

**FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2024**  
**(Regular/Improvement/Supplementary)**  
**BOTANY**  
**FBOT4E04 - MOLECULAR BIOLOGY AND PHYTOCHEMISTRY**

**Time: 3 Hours****Maximum Weightage: 30****Part A: Answer any *four* questions. Each carries *two* weightage.**

1. What is the role of ATP synthase? Draw the structure of ATP synthase.
2. Differentiate between LINE's and SINE's.
3. Elaborate on antenna molecules.
4. Write a short note on GPCR.
5. What is a totipotent cell?
6. Mention the role of Telomerase.
7. What is  $R_f$  value? How is it calculated?

**(4 × 2 = 8 weightage)****Part B: Answer any *four* questions. Each carries *three* weightage**

8. What are the types of Topoisomerases? Mention its function.
9. Mention about the chemistry and distribution of flavonols.
10. What are the main classes of terpenoids?
11. How Beer's Law and Lambert's Law combine to give Beer-Lambert's Law?
12. What are the main components of GLC?
13. Briefly explain the molecular diversity of self-incompatibility systems.
14. What are Riboswitches? Mention about its function.

**(4 × 3 = 12 weightage)****Part C: Answer any *two* questions. Each carries *five* weightage**

15. Give a detailed account on the principle of centrifugation and the types of centrifuges.
16. What is RNAi? Discuss the types of RNA's and its functions which performs RNAi.
17. Discuss the methods of identification used in phytochemistry.
18. What is cell signalling? Briefly mention about the types of cell signalling.

**(2 × 5 = 10 weightage)**