23. Give the distinctive features of linked genes.

24. Explain the characteristics of genetic code.

25. Write about transgressive variation.

26. Draw the inheritance of a Y- linked trait in man. **(6×2=12)**

SECTION – E

Answer **any one**. (Essay Type Question. **Each** question carries a weightage of **4.)**

27. Give an account of the different types of point mutations and their effect in protein alternations. Add a note on the role of induced mutations in Genetics.

28. Explain an experiment in bacteria to prove that DNA is the genetic material.

29. Explain how Genetics helped Agriculture, Medicine, Industry, Judiciary and Environment protection. **(1×4=4)**

M 9767

Reg. No. : .....

Name : .....

V Semester B.Sc. Degree (CCSS – Reg./Supple./Imp.)
Examination, November 2015
CORE COURSE IN BOTANY/PLANT SCIENCE
5B10 BOT/PLS : Genetics and Molecular Biology
(2012 Admn. Onwards)

Time : 3 Hours Total Weightage : 30

Instruction : ***Draw*** *diagrams* ***wherever*** *necessary.*

SECTION – A

Answer **all**. (Questions in bunches of **four**. **Each** bunch carries **a** weightage of **1**) :

1. Choose the correct answer :

   i) Who coined the term gene ?
   a) Gregor Mendel b) T. H. Morgan
   c) W. Bateson d) Johannsen

   ii) What causes Turner syndrome ?
   a) Monosomy X b) Trisomy 21
   c) Trisomy 18 d) Trisomy X

   iii) How many polypeptides of a protein is specified by a gene ?
   a) One b) Two c) Three d) Four

   iv) Which statement best describes central dogma of molecular biology ?
   a) Gene is made of DNA that gets decoded to make proteins through DNA intermediates.
   b) Genes is made of RNA that gets decoded to make proteins through RNA intermediates.
   c) Genes is made of DNA that is directly decoded to make proteins.
   d) Genes is made of RNA that is directly decoded to make proteins.

2. State **true** or **false** :
   i) Transcriptionally active DNA is called sex chromatin.
   ii) Prokaryotes do not have histones in their DNA.
   iii) Phenylketonuria in man is a sex linked recessive trait.
   iv) Skin colour in man is a quantitative trait.

3. Fill in the blanks :
   i) The alternative form of a wild gene is termed _____
   ii) _____ is the initiation codon in eukaryotes.
   iii) _____ are the genes that cause cancer.
   iv) Y linked genes are otherwise known as _____

4. Match the following :

	A	B	C
i)	Landsteiner	Pus Cells	Maize
ii)	Griffith	Jumping genes	Humans
iii)	Mc Clintock	Bacteria	Nuclein
iv)	Meischer	ABO system	Transformation

5. Answer in **a word** or **a sentence** :
   i) Name the enzyme that link okazaki fragment during DNA replication.
   ii) What are *transposons* ?
   iii) Name a physical mutagen.
   iv) Give the ratio of complementary gene interaction. **(5×1=5)**

SECTION – B

Distinguish between **any four** of the following (**Each** carries a weightage of **1**) :

6. Homozygote and heterozygote.
7. Multiple alleles and multiple genes.

8. Transcription and translation.
9. Function of mRNA and tRNA.
10. Eukaryote and prokaryote.
11. Oncogene and antioncogenes. **(4×1=4)**

SECTION – C

Answer **any five** (Short answer questions. **Each** question carries a weightage of **1.**)

12. State the law of segregation.
13. What is pedigree analysis ?
14. What is a replication fork ?
15. Explain the contributions of Landsteiner to Human genetics.
16. What are pleiotropic genes ?
17. Analysis of the blood group of four children of two parents revealed A, B, AB and O groups. What would be the phenotypes and genotypes of their parents ?
18. What are lethal genes ? Cite an example. **(5×1=5)**

SECTION – D

Answer **any six**. (Short answer questions. **Each** question carries a weightage of **2.**)

19. Give an account of plastid inheritance in *Mirabilis jalapa.*
20. With the help of a suitable cross, explain the law of independent assortment.
21. Diagram the inheritance of X linked characters citing an example.
22. Describe the genic balance theory of sex determination.