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(FOR THE CANDIDATES ADMITTED

SUB CODE 23UPS3A4/23UBY3A4/23UZY3A4

DURING THE ACADEMIC YEAR 2022

ONLY)

REG.NO.

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

END-OF-SEMESTER EXAMINATIONS: NOVEMBER2024

B.Sc. CHEMISTRY

MAXIMUM MARKS: 75

SEMESTER: III

TIME: 3 HOURS

**PART – III**

**23UPS3A4/23UBY3A4/23UZY3A4 –GE III – Allied: INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY – I**

**SECTION - A (10 X 1 = 10 MARKS)**

**ANSWER THE FOLLOWING QUESTIONS K1**

1. The co-ordination number of Ag in  $[Ag(NH_3)_2]Cl$  is

- a) 1    b) 2    c) 3    d) 0

2. Choose the unit of hardness of water in the following.

- a) °C    b) Kg    c) ppm    d) ml

3. The hetero atom in thiophene is

- a) O    b) N    c) P    d) S

4. Which of the following is a fat-soluble vitamin?

- a) vitamin K    b) vitamin B    c) vitamin B12    d) vitamin C

5. On increasing temperature, the conductance in metals

- a) increases    b) decreases    c) becomes zero    d) remains constant

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

**K2**

6. Mention the geometry and hybridization of  $BeCl_2$ .

7. What is the principle of volumetric analysis?

8. Define Huckel's rule.

9. Define chemotherapy.

10. What is Faraday's first law of electrolysis?

**SECTION – B**

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

**ANSWER EITHER (A) OR (B) IN EACH OF THE FOLLOWING QUESTIONS K3**

11. a) List out the postulates of VSEPR theory.

(OR)

b) Justify the biological role of hemoglobin.

12. a) Describe the primary and secondary standards with examples.

(OR)

b) Write a note on reverse osmosis process.

13. a) Give an account of resonance structure of benzene.

(OR)

b) Explain the preparation reactions of thiophene.

14. a) Describe about mode of action of sulphanilamide.

(OR)

b) What are antibiotics? Give the uses of penicillin.

15. a) Narrate variation of conductance with dilution.

(OR)

b) Summarize the importance of buffer in living systems.

**SECTION – C**

**(5 X 8 = 40 MARKS)**

**ANSWER EITHER (A) OR (B) IN EACH OF THE FOLLOWING QUESTIONS K4**

16. a) Analyze the bond order and magnetic property of Nitrogen molecule based on Molecular orbital theory.

(OR)

b) Illustrate the applications of complexes in qualitative and quantitative analyses.

17. a) Discuss the following. (i) principle of acid-base titrations (ii) Disinfection by chlorine and ozone.

(OR)

b) Illustrate the purification of domestic water by demineralization process.

18. a) Discuss the mechanism of nitration and halogenation of benzene.

(OR)

b) Illustrate the chemical properties of pyridine.

19. a) Explain the classification of antimalarials. Give the uses of chloroquine.

(OR)

b) Describe the occurrence and deficiency diseases of vitamins C.

20. a) Discuss the Kohlrausch law and its applications.

(OR)

b) Explain the determination of degree of dissociation of weak electrolyte.