THE GURUKUL INSTITUTE

13/5 C, 2ND FLOOR GANPATI COMPLEX

VASUNDHARA, GHAZIABAD.

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Class –XII
Subject – Chemistry

Time Allowed: 3 hours Mm:70

INSTRUCTIONS: **1 Q- 1-8 CARRY 1 MARKS . 2 Q- 9-18 CARRY 2 MARKS EACH**

3 Q 19-27 CARRY 3 MARKS EACH. 4 Q-28-30 CARRY 5 MARKS EACH

5 Give answer according to marks in order to save time..

Section-A

1. Fe3O4 is ferrimagnetic at room temperature and becomes paramagnetic at 850K. explian. 1

2. equimolar solutions of nacl and glucose are not isotonic.explain. 1

3. whate is shape selective catalysis. (1/2 +1/2)
4. why is zn and cu used for recovery of the metallic ag from its cyanide comlex[Ag(CN)2]. 1
5. on being slowly passed through water ,PH3 forms bubbles but NH3 DISSOLVES ...WHY IS IT SO. 1
6. DRAW THE STRUCTURE AND TELL THE GEOMETRY OF XeoF4. (1/2 +1/2)
7. an alkyl halide c4h9cl is optically active.draw its structure. 1
8. mention two imp. uses of formalin.(1/2 +1/2)

Section b

9. an aqueous soultion of 0.2 percent of non volatile solute excerts a pressure of 1.004 bar at 100 C. WHAT IS MOLECULAR MAS OF THE SOLUTE .GIVEN VAPOUR PRESSURE OF PURE WATER AT 100 C IS 1.013 BAR 2

10. A. SHOW GRAPHICALLY HOW THE RATE OF FIRST ORDER RXN. WITH ONLY ONE REACTANT DEPENDS UPON THE CONCENTRATION OF THEREACTANTS. 1
B. WHAT IS PSEUDOFIRST ORDER RXN.GIVE EG. 1/2 +1/2

11. WRITE THE CHEMICAL RXN. WHICH TAKES PLACE
    1. MONDS PROCESS OF REFINING IF NICKEL.
    2. VAN ARKEL METHOD (1+1)

12.A STATE THE LAW CO-RELEATING THE PRESSURE OF GAS AND ITS SOLUBILITY IN LIQUID...1
B. WHAT ARE 'DIVER BENDS' 1

13.DISCUSS THE MECHANISM OF ACID CATALYSED DEHYDRATION OF ETHANOL TA

HIGH TEMPERATURE. 2

14. WRITE SHORT NOTE ON
A. HYDROBORATION OXIDATION 1
B. REIMER -TIEMAN RXN. 1

15. BEFORE REACTING ANILINE WITH HNO3 FOR NITRATION ,IT IS CONVERTED TO ACETANILIDE WHY IS THIS DONE?.HOW IS NITRO ANILINE OBTAINED . (1+1)

16. GIVE CHEMICAL TEST TO DISTINGUISH
A. METHYLAMINE AND DIMETHYAMINE 1
B. ETHYLAMINE AND ANILINE. 1

17. GIVE REASONS
A. AMINO ACIDS ARE AMPHOTEIC IN BEHAVIOUR 1
B. FRUCTOSE CONTAINS KETONIC GROUP BUT GIVES TOLLEN REAGENT TEST. 1

18. DRAW THE STRUCTURE OF RIBOSE AND DEOXYRIBOSE SUGAR . (1+1)
OR
A GLUCOSE IS SOLUBLE IN WATER WHILE BENZENE NOT. WHY 1
B. WHAT DO YOU UNDERSTAND BY TERM GLYCOSIDIC LINKAGE?.1

SECTION –C

19.THE NEAREST NEIGHBOUR SILVER ATOM IN THE SILVER CRYSTAL ARE 287 PICOMETERS APART WHAT IS DENSITY OF SILVER SILVER CRYSTALLISES IN FCC FORM. MOLAR MASS OF SILVER IS 107.87 g/MOL. 3

20. THE DECOMPOSITON OF A COMPOUND IS FOUND TO FOLLOW FIRST RATE LAW . IF IT TAKES 15 MINUTES FOR 20 PERCENT OF ORGINAL MATERIAL TO REACT . CALCULATE.
A. SPECIFIC RATE CONSTANT
B. THE TIME AT WHICH 10 PERCENT OF ORGINAL MATERIAL REMAINS UNREACTED,
C. THE TIME IT TAKES FOR NEXT 20 PERCENT OF REACTANT LEFT TO REACT AFTER THE FIRST 15 MINUTES ....(1+1+1)

21. WHAT DO YOU MEANT BY ACTIVITY AND SELECTIVITY OF CATALYST 3
OR
EXPLAIN THE MECAHNISM OF HETROGENOUS CATALYSIS ,GIVING TWO EG. 3

22. GIVE REASONS
A. CHLORINE WATER LOSES ITS YELLOW COLOUR ON STANDING .1
B. SF6 IS INERT TOWARDS HYDROLYSIS. 1

C. DRAW THE STRUCTURE OF OLEUM. 1

23. ACOLOURLESS INORGANIC SALT 'A' DECOMPOSES COMPLETLY AT ABOUT 25 C TO GIVE TWO PRODUCTS 'B' AND 'C' ,LEAVING NO RESIDUE. THE OXIDE 'C' IS LIQUID AT ROOM TEMPERATURE AND NEUTRAL TO MOIST LITMUS PAPER WHILE THE GAS ' B' IS NEUTRAL OXIDE. WHITE PHOSPHORUS BURNS IN EXCESS OF 'B' TO PRODUCE STRONG WHITE DEHYDRATING AGENT WRITE BALANCE EQUATIONS FOR RXN. INVOLVED.3

24. A . ACOORDNATION COMPOUND HAS FORMULA CoCl3.4NH3 . IT DOES NOT LIBERATE NH3 BUT PRECIPITATE CHLORIDE ION AS SILVER CHLORIDE . GIVE IPUAC NAME OF COMPLEX AND WRITE ITS STRUCTURAL FORMULA. (1+1)
B. GIVE THE NAMES OF TWO COMPLEXES USED IN MEDICINES. 1

25. EXPLAIN .
A. ALKYL HALIDES UNDERGOE HYDROLYSIS MORE EASILY AS COMPARED TO ARYL HALIDES. 2
B. GRIGNARD REAGENT SHOULD BE PREPARED UNDER ANHYDROUS CONDITIONS. 1

26.EXPLAIN THE ROLE OF INITATOR IN FREE RADICAL POLYMERIZATION OF AN ALKENE .3

27. A. SOAP IS A WEAK ANTISEPTIC . WHAT MAY BE ADDDED TO SOAP TO IMPROVE ANTISEPTIC ACTION. 1
B. SULPHA DRUGS WORKS LIKE ANTIBIOTICS BUT THEY ARE NOT ANTIBOITIC ?. IS THIS STATEMENT VALID AND WHY . (1/2+1/2)
C. DIFFERENCE BETWEEN ANTAGONISTS AND AGONISTS (1/2+1/2)

SECTION D

28. GIVE REASONS
A. K2PtCl6 IS WELL KNOWN COMPOUND WHEREARS CORRESPONDING NICKEL COMPOUND IS NOT KNOWN.1
B. OF THE LANTHANOIDS ,CERIUM (ATOMIC NO. 58) FORMS TETRAPOSITIVE ION IN AQUEOS SOLUTION 1
C. ONLY TRANSITION ELEMENTS ARE KNOWN TO FORM CARBONYLS. 1
D. TRANSITION ELEMENTS TENDS TO BE UNREACTIVE WITH INCREASING ATOMIC NO. IN SERIES. 1
E. ELECTRODE POTENTIAL FOR MN(+3 STATE)/MN (+2) COUPLE IS MORE POSITIVE THAN THAT OF FE(+3 STATE)/FE (+2). 1

29. A WRITE THE CHEMISTRY OF RECHARGING THE LEAD STORAGE BATTERY,HIGHLIGHTING ALL THE MATERIALS THAT ARE INVOLVED DURING

RECHARGING. 2

B. SILVER IS ELCECTRO DEPOSITED IN A METALLIC VESEL OF SURFACE ARE 900 BY PASSING A CURRENT OF 0.5 A FOR 2 HOURS . CALCULATE THE THICKNESS OF SILVER DEPOSITED , GIVE ITS DENSITY IS 10.5 . 3

30.an organic 'A' having molecular formula(C9 H10 O) FORMA A ORANGE DYE PERCIPITATES 'B' WITH 2,4-DNP COMPOUND 'A' GIVES YELLOW PERCIPITATES' C' WHEN HEATED IN PRESENCE OF IODINE AND NAOH ALONG WITH COLOURLESS COMPOUND 'D' . 'A' DOES NOT REDUCES TOLLENS REAGENT OR FEHLING REAGENT SOLUTION NOR DOES IT DECOLOURISES CHROMIC ACID,A CARBOXYLIC ACID 'E' OF MOLECULAR FORMULA (C7 H6 O2) IS FORMED ....WRITE BALANCED EQUATION FROM 'A' TO 'E'. 5