PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2022
(Fourth Semester)

Branch – **BOTANY**

CHEMISTRY – II

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 1 = 10)

1. Which of the following does not come under the category of 'micro-nutrient' for plant growth?
(i)Chlorine (ii)Iron
(iii) Boron (iv)Carbon

2. Nitrogen content of urea is about _____ percent.
(i)10 (ii)46
(iii)80 (iv)94

3. The simplest amino acid is
(i)Glycine (ii) Alanine
(iii)Asparagine (iv)Tyrosine

4. This enzyme was first isolated and purified in the form of crystals
(i)Ribonuclease (ii)pepsin
(iii)Amylase (iv)Urease

5. Which of the following is an example of basic dye?
(i)alizarin (ii) Malachite green
(iii) Indigo (iv) Orange I

6. Which of the following is not an accessory pigment?
(i)Chlorophyll a (ii)Bacteriochlorophyll
(iii)Chlorophyll b (iv)Phycobilin

7. Which is the following relations expresses Kohlrausch's law?
(i) $\alpha = \Lambda / \Lambda^0$ (ii) $\alpha = \Lambda^0 / \Lambda$
(iii) $\lambda^0_+ = \Lambda^0 - \lambda^0_-$ (iv) $\lambda^0_+ / 96500 = \lambda^0_-$

8. The pH of a solution is defined as
(i) - log of $[H^+]$ (ii) log of $[H^+]$
(iii) H^+ ion concentration (iv) - log of $[1/H^+]$

9. Hemoglobin is a heme-containing globular protein present in erythrocytes. Which of the following is the function of hemoglobin?
(i) Storage of oxygen (ii) Transport of oxygen
(iii) Both of the above (iv) None of the above

10. One of the principles of green chemistry says that to produce _____ goods.
(i)Harmful (ii) Commercial
(iii)Safer (iv) Most used

Cont...

SECTION - B (25 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 5 = 25)

11. a. Explain the micro and macro nutrients with examples.

Or

b. Discuss the classification of insecticides.

12. a. Explain the preparation and properties of thiophene.

Or

b. Discuss the manufacture of spirit.

13. a. Explain the preparation of malachite green and Indigo.

Or

b. Discuss the structure and uses of chlorophyll.

14. a. Explain the relationship between the specific conductance and equivalent conductance.

Or

b. Discuss the Ostwald's dilution law.

15. a. Explain the chemistry of hemoglobin.

Or

b. Write a note on fluoride toxicity.

SECTION -C (40 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 8 = 40)

16. a. Explain the classification of fertilizers with examples.

Or

b. Discuss the manufacture of urea and triple superphosphate.

17. a. Explain the structure of proteins.

Or

b. Describe the mechanism of enzyme action.

18. a. Explain the classification of dyes on the basis of applications.

Or

b. Describe the characteristics of pigments.

19. a. Explain the mechanism of buffer action.

Or

b. Discuss the Freundlich adsorption isotherm.

20. a. Explain the role of essential and trace elements in biological system.

Or

b. Discuss the twelve principles of green chemistry.

Z-Z-Z END