

**Total No. of Pages:** 2

Register Number:

**6403**

Name of the Candidate:

**M.Sc. DEGREE EXAMINATION December 2014**

**(BOTANY)**

**(SECOND YEAR)**

**220: CELL BIOLOGY, GENETICS, PLANT BREEDING,  
EVOLUTIONARY BIOLOGY AND BIOMETRY**

Time: Three hours

Maximum: 100 marks

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**SECTION-A**

**Answer ALL questions**

**(8 × 3 = 24)**

**Each answer not to exceed 50 words**

**Comment the following:**

1. Cell cycle
2. Synopsis
3. Sex linkage
4. Karyotype
5. Vegetative propagation
6. Pure line
7. Modern synthetic theory
8. Graph

**SECTION-B**

**Answer ALL questions**

**(6 × 6 = 36)**

**Each answer not to exceed 300 words**

9. a) Differentiate between prokaryotes and eukaryotes in the structure and organisation of chromosomes.  
(OR)  
b) Comment on special types of chromosomes.
10. a) Narrate extra chromosomal inheritance.  
(OR)  
b) Explain the relationship between cytology and taxonomy.

11. a) How will you justify DNA as genetic material?  
(OR)  
b) What is mutation? Comment on point and suppressor.
12. a) State the breeding methods in self and cross pollinated crops.  
(OR)  
b) Comment on concepts of evolution.
13. a) Discuss the process of speciation in evolution.  
(OR)  
b) Comment on sampling techniques.
14. a) Comment on (i) mean (ii) median and (iii) mode.  
(OR)  
b) Define (i) standard deviation and (ii) binomial distribution.

**SECTION-C**

**Answer ALL questions**

**(2 × 20 = 40)**

**Each answer not to exceed 1200 words**

15. a) Define polyploidy. State its cytology, meiotic behaviour and role in evolution.  
(OR)  
b) Explain Mendelian genetics, genes interactions, multiple alleles and quantitative inheritance.
16. a) Narrate the significance of floral biology, apomixes, male sterility and haploid in plant breeding programmes.  
(OR)  
b) Discuss about origin of life, aspects of prebiotic environment and molecular evolution.

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