

SEM	SET	PAPER CODE	TITLE OF THE PAPER
IV	2013	11UBO430502	GENETICS, PLANT BREEDING AND EVOLUTION

**SECTION – A****Answer all the questions:****20 x 1 = 20****Choose the correct answer:**

- The Phenomenon of linkage in maize was first explained by
  - Bateson
  - Punnett
  - Morgan
  - Hutchinson
- Which among the following nitrogenous base is absent in DNA?
  - Adenine
  - Guanine
  - Cytosine
  - Uracil
- The force which alters the gene frequencies in a population
  - Mutation
  - Migration
  - Random genetic drift
  - all the three
- Selection of superior strains from a self fertilized, homozygous population is known as
  - mass selection
  - pure line selection
  - clonal selection
  - natural selection
- The theory of inheritance of acquired characters was put forwarded by
  - Lamarck
  - Darwin
  - De'veries
  - Weismann

**Fill in the blanks:**

6. Blood groups in Man is an example for \_\_\_\_\_.
7. A nitrogenous base and a sugar molecule constitute \_\_\_\_\_ in DNA.
8. The application of genetic laws to the improvement of human race is known as \_\_\_\_\_.
9. The ability of introduced plants to adjust the existing environmental conditions is termed as \_\_\_\_\_.
10. In \_\_\_\_\_ \_\_\_\_\_ plant the mutation theory of evolution was studied.

**State True or False:**

11. Plastid inheritance is an example for Cytoplasmic inheritance.
12. The basic proteins found in eukaryotic Chromosomes are called histones.
13. "DNA is the genetic material" – explained by Hardy – Weinberg equilibrium.
14. Clonal selection is applicable for both self and cross pollinated crops.
15. Allopatric speciation is the result of geographical isolation of one population from the other.

**Answer in one or two sentences:**

16. What is heredity?
17. What are nucleosomes?
18. Define genomics.
19. What is a clone?
20. What is meant by biological evolution?

## SECTION – B

**Answer all the questions:**

**5 x 4 = 20**

21. a. Explain Mendel's law of segregation with an example.

**OR**

b. Briefly explain sex determination in plants.

22. a. With a suitable experiment, prove that DNA is the genetic material.

**OR**

b. Describe the structure of polytene chromosome.

23. a. Explain Hardy – Weinberg equilibrium with an illustration.

**OR**

b. Comment on the outcomes of Human Genome project.

24. a. Enlist the objectives of plant breeding.

**OR**

b. Explain the achievements of heterosis.

25. a. Critically comment on the origin of life.

**OR**

b. Describe the types and causes of speciation.

## SECTION – C

**Answer any FOUR questions:**

**4 x 15 = 60**

26. Explain the phenomenon of linkage and crossing over with suitable illustrations.
27. Describe the structure of DNA as proposed by Watson and Crick.
28. Give an account on the application of genomics and proteomics.
29. Explain the types, breeding procedures and application of Hybridization.
30. Explain Darwin's theory of evolution with its support and criticisms.

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