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SUBJECT CODE **21UPS3A4 / 21UBY3A4 / 21UZY3A4**

(FOR THE CANDIDATES ADMITTED

DURING THE ACADEMIC YEAR 2021-22 ONLY) **REG.NO. :**

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

END-OF-SEMESTER EXAMINATIONS : DECEMBER – 2022

B.Sc.–PHYSICS /B.Sc.BOTANY/B.Sc.-ZOOLOGY **MAXIMUM MARKS: 70**

III SEMESTER **TIME : 3 HOURS**

PART - III

ALLIED CHEMISTRY PAPER – I

INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS. (K1)

1. Which one of the following is bidentate ligand?

   a) ethylenediamine b) chloro c) hydroxo d) sulphato

2. Which of the following is primary standard?

   a) sodium hydroxide b) sodium thiosulphate c) oxalic acid d) EDTA

3. Identify the hetero atom present in furan……

   a) sulphur b) nitrogen c) fluorine d) oxygen

4. A drug that causes a loss of feeling is called as……

   a) antimalarials b) anaesthetics c) antibiotics d) antiseptics

5. Which of the following solutions will act as a buffer?

   a) HNO_2+NaNO_2 b) HCl+KCl c) $HNO_3+NH_4NO_3$ d) NaOH+NaCl

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES (K2)

6. Mention one difference between bonding and anti-bonding orbitals.

7. Define hardness of water.

8. How will you prepare thiophene from furoic acid?

9. Write the uses of sulphapyridine drug.

10. Define pH.

(CONTD……..2)

SECTION – B (5 X 4 = 20 MARKS)

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

11. a) Describe VSEPR theory.

(OR)

b) Narrate biological role of hemoglobin.

12. a) Summarize the principle of acid-base titrations.

(OR)

b) Elaborate reverse osmosis process in treatment of water.

13. a) Sketch aromatic S_N^1reaction mechanism.

(OR)

b) Define Huckel's rule. Show the aromaticity of pyrrole and pyridine.

14. a) What are antiseptics? Give the uses of Dettol.

(OR)

b) Explain the following (i) antimalarials classification (ii) uses of chloroquine. (3+2)

15. a) Explain Arrhenius theory of electrolyte dissociation.

(OR)

b) Define corrosion. How can it be prevented?

SECTION – C (4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS
(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS.
(K4 (Or) K5)

16. Draw and explain MO diagram of O_2 molecule.

17. Discuss the application of coordination complexes in qualitative and quantitative analyses.

18. Illustrate demineralization process of water.

19. Explain the following electrophilic substitution reactions of benzene.

(i) nitration (ii) halogenations (iii) alkylation

20. Illustrate the occurrence and deficiency diseases of vitamins A & C.

21. Discuss the following conductomeric titrations with neat sketch.

(i) strong acid vs strong base (ii) mixture of acids vs strong base