[This question paper contains 2 printed pages.]

Sr. No. of Question Paper	:	6918	D	Your Roll No
Unique Paper Code	:	216555		
Name of the Course	:	B.Sc. Life Scienc	es	
Name of the Paper	:	Genetics and Geno	mic	s (LSPT-512)
Semester	:	V		
Duration : 3 Hours				Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

- 2. Question No. 1 is compulsory.
- 3. Including Q. No. 1, attempt 5 questions in all.

(a) Explain in brief any five of the following : 1.

- (i) Genome
- (ii) Barr body
- (iii) Nullisomics
- (iv) Acridine
- (v) Pure line
- (vi) Hemizygous condition
- (vii) Germinal mutation
- (viii) Proteomics
- (b) Give the important contributions of the following Scientists :
 - (i) Barbara Mc Clintock
 - (ii) H. J. Müller
 - (iii) Walter Sutton & Theodor Boveri
 - (iv) Bateson & Punette
 - (v) Carl Correns $(1 \times 5 = 5)$

 $(2 \times 5 = 10)$

P.T.O.

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2.	Dif	ferentiate between any three of the following :	(5×3=15)
	(a)	Co-dominance & Incomplete Dominance	
	(b)	Inversion & Translocation	
	(c)	Missense Mutation & Nonsense Mutation	
	(d)	Ionising & non-ionising radiation	
3.	Wr	te a short note on any three of the following :	(5×3=15)
	(a)	Lyon's hypothesis	
	(b)	Pleiotropism in Cystic Fibrosis	
	(c)	Morgan's experiment on Eye Colour in Drosophila	
	(d)	Frameshift mutation	
4.	Des	cribe the following in detail :	(7½×2=15)
	(a)	Causes & symptoms of Down's Syndrome	
	(b)	Genetic cross in synthesis of Raphanobrassica	
5	(2)	What are the expected phenotypes, genotypes and the	eir ratios from the

- 5. (a) What are the expected phenotypes, genotypes and their ratios from the following matings: (5)
 - (i) $I^{A}i \times I^{B}i$
 - (ii) $I^{A}I^{B} \times ii$
 - (b) In Summer squash, White fruit colour is determined by dominant allele (W) and coloured fruit on the recessive allele (w). In the presence of ww and a dominant gene (G), the colour is yellow, but when the G is absent (i.e. gg), the colour is green. Give phenotypes and genotypes of parents, F_1 , F_2 ; and genetic basis of interaction from a cross between white-fruit pureline plant with green-fruit pureline plant. (10)
- 6. Explain the following :
 - (a) Sex Determination in *Melandrium*
 - (b) Crossing-over never exceeds 50%
 - (c) Mendel's success in his experiments
- 7. (a) What is Comparative Genomics ? Explain with examples. $(7\frac{1}{2})$
 - (b) What are the advantages of polyploidy in plant improvement? $(7\frac{1}{2})$

(2000)

 $(5 \times 3 = 15)$