Reg. No ..... Name **19P2046**

MSc DEGREE END SEMESTER EXAMINATION - MARCH/APRIL 2019

SEMESTER 2 : BOTANY

COURSE : **16P2BOTT08 : GENETICS AND BIOCHEMISTRY**

(For Regular – 2018 Admission and Supplementary – 2017/2016 Admissions)

Time : Three Hours Max. Marks: 75

Section A

Answer any 8 (2 marks each)

1. Explain dominant epistasis with example.
2. Explain the significance of testcross in recombination mapping.
3. What are threshold traits?
4. What is the fitness of a genotype?
5. Explain the situation in which the genotypic frequency will be p + q = 1.
6. Differentiate Conjugate acid from Conjugate base.
7. What is pKa?
8. Draw the structure of a tripeptide. Label the N and C terminal ends.
9. What are the models explaining ES complex formation?
10. Differentiate between cofactors and coenzymes.
11. Write a short note on allosteric effect.
12. What are Transferases? Give example.

(2 x 8 = 16)

Section B

Answer any 7 (5 marks each)

13. Explain sex determination in *Melandrium album.*
14. Provide evidences to the fact that crossing over causes recombination.
15. Explain the relevance and significance of population genetics.
16. Explain mutation – selection balance.
17. How can you differentiate strong acids and strong bases from weak acids and weak bases?
18. Briefly explain lipid biosynthesis.
19. Animals are resistant to Glyphosate. Why?
20. Explain the structure and function of proteasome complex.
21. Write short notes on (a) activation energy, (b) transition state, (c) binding energy
22. Briefly explain the biosynthesis and functions of coumarins.

(5 x 7 = 35)

Section C

Answer any 2 (12 marks each)

23. Discuss the objectives and method of gene mapping in *Neurospora.*

OR

24. In a Mendelian population, the frequencies of alleles 'A' and 'a' are 'p' and 'q', respectively. If the evolutionary forces are not acting, prove that the population is in H-W equlilibrium.

25. Describe the structure and functions of vitamin derived coenzymes.

OR

26. How does enzyme increase the rate of a reaction?

(12 x 2 = 24)