



SECTION – D

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

19. Describe the contributions of genetics in agriculture, medicine, industry and judiciary.
20. Explain complementary gene interaction citing an example.
21. Describe the contribution of Archibald Garrod to genetics.
22. Briefly describe genetic code. What are its features ?
23. Give an account on the inheritance of shell coiling in snails.
24. Write about the transformation experiments of Griffith.
25. Explain lac operon of bacteria.
26. Explain the characteristic features of cancer cells. (6×2=12)

SECTION – E

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

27. Define epistasis. Explain dominant epistasis citing an example and giving the cross up to F_2 .
28. Give a detailed account of Mendelian laws of genetics.
29. Define gene and genotype. Describe briefly how genes are expressed. (1×4=4)



Reg. No. :

Name :

V Semester B.Sc. Degree (CCSS – Reg./Supple/Imp.)
Examination, November 2014
CORE COURSE IN BOTANY/PLANT SCIENCE
5B10 BOT/PLS : Genetics and Molecular Biology
(2012 Admission)

Time : 3 Hours

Max. Weightage : 30

Instruction : Draw diagrams wherever necessary.

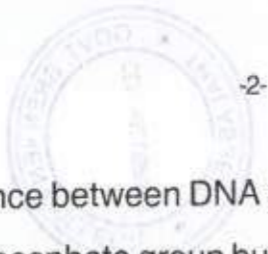
SECTION – A

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

1. Choose the correct answer.
 - i) Who coined the term Genetics ?

a) Gregor Mendel	b) William Bateson
c) Charles Darwin	d) Hugo de Vries
 - ii) Which type of mutation is the most common one found in organisms ?
 - a) Substitution of bases
 - b) Insertion of bases
 - c) Deletion of bases
 - d) Duplication of bases
 - iii) A man with a X linked recessive trait marries a woman heterozygous for that trait. What is the chance of their first child having the trait ?

a) 25 percent	b) 50 percent
c) 75 percent	d) 100 percent



- iv) What is the difference between DNA and RNA ?
- DNA contain phosphate group but RNA does not.
 - Both DNA and RNA contain sugar but only DNA has a pentose sugar.
 - RNA contains only purines but DNA has both purines and pyrimidines.
 - Sugar in RNA has a hydroxyl group that is missing in the sugar of DNA

2. State true or false :

- ABO blood group system was discovered by Archibald Garrod.
- Watson and Crick are related to the discovery of DNA.
- Transition is the replacement of a purine by a pyrimidine.
- Prokaryotes do not have a definite nucleus.

3. Fill in the blanks :

- The bond formed between amino acids in a protein is _____
- _____ proposed one gene one enzyme hypothesis.
- The position of a gene on a chromosome is called a _____
- Transcriptionally active DNA is called _____

4. Match the following :

A	B	C
i) Mendel	Sweet Pea	Eye colour
ii) Garrod	Drosophila	Vine length
iii) Morgan	Man	Linkage
iv) Bateson	Garden Pea	Inborn errors



5. Answer in a **word** or a **sentence** :

- At which stage of meiosis recombination of genes occur ?
- Give the symbol that denotes a female in a pedigree chart.
- Through which cytoplasmic organelle leaf variegation is transmitted.
- What is meant by sexual dimorphism ? (5×1=5)

SECTION – B

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

- Test cross and back cross.
- Qualitative trait and quantitative trait.
- DNA replication and transcription.
- Mutagen and carcinogen.
- Euchromatin and heterochromatin.
- Muton and recon. (4×1=4)

SECTION – C

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

- What are the features of multiple alleles ?
- What is a chromosome map ? How is it prepared ?
- Name the RNA molecules that are involved in protein synthesis. Mention the role of each.
- What is an operon ? Give an example.
- Brown and blue eye colour in man is controlled by a dominant and recessive allele respectively. Can two brown eyed parents get a blue eyed child ? Explain the inheritance briefly.
- Name the different stages of meiosis I sequentially.
- What is splicing ? In which group of organisms is this seen ? (5×1=5)