

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2023
(Fourth Semester)

Branch – ZOOLOGY

CHEMISTRY - II

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Which one of the following ligands is responsible for chelation?
(i) Tridentate (ii) Bidentate
(iii) Polydentate (iv) Monodentate
- 2 Which heteroatoms are present in thiophene and pyridine respectively?
(i) Sulphur & Nitrogen (ii) Sulphur & Oxygen
(iii) Oxygen & Nitrogen (iv) Nitrogen & Sulphur
- 3 Identify chromophore group among the following.
(i) Hydroxy (ii) Azo
(iii) Alkoxy (iv) Amino
- 4 Choose the weak electrolyte from the following.
(i) KCl (ii) NaOH
(iii) NaCl (iv) CH₃COOH
- 5 Find out the toxic heavy element that leads to water pollution.
(i) Mercury (ii) Calcium
(iii) Iron (iv) Magnesium

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a i. Distinguish between a coordination compound and a double salt. (1.5)
ii. What is meant by coordination number? (1.5)
OR
b Explain nitrogen fixation in soil.
- 7 a How is furan prepared? Outline any one electrophilic substitution reaction of furan.
OR
b What are amino acids and how are they classified? How is glycine prepared?
- 8 a Explain the mode of action of sulphapyridine.
OR
b What are the requisites of a good dye?
- 9 a Define cell constant. How is it determined?
OR
b i. State Beer-Lambert law. (1.5)
ii. Define quantum yield. (1.5)

Cont...

- 10 a Analyze the role of hemoglobin in biological systems.
OR
b Discuss the environmental impact of chromium and fluoride toxicity. (1.5+1.5)

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a i. Narrate the salient features of Werner's coordination theory giving suitable examples. (4)
ii. Bring out the applications of EDTA.
OR
b i. What is meant by a fertilizer? How are fertilizers classified? (1)
ii. How are urea and triple super phosphate manufactured? (5)
- 12 a i. Classify proteins according to their structure and explain. (4)
ii. Mention any one method of preparation of pyridine, (2)
OR
b i. Schematically explain how an enzyme interacts with a biological cell. (4)
ii. How is ethanol obtained from molasses? (2)
- 13 a Analyze the functions of the following with suitable examples.
i. Analgesics ii. Antipyretics iii. Tranquilizers
OR
b Classify dyes according to their applications giving examples.
- 14 a i. How will you calculate the dissociation constant of an electrolyte by Ostwald dilution law? (4)
ii. State Faraday's law. (2)
OR
b i. Outline the significance of maintenance of pH in living systems. (4)
ii. Define fluorescence. (2)
- 15 a Summarize the roles of essential and trace elements in living systems.
OR
b i. Highlight the twelve principles of green chemistry. (4)
ii. Describe any one green synthesis method. (2)

Z-Z-Z

END