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Roll No:

4th SEMESTER

B.Tech. (Biotechnology]

MID SEMESTER EXAMINATION

March 2019

BT204 :Genetics

Time: 1:30 Hours

Max. Marks : 25

Note: Answer all the questions. Write the answer in brief and to the point

1. A homozygous plant with genotype AABbCcDDeeffgg was crossed to another homozygous genotype aaBBccddFFGG and the derived F1 was AaBBccDdFfGg. Calculate the following 2

- i) Expected number of gametes from F1 plants
- ii) Number of genotypic combinations in F2

2. Answer any three from the following four (A-D) questions. $3 \times 5 = 15$

A. A homozygous plant with genotype AAbbcc was crossed to another homozygous genotype aaBBCC and the derived F1 was AaBbBcC. This was F1 plant was test crossed to recessive homozygous genotype aabbcc and the following genotypic combination of progenies were observed

- i) 580 progenies with genotype aabbCC
- ii) 592 progenies with genotype AAbbcc
- iii) 45 progenies with genotype aabbCC
- iv) 40 progenies with genotype AAbbcc
- v) 5 progenies with genotype of AAbbCC
- vi) 3 progenies with genotype aabbcc

Calculate the genetic distance between A , B and C genes and the total map distance

B. What do you understand by autosomal, sex linked and extrachromosomal/cytoplasmic inheritance? Write in brief with examples.

P.T.O.

C. What is a linkage group? Write in brief the requirements for development of a linkage group/genetic map and how it is developed(steps)?

D . What do you understand by chromosomal aberrations? Write in very brief the different types of chromosomal aberrations giving examples.

3. Write short notes on any four :

2X4=8

- i) Pedigree analysis
- ii) Chromosomal theory of inheritance
- iii) Molecular markers
- iv) Independent assortment
- v) Dominant vs Epistasis
- vi) Interference and coefficient of co incidence

END