Reg. No ..... Name **21P2046**

M. Sc. DEGREE END SEMESTER EXAMINATION - JULY 2021

SEMESTER 2 : BOTANY

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

(For Regular - 2020 Admission & Supplementary - 2019/2018/2017/2016 Admissions)

Time : Three Hours Max. Marks: 75

PART A

Answer any 8 (2 marks each)

1. What is genic balance theory?
2. What is the relation between recombination frequency and map distance?
3. What is QTL?
4. Differentiate between H-W equilibrium and dynamic equilibrium.
5. What is the rationale of random mating?
6. What is a reference electrode?
7. What is Bronsted – Lowry concept regarding acids and bases?
8. Why Glycine is regarded as an achiral aminoacid?
9. What is a Domain?
10. What is the role of Biotin in enzymatic reactions?
11. Write a short note on: (a)Km, (b) Vmax
12. Differentiate between de novo and salvage pathway.

(2 x 8 = 16)

PART 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. What is pedigree analysis? What is the significance? What are the symbols used for the construction of pedigrees?
16. Discuss the cause and consequence of genetic drift.
17. Explain the buffer action.
18. With examples explain mucoproteins and discuss their biological significance.
19. Explain the behavior of amino acids at high, low and neutral pH.
20. What is Ramachandran plot? Explain the significance.
21. Explain the regulation of enzyme by reversible covalent modification. Give example.
22. Briefly explain the biosynthesis and functions of coumarins.

(5 x 7 = 35)

PART C

Answer any 2 (12 marks each)

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

OR

24. With the help of suitable example, discuss polygenic inheritance. Briefly explain the effect of environmental factors and artificial selection on polygenic inheritance.

25. Explain the procedures involved in protein sequencing.

OR

26. Explain the salvage pathway of nucleotide biosynthesis.

(12 x 2 = 24)