

M.Sc. ZOOLOGY
SECOND SEMESTER
GENETICS
MSZ-203

**SET
C**

[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

- In poultry, F_1 (Walnut, RrPp) is self-crossed to give how many types of combs in F_2 ?
 - 1
 - 2
 - 3
 - 4
- Which of the following represents compensating nullisomic tetrasomy?
 - $2n-1-1$
 - $2n-1+1$
 - $2n-2+1$
 - $2n-2+2$
- If non-disjunction of chromosomes take place in meiosis II, then:
 - 25% gametes will be normal
 - 50% gametes will be normal
 - 75% gametes will be normal
 - 100% gametes will be normal
- Which of the following is not a characteristic feature of Down's syndrome?
 - Very tall
 - Short life span
 - Protruding tongue
 - Rough skin
- Which of the following is a sex-linked disease?
 - Alzheimers
 - Colour blindness
 - Leukemia
 - Malignancy
- The extrachromosomal element present in eukaryotic cell:
 - Mitochondrial DNA
 - Chloroplast DNA
 - Both a and b
 - None of the above
- The reason why haemophilia is more commonly observed in human males than in females is due to:
 - The disease is due to Y linked recessive mutation
 - The disease is due to X linked recessive mutation
 - As a huge population of girls die in infancy
 - The disease is due to X linked dominant mutation
- If a chromosome loses its XIC due to deletion, it will.....
 - Always be activated
 - Never be activated
 - Form Barr body
 - Be degraded
- Choose the incorrect option about penetrance.
 - If percentage is 100%, all recessive genotype shows one phenotype
 - If penetrance is 100%, the expressivity is 100%
 - If penetrance is 100% all the heterozygotes have similar phenotype
 - If penetrance is 100% all the dominant genotype have a different phenotype from recessive

10. The expected genotypic ratio obtained by crossing the F1 generation in dihybrid cross would be:
- a. 1:2:1
 - b. 1:2:1:2:4:2:1:2:1
 - c. 1:2:4:2:1:2:1:2:1
 - d. 9:3:3:1

(Descriptive)

Time : 1 hr. 15 mins.

Marks : 25

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

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| 1. Solve the problem.
If a woman heterozygous for colour blindness marries a colour blind man, what is the probability that their first child will be a colour blind daughter? | 5 |
| 2. What is cytoplasmic inheritance? What are the different types of extra chromosomal element found in pro and eukaryotes? Describe the process of cytoplasmic inheritance in paramecium. | 1+4+5=10 |
| 3. What do you mean by aneuploidy? Explain the different kinds of chromosomal anomalies associated with aneuploid. | 3+7=10 |
| 4. Write short notes on: (any two)
a) Co dominance
b) Penetrance
c) Expressivity | 5+5=10 |
| 5. What is the difference between structural and numerical chromosomal aberrations? Discuss the various monogenic disorders with proper examples. | 2+8=10 |

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