

(FOR THE CANDIDATES ADMITTED  
DURING THE ACADEMIC YEAR 2022 ONLY)

22PBY310

REG.NO. :

**N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI**

**END-OF-SEMESTER EXAMINATIONS : NOVEMBER-2023**

**COURSE NAME: M.Sc. BOTANY**

**MAXIMUM MARKS: 50**

**SEMESTER: III**

**TIME : 3 HOURS**

**PART - III**

**PLANT BIOCHEMISTRY AND BIOPHYSICS**

**SECTION – A**

**(10 X 1 = 10 MARKS)**

**ANSWER THE FOLLOWING QUESTIONS.**

**MULTIPLE CHOICE QUESTIONS.**

**(K1)**

- Based on the Henderson-Hasselbalch equation, at what pH value a weak acid would be 99.9% ionized?  
A. At pH equivalent to pKa - 3                      B. At pH equivalent to pKa + 3  
C. At pH equivalent to pKa - 1                      D. At pH equivalent to pKa + 1
- The only carbohydrate which does not have any chiral carbon atoms is\_\_\_\_\_  
A. Glyceraldehyde      B. Erythrose              C. Dihydroxyacetone              D. Erythrulose
- Choose the set of secondary metabolites\_\_\_\_\_  
A. Glucose, Resveratol, Lignans                      B. Camptothecin, Codeine, Valine  
C. Malaxin, quercetin, Napthoquinones              D. Malaxin, Codeine, Chlorophyll
- The enzymes are involved in feedback incubation are called\_\_\_\_\_  
A. Allosteric enzymes      B. Coenzymes              C. Holoenzymes              D. Apoenzymes
- Third law of thermo dynamics provides a method to evaluate which property?  
A. Absolute energy              B. Absolute enthalpy              C. Absolute entropy              D. Absolute free energy

**ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.**

**(K2)**

- Differentiate covalent bond and ionic bond.
- Interpret the amphoteric nature.
- Define biochromes.
- Illustrate the turnover number.
- Define Enthalpy.

**SECTION – B**

**(5 X 3 = 15 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)**

- a) Compute the importance of Ph.  
**(OR)**  
b) List out the various types of chemical bonding
- a) Analyze the physical properties of lipids  
**(OR)**  
b) Find out the properties of protein.

**(CONTD.....2)**

13.a) Assess the functions of carotenoid with suitable examples.

(OR)

b) Describe the properties and health benefits of antho- xanthins.

14.a) List out the factors affecting enzyme activity.

(OR)

b) Examine the enzymes utilization in Industry.

15.a) Interpret the concept of free energy.

(OR)

b) Analyze the safety guidelines while handling radioactive materials.

**SECTION – C**

**(5 X 5 = 25 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.**

**(K4 (Or) K5)**

16. a) Analyze Van der Waals interaction.

(OR)

b) Examine Henderson-Hasselbalch equation.

17.a) Outline the Classification of carbohydrates with its biochemical importance.

(OR)

b) Discuss the structure of protein.

18. a) Classify the various secondary metabolites and its applications.

(OR)

b) Summarize the structure, classification and functions of anthocyanin

19.a) Categorize the nomenclature and classification of enzymes.

(OR)

b) Analyze the mechanism of enzyme action with suitable illustration.

20.a) Evaluate the principles and laws of thermodynamics.

(OR)

b) Summarize the radio labeling technique along with its uses.

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