This Question Paper contains 20 printed pages.
(Part - A & Part - B)

Sl.No. 0401633

052 (E)

(FEBRUARY-MARCH, 2026)
SCIENCE STREAM
(CLASS - XII)

Part - A : Time : 1 Hour / Marks : 50

Part - B : Time : 2 Hours / Marks : 50

પ્રશ્ન પેપરનો સેટ નંબર જેની સામેનું વર્તુળ OMR શીટમાં ઘટ્ટ કરવાનું રહે છે.
Set No. of Question Paper, circle against which is to be darken in OMR sheet.
04

(Part - A)

Time : 1 Hour] ***[Maximum Marks : 50***

Instructions :

1) **There are 50 objective type (M.C.Q.) questions in Part - A and all questions are compulsory.**
2) **The questions are serially numbered from 1 to 50 and each carries 1 mark.**
3) **Read each question carefully, select proper alternative and answer in the O.M.R. sheet.**
4) **The OMR sheet is given for answering the questions. The answer of each question is represented by (A) O, (B) O, (C) O, (D) O. Darken the circle ● of the correct answer with ball-pen.**
5) **Rough work is to be done in the space provided for this purpose in the Test Booklet only.**
6) **Set No. of Question Paper printed on the upper-most right side of the Question Paper is to be written in the column provided in the OMR sheet.**
7) **Use of Simple Calculator and log table is allowed, if required.**
8) **If more than one circle is ● darkened for one answer, the answer will be considered invalid.**

1) _____ is a IUPAC name of succinic acid.

(A) Pentanedioic acid

(B) Propanedioic acid

(C) Butanedioic acid

(D) Hexanedioic acid

Rough Work

CH_2-COOH
$|$
CH_2-COOH

Rough Work

2) By _____ reagent Benzaldehyde and Acetophenone can be distinguished.

(A) $NaHSO_3$

(B) $[Ag(NH_3)_2]^+/OH^-$ is Tollen's reagent.

(C) $NH_2 - NH - \overset{\overset{O}{\|}}{C} - NH_2$

(D) Alkaline Cu^{2+}

Benzaldehyde  give silver Mirror with Tollen's reagent

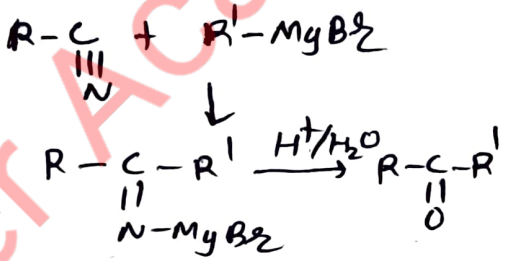
3) Treating a nitrile with Grignard reagent followed by hydrolysis yields a _____.

(A) Ketone

(B) Aldehyde

(C) Carboxylic acid

(D) Alcohol



4) _____ compound has highest reactivity towards HCN reagent.

(A) Diisopropyl ketone

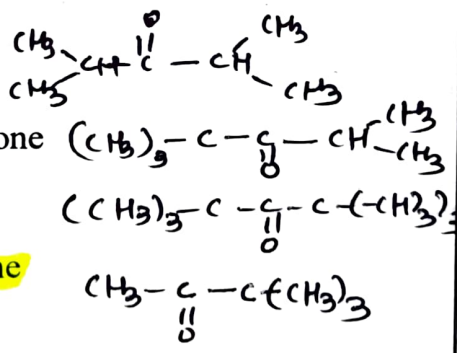
(B) Tert-butyl Isopropyl ketone

(C) Di-tert-butyl ketone

(D) Methyl tert - butyl ketone

Max Hinderance

Main Hinderance



Reactivity of carbonyl is inversely proportional to Hinderance of R

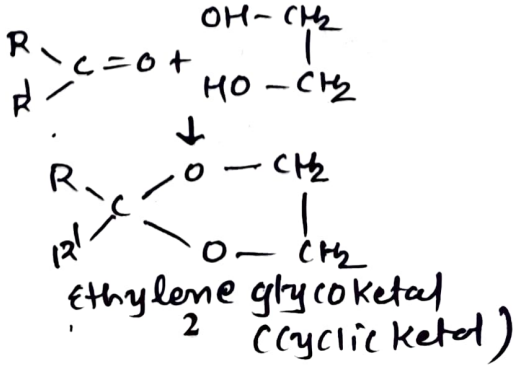
5) Ketones reacts with ethylene glycol in presence of HCl gas_____ product is obtained.

(A) Cyclic Acetal

(B) Linear Ketal

(C) Cyclic Ketal

(D) Linear Acetal



Ethylene glycoketal (Cyclic Ketal)

Rough Work

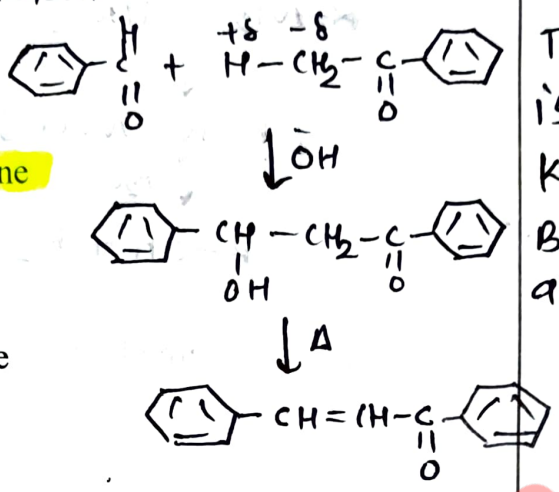
6) $C_6H_5CHO + CH_3COC_6H_5 \xrightarrow[293K]{OH^-}$ major product (X) Identify the (X). It is Claisen-Schmit condensation

(A) Benzophenone

(B) Benzalacetophenone

(C) Benzoquinone

(D) Benzoic Anhydride



The end product is chalcone known as Benzaldehyde acetophenone

7) How many isomers of compound having molecular formula C_7H_9N will undergo diazotisation reaction.

(A) 3

(B) 2

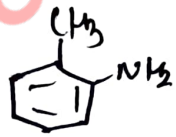
(C) 4

(D) 5

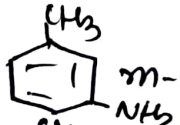
Primary Amines $R-NH_2$ undergo diazotization.

Compound has D.U. = 4

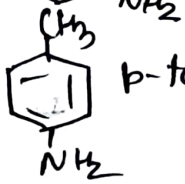
But  does not undergo diazzotization as it is not Aromatic amines



o-toluidene



m-toluidene



p-toluidene

8) Identify the organic product of the following reaction.

$C_6H_5NH_2 + CHCl_3 + \text{alc KOH} \xrightarrow{\Delta} C_6H_5-N^+\equiv C^-$

It is carbylamine Test. which give isocyanide

(A) N-Methyl Aniline

(B) Phenyl cyanide

(C) Benzene diazonium chloride

(D) Phenyl isocyanide

Rough Work

9) Primary aliphatic amines react with Nitrous acid and liberate _____ gas.

(A) H_2

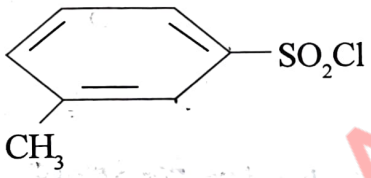
(B) O_2

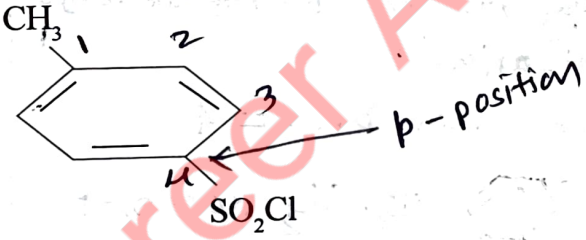
(C) N_2

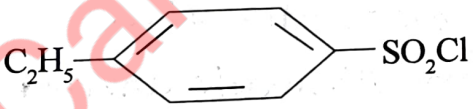
(D) NO

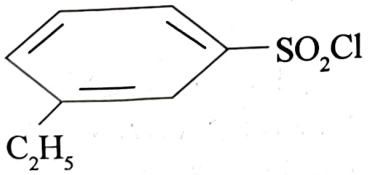
$R-NH_2 + HNO_2 + HCl \rightarrow [R-N\equiv N.Cl^-] \xrightarrow{H_2O} R-OH + N_2\uparrow$

10) Identify the correct structural formula of P-toluene sulphonyl chloride.

(A) 

(B) 

(C) 

(D) 

11) Primary amine on reaction with Acid Anhydride gives_____.

(A) Amide

(B) Tertiary amine

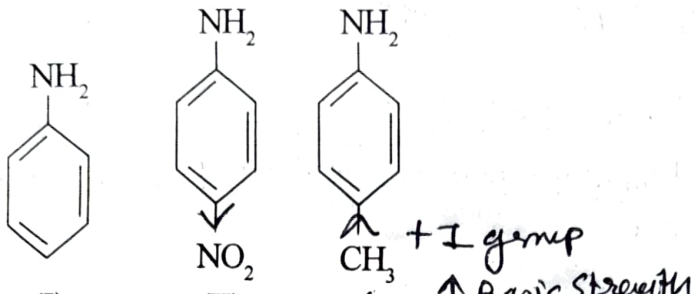
(C) Imine

(D) Secondary Amine

$R-\ddot{N}H_2 \xrightarrow{(CH_3CO)_2O} R-NH-\underset{\underset{O}{\|}}{C}-CH_3$

Rough Work

12) The correct order of basic strength for the following compounds is _____ .



(I) (II) (III)

(A) III < I < II

(B) II < III < I

(C) III < II < I

(D) II < I < III

13) Which Hormone released by Gonad?

(A) Gluco corticoids

(B) Thyroxine

(C) Insulin

(D) Testosterone

Gonands release steroid sex hormone in man.

14) Due to deficiency of which vitamin Convulsions diseases occurs.

(A) Pyridoxine Vitamin B6

(B) Thiamine

(C) Riboflavin

(D) Ascorbic Acid

Rough Work

15) Amylose and Amylopetin are water _____ respectively.

(A) Soluble and Soluble

(B) Soluble and Insoluble

(C) Insoluble and Soluble

(D) Insoluble and Insoluble

16) Glucose does not give reaction with _____.

(A) Br_2/H_2O

(B) NH_2OH

(C) $NaHSO_3$

(D) $(CH_3CO)_2O$

17) Which type of solution is Camphor in Nitrogen gas?

(A) gas in liquid

(B) Solid in gas

(C) liquid in gas

(D) Gas in Gas

18) Maximum amount of a solid solute that can be dissolved in specified amount of a given liquid solvent does not depend upon_____ .

(A) Pressure

(B) Temperature

(C) Nature of solvent

(D) Nature of solute

Rough Work

19) Determine the amount of $CaCl_2$ (i = 2.47) dissolved in 2.5 litre of water such that its osmotic pressure is 0.75 atm at 27°C.

[R = 0.082 Lit. atm. $mol^{-1}K^{-1}$]

(A) 0.02 mol

(B) 0.01 mol

(C) 0.03 mol

(D) 0.04 mol

$\pi = i CRT$

$= \frac{i n_2 RT}{V}$

$\therefore n_2 = \frac{\pi \times V}{i RT}$

$= \frac{0.75 \times 2.5}{2.47 \times 0.082 \times 300}$

$= 1.875 / 60.762$

$= 0.03$

20) For which of the following mixture $\Delta_{mix} H < 0$?

(A) $C_2H_5OH + CH_3COCH_3$

(B) $CH_3CH_2Cl + CH_3CH_2Br$

(C) $CS_2 + CH_3COCH_3$

(D) $CHCl_3 + CH_3COCH_3$

21) A 0.1 m aqueous solution of weak acid HX Freezes at – 0.205°C, then Van't Hoff factor is _____.

[K_F for water = 1.86 K kg mol^{-1}]

(A) 1.50

(B) 1.10

(C) 2.20

(D) 2.50

$\Delta T_F = i K_F m$

$i = \frac{\Delta T_F}{K_F m}$

$= \frac{0.205}{1.86 \times 0.1}$

$= 1.1$

22) A solution is obtained by mixing 200 g of 10% solution and 300 g of 20% solution by mass. Calculate the mass percentage of the resulting solution.

(A) 14 %

(B) 12 %

(C) 16 %

(D) 18 %

Total mass of solute = 20 + 60 = 80

Total mass of solvent = 500

$\% w/w = \frac{80 \times 100}{500} = 16$

Rough Work

23) For which of the electrolyte following equation is applicable?

$\Lambda_m = \Lambda_m^\circ - AC^{1/2}$

(A) NaCl — For strong electrolyte.

(B) NH_4OH

(C) HCN

(D) HCOOH

24) If rate constant of the following reaction is 3.92×10^{15} then E°_{cell} for this reaction will be _____.

$Cu_{(s)} + 2Ag^+_{(aq)} \rightarrow Cu^{2+}_{(aq)} + 2Ag_{(s)}$

(A) 0.23 V

(B) 0.46 V

(C) 0.046 V

(D) 0.023 V

$K_c = 3.92 \times 10^{15}$

$= A.L\ of\ \frac{n \times E^\circ_{cell}}{0.059}$

$3.92 \times 10^{15} = \frac{A.L\ of\ 2 \times E^\circ_{cell}}{0.059}$

$\therefore \frac{2E^\circ_{cell}}{0.059} = 15.593$

$E^\circ_{cell} = \frac{15.593 \times 0.059}{2} = 0.46$

25) Which of the following is correct for electrolysis of aqueous solution of NaCl in presence of Inert electrode.

(A) H_2 gas is evolved at the Anode

(B) O_2 gas is evolved at the cathode

(C) The pH of the solution increases

(D) The concentration of NaCl in the solution remains constant.

Rough Work

26) How much electricity in terms of Faraday is required to 45g of Al from Molten Al_2O_3?

(A) 4

(B) 3

(C) 6

(D) 5

$Al^{3+} + 3e^- \rightarrow Al$ 1 mole

$Al_2O_3 \rightarrow 2Al + \frac{3}{2}O_2$

1 mole 2 mole

$2 \times 27g$

$2 \times 27g \rightarrow 6F$

$\therefore 45 \rightarrow ?$

$= \frac{45 \times 6}{2 \times 27} = 5F$

27) In Lead storage battery _____ electrolyte is used.

(A) $H_2SO_{4\,(aq)}$

(B) $HCl_{(aq)}$

(C) $HNO_{3\,(aq)}$

(D) $H_3PO_{4\,(aq)}$

28) If a current of 1.5 ampere flows through a metallic wire for 3 hours, then how many electrons would flow through the wire?

(Charge of electron = 1.6×10^{-19}C)

(A) 1.0125×10^{23}

(B) 1.0125×10^{27}

(C) 1.0125×10^{19}

(D) 1.0125×10^{21}

$Q = I \cdot t$

$= 1.5 \times 3 \times 3600$

$= 16,200$

$\therefore N_e = \frac{16200}{1.6 \times 10^{-19}}$

$= 10,125 \times 10^{19}$

$= 1.01 \times 1023$

29) Which decomposition rate of H_2O_2 is correct in alkaline medium in presence of I^- ion?

(A) Rate = $K [H_2O_2]^{1/2} [I^-]^{1/2}$

(B) Rate = $K [H_2O_2]^2$

(C) Rate = $K [H_2O_2]$ As it is 1st order

(D) Rate = $K [H_2O_2] [I^-]$

Rough Work

30) According to collision theory which rate equation is correct for a reaction A + B → product.

(A) Rate = $P Z_{AB} e^{Ea/RT}$

(B) Rate = $P - Z_{AB} e^{-Ea/RT}$

(C) Rate = $P Z_{AB} e^{-Ea/RT}$

(D) Rate = $P + Z_{AB} e^{Ea/RT}$

31) Which characteristic of reaction is changed while using catalyst?

(A) Equilibrium constant of reaction

(B) Free Energy of reaction

(C) Enthalpy of reaction

(D) Activation Energy of reaction

Activation energy decreases.

32) What will be the order of reaction? If rate constant is $2.3 \times 10^{-5}\ L^2 mol^{-2} s^{-1}$.

(A) 2

(B) 3

(C) 0

(D) 1

$Rate = K\ mol^{1-n}\ Litre^{n-1} \cdot s^{-1}$

$\therefore n = 3$

33) The decomposition of NH_3 on platinum surface is zero order reaction. If $K = 2.5 \times 10^{-4}\ mol\ L^{-1}\ S^{-1}$, then the rate of production of N_2 is ____.

(A) $2.5 \times 10^{-4}\ mol\ L^{-1}\ S^{-1}$

(B) $5 \times 10^{-4}\ mol\ L^{-1}\ S^{-1}$

(C) $7.5 \times 10^{-4}\ mol\ L^{-1}\ S^{-1}$

(D) $1 \times 10^{-4}\ mol\ L^{-1}\ S^{-1}$

$2NH_3 \rightleftharpoons N_2 + 3H_2$

$\therefore \frac{d[N_2]}{dt} = \frac{1}{2} \frac{d[NH_3]}{dt}$

$\frac{d[NH_3]}{dt} = 2 \times 2.5 \times 10^{-4}$

Rough Work

34) Which group elements are called the coinage metals.

(A) 13

(B) 17

(C) 11

(D) 15

35) Which of the following oxidation state is common for lanthanoids elements?

(A) +3

(B) +2

(C) +4

(D) +5

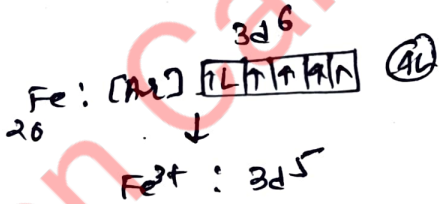
36) Which atomic number containing element possess highest magnetic moment in its +3 oxidation state?

(A) 25

(B) 26

(C) 24

(D) 27



37) _____ element does not exhibit variable oxidation state.

(A) Sc

(B) V

(C) Mn

(D) Ti

Rough Work

38) Which coordination species shows facial and meridional isomers?

(A) $[Co(en)_2Cl_2]$

(B) $[Co(en)_3]^{3+}$

(C) $[Co(NH_3)_5Cl]^{2+}$

(D) $[Co(NH_3)_3(NO_2)_3]$

39) Which ligand forms synergic bond with metal?

(A) CO_3^{2-}

(B) $NH_2-CH_2-CH_2-NH_2$

(C) CO

(D) CN^-

↳ means backbonding formed by $p\pi$-$d\pi$

40) Which of the following relation is correct?

(A) $\Delta_t = \frac{9}{4}\Delta_0$

(B) $\Delta_t = \frac{4}{9}\Delta_0$

(C) $\Delta_0 = \frac{3}{7}\Delta_t$

(D) $\Delta_0 = \frac{7}{3}\Delta_t$

41) Which of the following coordination species is most stable?

(A) $[Fe(CN)_6]^{3-}$

(B) $[Fe(CO)_5]$

(C) $[Fe(H_2O)_6]^{3+}$

(D) $[Fe(C_2O_4)_3]^{3-}$

Rough Work

42) When 1 mole of $CrCl_3.6H_2O$ is treated with excess of $AgNo_3$, 3 moles of AgCl are obtained. The formula of coordination compound is _____ .

(A) $[Cr(H_2O)_6]Cl_3$ → $[Cr(H_2O)_6]^{3+} + 3Cl^-$ ↓ $3AgNO_3$ → $3AgCl\downarrow$

(B) $[CrCl_3(H_2O)_3]\cdot 3H_2O$

(C) $[CrCl_2(H_2O)_4]Cl\cdot 2H_2O$

(D) $[CrCl(H_2O)_5]Cl_2\cdot H_2O$

43) Chlorobenzene reacts with dichlorine in presence of Anhydrous $FeCl_3$ giving ortho and para products. This reaction is _____.

(A) Free radical addition reaction

(B) Electrophilic elimination reaction

(C) Electrophilic substitution reaction

(D) Nucleophilic substitution reaction

44) Which compound will give S_N1 reaction very fast?

(A) $(CH_3)_3C–Br$

(B) $(CH_3)_3C–I$

(C) $(CH_3)_3C–Cl$

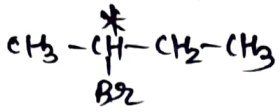
(D) $(CH_3)_3C–F$

$S_N1 \propto$ 3° substrate
$\propto$ fugacity of functional group
I^- is better leaving group

Rough Work

45) Which of the following compound is optically active?

(A) 2 - Bromo butane



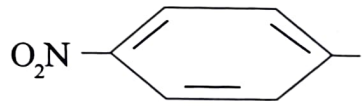
(B) 1 - Bromo butane

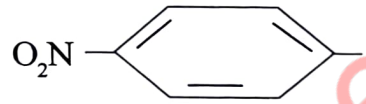
Has chiral carbon

(C) Propan-2-ol

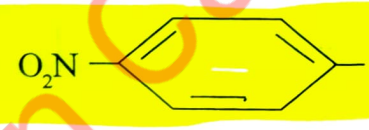
(D) 2 - Bromo propan-2-ol

46) Which of the following pair of reactants is an appropriate set to prepare 1-Methoxy -4-Nitro benzene.

(A) 

(B) 

(C) 

(D) 

most polar bond in both reagent

47) _____compound gives immediate reaction with the mixture of Con. HCl and $ZnCl_2$ at room temperature.

(A) $(CH_3)_2 CH-OH$

(B) $CH_3 CH_2-OH$

(C) $(CH_3)_3 C-OH$

3° Alcohol give rapid result with Lucas Reagent

(D) $(CH_3)(C_2H_5) CH-OH$

Rough Work

48) The commercial alcohol is made coloured by adding _____.

(A) $CuSO_4$ Cu^{2+} Blue

(B) $MgSO_4$ Mg^{2+} colourless

(C) Na_2SO_4 Na^{+} colourless

(D) K_2SO_4 K^{+} colourless

49) Substance A $\xrightarrow{CrO_3}$ cyclohexanone Identify the substance A.

(A) Phenol

(B) Cyclohexanol

(C) Cyclohexane

(D) Benzyl Alcohol

50) Aspirin has _____ bonds.

(A) 22 σ and 3 π

(B) 20 σ and 5 π

(C) 19 σ and 4 π

(D) 21 σ and 5 π