

M.Sc. ZOOLOGY  
SECOND SEMESTER [SPECIAL REPEAT]  
GENETICS  
MSZ-203

**SET  
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

Time: 15 mins.

Marks: 10

( Objective )

Choose the correct answer from the following:

1×10=10

- The percentage of penetrance in retinoblastoma gene is:
  - 70%
  - 90%
  - 20%
  - 50%
- 'O' blood group is carried by:
  - One dominant allele producing an antigen
  - One dominant allele producing no antigen
  - One recessive allele producing an antigen
  - One recessive allele producing no antigen
- Parents with different phenotypic characters producing an intermediate character in F1 generation is an example of:
  - Co-dominance
  - Incomplete dominance
  - Mendelian inheritance
  - None
- In butterflies, the sex determination system is:
  - XX-XO type
  - XX-XY type
  - ZZ-ZO type
  - ZZ-ZW type
- Statement I: Duplications are not deleterious.  
Statement II: Duplication is useful in evolution of new genetic material.
  - Statement I is correct but statement II is incorrect
  - Statement I is incorrect but statement II is correct
  - Both statement I and II are correct
  - Both statement I and II are incorrect
- In a diploid species (AA), autotriploidy condition would result in which of the following genotype?
  - AAA
  - AAAA
  - A
  - AAB
- Sickle cell disease is caused by a mutation in which of the following genes?
  - Hb- $\alpha$
  - Hb- $\beta$
  - Hb- $\epsilon$
  - None of the above
- In a cross between red eye and ivory eyed *Drosophila*, what will be the eye colour phenotype in F1 generation?
  - White
  - Cherry
  - Ivory
  - Red

9. In case of two gene interaction, the gene which is masking the expression of another is called .....and the gene whose expression is masked is called.....
- a. Dominant, recessive
  - b. Recessive, dominant
  - c. Epistatic, hypostatic
  - d. Hypostatic, epistatic
10. Which of these coat colours of rabbits have dominant allele in both gene locus?
- a. Agouti
  - b. White
  - c. Black
  - d. Albino

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( Descriptive )

Time : 1 hr. 15 mins.

Marks : 25

[ Answer question no.1 & any two (2) from the rest ]

1. Define penetrance. Describe incomplete penetrance with suitable example. 5
2. What is the difference between Mendelian and Non Mendelian inheritance? Write briefly about co-dominance and incomplete dominance with one suitable example. 2+4+4=10
3. Explain extrachromosomal inheritance of Kappa particles in Paramecium with suitable diagram. 10
4. Explain the inheritance of multiple alleles with reference to ABO blood group in human being. 10
5. Why does chromosomal abnormality take place? Explain the various numerical chromosomal abnormalities with necessary examples. 2+6+2=10

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