

**U.G. 3rd Semester Examination - 2021****BOTANY****Course Code : BBOTCCHC 303****Course Title: Genetics**

Full Marks : 30

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **ten** questions:  $1 \times 10 = 10$
- What is blending inheritance?
  - Define position effect.
  - How many gametes will be produced in an organism with  $2n=16$ ?
  - What is nondisjunction?
  - What is cistron?
  - What do you mean by lethal alleles?
  - What is stabilizing selection?
  - What is penetrance?
  - What is centromere?

- What are syntenic genes?
- What do you mean by poly trait?
- What are gynandromorphs?
- Define pseudoallele.
- What do you mean by  $2n=4x=48$ ?
- What is dicentric bridge?

2. Answer any **five** questions:  $2 \times 5 = 10$
- What do you mean by duplicate dominant interaction?
  - In a cross total 900 parental types and 100 recombinant types offspring produced. Calculate the recombination frequency in the population.
  - What is linkage group? Write down the number of linkage groups in human male.
  - Do sex linked genes follow Mendelian pattern of inheritance?
  - What do you mean by recombination hotspots?
  - What do you mean by tautomeric shift?
  - Mention two types of DNA repair.
  - What do you mean by genetic drift?

3. Answer any **two** questions:  $5 \times 2 = 10$

a) Define speciation. Describe different types of speciation.  $1+4$

b) Who proposed chromosomal theory of inheritance? Briefly explain chromosomal basis of inheritance with suitable diagram.  $1+4$

c) What is allelic frequency? The genetic distribution of A and B alleles among 200 persons are as following :

AA genotype = 164

Aa genotype = 76

aa genotype = 20

Calculate  $f(A)$  and  $f(a)$  values based on above data.  $2+3$

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