Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, CH/APRIL 2015

(UG–CCSS)

Core Course

Botany

B06 B10 CELL BIOLOGY, **GENETICS AND PLANT BREEDING**

(2012 Admissions)

Time : Three Hours Maximum : 30 Weightage

Illustrate wherever necessary.

Part A

Answer **all** *questions.*

Choose the correct answer :

1. is a eukaryotic cell.

   (a) RBC. (b) E.coli.

   (c) Nostoc. (d) Anabaena.

2. Extra nuclear inheritance mainly occurs through the inheritance of :

   (a) mitochondria and ribosomes. (b) plastids and ribosomes.

   (c) mitochondria and plastids. (d) plastids and endoplasmic reticulum.

3. Typical Mendelian dihybrid phenotypic ratio is _____

   (a) **1** : 2 : 1. (b) 1 : 2 : 1 : 2 : 4 : 2 : **1** : 2 : 1.

   (c) **9** : 3 : 3 : 1. (d) 1 : 1 : 1 : 1.

4. Exchange of genetic information between homologous chromosomes taking place in prophase **I** of meiosis is called as

   (a) crossing over. (b) linkage.

   (c) translocation. (d) synapsis.

Fill in the blanks :

5. Nuclear pores are seen in _____ membrane _____

6. Chromosome number is maintained generation after generation through a kind of cell division called _____

7. The inheritance of coat colour in mice is an example of _____

8. Emasculation is done during hybridization to prevent _____

Turn over

Answer in one word :

9. Name the class of proteins used to pack DNA into nucleosomes.
10. Write the sequence of any *one* STOP codon ?
11. Which cell organell is called power house of the cell ?
12. Give *one* example of Y chromosome linked trait in man.

(12 x ¼ = 3 weightag

Part B (Short Answer Type Questions)

Answer **all** *questions.*

13. Define interference.
14. What is inbreeding depression ?
15. How complete dominance differ from co-dominance ?
16. Mention any *two* unique features of prokaryotic cells ?
17. Differentiate between transcription and reverse transcription.
18. What is plant introduction ?
19. State one-gene one-enzyme hypothesis ?
20. Differentiate between euchromatin and heterochromatin.
21. What is a muton ?

(9 x 1 = 9 weightag

Part C (Paragraph Questions)

Answer any **five** *questions.*

22. What are lethal genes ? Cite *one* example.
23. What is a linkage map ? How it is constructed ?
24. Briefly explain the different classes of mutagens and their effect on genes.
25. State the objectives of plant breeding.
26. State Mendel's laws of segregation and independent assortment.
27. Specify the steps of mass selection.
28. What is an operon ? Using a suitable example explain the structure and functioning of an open

(5 x 2 = 10 weightag

Part D (Essay Questions)

Answer any two questions.

29. Enumerate the various types of numerical aberrations occurring in chromosomes and their ureic consequences.
30. Explain the major events in the replication of bacterial DNA.
31. Elucidate Meselson and Stahl experiment.

(2 x 4 = 8 weightage)