SLR-DK-153

Seat No.	

Set P

B.Sc. (Semester - V) (New) (CBCS) Examination Oct/Nov-2019
Botany (Special Paper - X)
GENETICS

Day & Date: Wednesday, 09-10-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) In polygenic inheritance, traits are determined by _____.
   a) Multiple alleles at a single locus
   b) the interaction of multiple genes
   c) Two dominant alleles on a gene
   d) One gene being masked by another

2) The size of a gene pool _____.
   a) always increases b) always decreases
   c) fluctuates over time d) stays constant

3) When colorblind female married with healthy male, then their offspring will be _____.
   a) colorblind daughters b) colorblind sons
   c) colorblind daughters and sons d) normal

4) In *Drosophila,* chromosomes in normal male are _____.
   a) 2A +XY b) 2A+XXY
   c) 2A+XX d) None of the above

5) In man, _____ pairs of autosomes are present.
   a) 44 b) 23
   c) 46 d) 22

6) Extranuclear inheritance commonly occurs in _____.
   a) nucleus b) cytoplasmic organelles
   c) ribosomes d) cell membrane

7) The inheritance of plastid in *Mirabilis jalapa* was first time described by _____.
   a) Correns b) Mendel
   c) Griffith d) Bridge

8) The chemical _____ induces polyploidy.
   a) 2,4 D b) Cytokinin
   c) Giberelic acid d) Colchicin

9) The physical mutagen is _____.
   a) alkylating agents b) X ray
   c) base analogs d) acridine dye

10) Mutations are mainly responsible for _____.
   a) variation in organism
   b) constancy in organism
   c) maintaining genetic continuity between the parent and the offspring
   d) increasing the population rate.

11) Acridine causes _____.
   a) transition b) transversions
   c) substitution mutation d) frame shift

12) Monosomic lines will be _____.
   a) N b) n-1
   c) 2n-1 d) 2n-2

13) *Triticum aestivum* is _____.
   a) autohexaploid b) allohexaploid
   c) diploid d) tetraploid

14) The proportion of different genotypes in a sample is called _____.
   a) emigration b) gene frequency
   c) genotypic frequency d) relative fitness

Q.2 A) Attempt any four of the following questions. **08**

1) What is role of autosome?
2) Write the name of two alkylating agents.
3) What is mean by polygenic inheritance?
4) Define gene pool.
5) What is trisomy?

B) Write the short notes on (Any Two) **06**

1) Sex linked inheritance: Haemophilia
2) Chemical mutagen: Base analogs
3) Significance of cytoplasmic inheritance

Q.3 A) Attempt any two of the following questions. **08**

1) Explain Hardy-Weinberg equilibrium.
2) Describe in brief physical mutagens.
3) Explain in brief XX-XO female -male sex determination.

B) Attempt any one of the following questions. **06**

1) What is chromosomal aberration? Explain in brief inversion.
2) Give an account of Bridge's experiment: Balance concept of sex determination in *Drosophila.*

Q.4 A) Attempt any two of the following questions. **10**

1) Give an account of chemical mutagen
2) Explain Mitochondrial inheritance.
3) Describe the genetic significance of deletion.

B) Attempt any one of the following questions. **04**

1) Explain molecular basis of mutation.
2) Write a note on holandric gene.

Q.5 Attempt any two of the following questions. **14**

a) What is polyploidy? Describe in brief allopolyploid with suitable example.
b) Write characteristics of extra chromosomal inheritance.
c) What is sex determination? Explain in brief autosomes and sex chromosomes.