TM142060C **Reg. No……...…**

Name:…….

M. Sc. DEGREE (C.S.S.) EXAMINATION, APRIL 2017
Supplementary (2014 Admission)
SEMESTER II - BOTANY
BOT2GB - GENETICS AND BIOCHEMISTRY

Time: Three Hours **Maximum Weight: 30**

I. Answer any six questions. Each question carries a weight of 1

1. Explain the Mendel' s law of Independent assortmentwith an example.
2. What is a double crossover? How many different kinds of double crossovers are possible?
3. Explain the effect of artificial selection on polygenic inheritance.
4. Write a note on viral oncogenes
5. Describe the following;
   (a) Gene pool (b) Gene frequency.
6. What are Lectins? Explain its role.
7. What are Waxes? Differentiate them from neutral fats.
8. Differentiate an amino acid from a carboxylic acid.

(6x1=6)

II. Answer any seven questions. Each question carries a weight of 2

9. Explain the cytological basis of crossing over.
10. Describe the procedure of protein sequencing by Edman degradation method
11. Describe buffer action citing suitable examples.
12. Describe the following terms which are related to protein structure;
    (a) Quaternary structure (b) α-helix (c) Peptide unit (d) Hydrogen bonds
13. Compare and contrast the chemical structure of Starch, Cellulose and Glycogen. Draw suitable diagrams.
14. Explain the regulatory activity of the Allosteric enzymes.
15. Describe the salvage pathway of nucleotide biosynthesis
16. What is Hardy-Weinberg equilibrium? What are the applications of Hardy-Weinberg principles?
17. Write an account on the types and functions of common secondary metabolites found in plants
18. 'Fatty acids, stored as triglycerides in an organism, are an important source of energy'. Explain how the cells harness this energy source to generate ATP molecules?

(7x2=14)

III. Answer any two questions. Each question carries a weight of 5

19. What is Ramachandran plot? Describe the structural details and principles based on which Ramachandran plots are constructed. Add a note on its applications.
20. Explain mapping in bacteria and bacteriophages.
21. Write an account on the different methods of regulation of enzyme activity.

(2x5=10)