glycoproteins A and B and the blood group is AB. They are called-
- | | |
|-----------------------|--------------------|
| a. Multiple Allele | b. Dominant Allele |
| c. Co-dominant allele | d. All of these |
15. It is a cross between two individuals of the same species, in which the inheritance of contrasting pairs of two traits is-
- | | |
|----------------------------|-------------------|
| a. Monohybrid cross | b. Dihybrid cross |
| c. Incomplete co dominance | d. All of these |
16. Chromosome theory of inheritance was proposed by-
- | | |
|-------------------------|-----------------|
| a. Gregor Johann Mendel | b. Langdon Down |
| c. Sutton and Boveri | d. None |
17. Who discovered transposones?
- | | |
|------------------------|-----------------------|
| a. Barbara Mc Clintock | b. Frederick Griffith |
| c. Hershey and Chase | d. dColin MacLeod |

18. The killer chemical secreted by kappa particles is-
- | | |
|-------------|--------------|
| a. Secretin | b. Paramecin |
| c. Plasmon | d. Poky |
19. Splicing of RNA removes-
- | | |
|---------------------|-----------|
| a. Pallindrome | b. Exon |
| c. Poly adenyl tail | d. Intron |
20. Addition or deletion of bases causes which kind of mutation?
- | | |
|------------------|-----------------|
| a. Transcription | b. Frameshift |
| c. Transition | d. Transversion |

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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. Describe the mechanism of shell coiling in snail, *Limnaea peregra* 10
2. Define Genetic disorder. Describe the different types of Mendelian disorder. 3+7=10
3. What is Incomplete dominance? Explain with the help of example. 3+7=10
4. What is Monohybrid cross? Explain Test cross with the help of suitable example. 3+7=10
5. Discuss about the Morgan's Linkage experiment with example. 10
6. Write short note on 5+5=10
 - a. Complementation
 - b. Transposones
7. What is mutation? Explain its types. 2+8=10
8. Explain Bacterial conjugation with suitable diagram. 7+3=10

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