

Reg. No.....Name.....**P243**

MSC DEGREE END SEMESTER EXAMINATION APRIL - 2016

SEMESTER -2: BOTANY

COURSE: P2BOTT08 - GENETICS AND BIOCHEMISTRY

(Common for Regular- 2015 Admission / Supplementary - 2014 Admission)

Time: Three Hours

Maximum. Marks: 75

PART-A

- I. Answer **any eight** questions briefly; each question carries 2 marks
1. Distinguish between penetrance and expressivity.
 2. What is pedigree analysis?
 3. What are biological buffers? Give examples.
 4. Draw the structure of pentose sugar in DNA.
 5. Define the terms motif and domain.
 6. What is allosteric effect?
 7. How will you classify carbohydrates based on the number of saccharide units?
 8. Comment on the amphoteric property of aminoacids.
 9. Briefly explain membrane proteins.
 10. What is the biological significance of flavonoids?
 11. Protooncogenes might have originated from viral oncogenes. Substantiate.
 12. Explain the term genetic polymorphism.

(2 x 8 = 16)

PART-B

- II. Answer **any seven** questions; each question carries 5 marks
13. Describe haploid mapping in *Neurospora*.
 14. How is environment affecting the expression of quantitative traits?
 15. Explain Handerson-Hasselbalch equation. What is its significance?
 16. What are the various steps involved in the beta oxidation of fatty acids?
 17. What are the different mechanisms that lead to the conversion of proto-oncogene to oncogene?
 18. Explain how bottle neck effect and founder effect alter allelic frequency in a Mendelian population?

19. What is the role of Ramamchandran plot in the determination of secondary structure of a protein?
 20. Describe the biosynthesis of phenolics in a plant system.
 21. Write an account of regulation of enzyme activity.
 22. Describe the sequencing of proteins using Edman's degradation method.
- (5 x 7 = 35)

PART-C

III. Answer **any two** questions; each question carries 12 marks

23. Explain the factors that affect the allelic frequencies in a random mating Mendelian population.

OR

24. Explain the mechanism of multi substrate enzyme reaction.
25. Write an essay on the structure and classification of proteins?

OR

26. Describe gene mapping in bacteria and bacteriophages.
- (12 x 2 =12)
