

16/10/2019

S.Y.B.Sc. Semester III

Time: 3 Hrs

Zoology Paper: I

Marks: 100

NB: All questions are compulsory.

Draw neat labeled diagram wherever necessary.

Figure to the right indicate full marks.

Attempt the questions in serial order.

Q. 1. A) Fill in the blank.

(5 MARKS)

- 1) Mendel's law of ..... is also known as law of purity of gametes. (inheritance, segregation, independent assortment)
- 2) ..... is a Greek word which means stopping or suppression. (Alleles, Pedigree, Epistasis)
- 3) ..... occurs in the ribosomes which are nucleoprotein molecules. (mRNA, tRNA, rRNA)
- 4) Chromosomes of species are arranged in a series of homologous pairs in descending order of their sizes is called as ..... (karyotype, centromere, ideogram)
- 5) The red colour blindness is called as ..... (protonopia, deutoranopia, haemophilia)

Q. 1. B) Match the following.

(5 MARKS)

- |                             |                 |
|-----------------------------|-----------------|
| 1. Metacentric chromosome   | A. mutant genes |
| 2. Lethal alleles           | B. □            |
| 3. Normal unaffected male   | C. V shaped     |
| 4. Acrocentric chromosome   | D. ○            |
| 5. Normal unaffected female | E. J shaped     |

Q. 1. C) True or false.

(5 MARKS)

1. DNA ligase is used for unwinding of DNA strand.
2. The Part of DNA Specifying a single polypeptide chain is termed as cistron.
3. The foreign protein which stimulated the production of antibody is called as mutagene.
4. When linked genes present on one chromosome do not separate called as linkage.
5. When a particular gene mutates it may affect more than one phenotypic character is called

as pleiotropic gene.

(5 MARKS)

Q. 1. D. Answer the following in one sentence.

1. Define: Recon
2. What is dominant trait?
3. What are Holandric genes?
4. What is Heterochromatin?
5. What is translation?

(20 MARKS)

Q. 2. A) Answer any two out of four.

1. What is epistasis? Give a detailed account of dominant epistasis.
2. Discuss in brief inheritance of Mendelian phenotypic traits in humans
3. Define genetics and explain its scope and importance.
4. Explain Mendel's laws of inheritance.

(20 MARKS)

Q. 3. Answer any two out of four.

1. Differentiate between:
  - a) Human X and Y chromosome
  - b) Sex linked and sex influenced genes.
2. Classify chromosomes on the basis of position of centromere.
3. Explain the inheritance of colour blindness in man.
4. Explain any two mechanisms of chromosomal basis of sex determination.

(20 MARKS)

Q. 4. Answer any two out of four.

1. What is DNA replication? Describe the process of DNA replication in detail.
2. Explain RNA as a genetic material.
3. Write in detail the process of transcription
4. Describe Griffith transformation experiment.

(20 MARKS)

Q. 5. Write Short notes on (Any four)

- a. Concept of operon
- b. Genetic code
- c. Function of tRNA
- d. Parthenogenesis.
- e. Differentiate between autosomes and sex chromosomes.
- g. Barr bodies
- h. Difference between gene and genome
- j. Albinism