माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

परीक्षार्थी द्वारा भरा जायें ↓

24 पृष्ठीय वर्ष–20

परीक्षा का विषय	विषय कोड	परीक्षा का माध्यम
CHEMISTRY	2 2 0	ENGLISH

स्टीकर तीर के निशान ↓ से मिलाकर लगायें

उत्तर पुस्तिका का सरल क्रमांक – 321 –

122376

परीक्षार्थी का रोल नम्बर

अंकों में

2	2	1	2	2	7	5	9	8

शब्दों में

Two	Two	One	Two	Two	Seven	Five	Nine	Eight

नीचे दिये गये उदाहरण अनुसार रोल नम्बर भरें।

उदाहरणार्थ

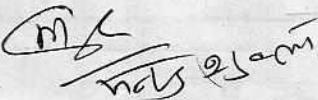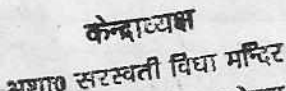| 1	1	2	4	3	9	5	6	8
एक	एक	दो	चार	तीन	नौ	पाँच	छः	आठ

क – पूरक उत्तर पुस्तिकाओं की संख्या अंको में [ ] शब्दों में NIL
ख – परीक्षार्थी का कक्ष क्रमांक 14
ग – परीक्षा की दिनांक 28 2 22

परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

हायर सेकेण्डरी परीक्षा   केन्द्र क्रमांक–122014

पर्यवेक्षक का नाम एवं हस्ताक्षर

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

केन्द्राध्यक्ष
शा० सरस्वती विद्या मन्दिर
स्कूल श्चेनपुर

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जायें

प्रमाणित किया जाता है कि मूल्यांकन के समय पूरक उत्तर पुस्तिकाओं की संख्या उपरोक्तनुसार सही पाई होलो क्राफ्ट स्टीकर क्षतिग्रस्त नहीं पाया गया अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अंकों की प्रविष्टी अंकों का योग सही है।
निर्धारित मुद्रा : नाम, पदनाम, मोबाईल नम्बर, परीक्षक क्रमांक एवं पदांकित संस्था के नाम की मुद्रा लगाएं।

उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा
परीक्षक क्रमांक–34101
हितेश कुमार प्रजापति (उ.मा.शि.)
श .कन्या उ.मा.वि.उमरिया (म.प्र.)

परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा
संतोष कुमार साहू (व्याख्याता)
परीक्षक क्र.34332
सरस्वती उ.मा.वि.विंध्या कालोनी

नोट :– ''हायर सेकेण्डरी परीक्षा में केवल वाणिज्य संकाय के विषयों तथा हाईस्कूल परीक्षा में प्रायोगिक विषय को छोड़कर शेष विषयों हेतु नियमित एवं स्वाध्यायी छात्रों के लिये प्रश्न पत्र 100 अंकों का होगा किन्तु नियमित छात्रों को 100 अंक के प्राप्तांक का 80% अधिमार एवं स्वाध्यायी छात्रों को 100 अंक के प्राप्तांक ही अंकसूची में प्रदर्शित किये जायेंगे।''

केवल परीक्षक द्वारा भरा जायें
प्रश्न क्रमांक के सम्मुख प्राप्तांकों की प्रविष्टी करें (को में)

प्रश्न क्रमांक	पृष्ठ क्रमांक
1	
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28	

कुल प्राप्तांक शब्

प्रश्न क्र.		

CHEMISTRY

(Q. 1)		Choose and write correct options :—
Ans	i)	Molecular.
Ans	ii)	CsCl.
Ans	iii)	Gelatine.
Ans	iv)	$Hg_2 Cl_2$.
Ans	v)	OF_2
Ans	vi)	Polyamide.
Ans	vii)	Seconal.
(Q.2)		Fill in the blanks :—
Ans	i)	seven.
Ans	ii)	directly proportional.
Ans	iii)	peptization.

प्रश्न क्र.

Ans 2) CaF_2.
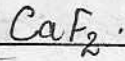
Ans 2) chlorine.

Ans 2) Tetrafluoroethene.

Ans 2) Analgesic.

MPBSE

(J.3) Match the following :-

(i) Glass → Amorphous solid.

(ii) Slag → $CaSiO_3$

(iii) Square planer → XeF_4

(iv) Neutral ligand → CO

(v) Spirit of wine → C_2H_5OH.

(vi) Primary Amine → RNH_2

(vii) Glucose → $C_6H_{12}O_6$

प्रश्न क्र.	

Q.4 :- Answer in one word / sentence :-

Ans 4) i) Arrhenius equation is given by :-
$$k = Ae^{-\frac{Ea}{RT}}$$

Ans 4) ii) Radon is used in therapy of cancer.

Ans 4) iii) Reaction of benzaldehyde & KCN is Wolf Kishner.

Ans 4) iv) Due to absence of active hydrogen.

Ans 4) v) Protein in hair, wool, silk is Keratin.

Ans 4) vi) Monomer of polythene is ethene.

Ans 4) vii) Aspirin is & Paracetamol are antipyretic.

Answer - 5

Molarity :- It is defined as number of moles of solute dissolved in one litre of solution. It is represented by 'M' and depends on of temperature.

$$M = \frac{\text{Number of moles of solute}}{\text{Volume of solution (in L)}}$$

प्रश्न क्र.

$$M = \frac{W_B \times 1000}{M_B \times V}$$

where,,
W_B = Mass of given solute
M_B = Molecular mass
       of solute
V = Volume of solution
       in mL.

Answer - 6

Brownian movement :- The zig-zag movement of colloidal particles in the colloidal solution is termed as Brownian movement. It was discovered by scientist Brown, therefore it is called as Brownian movement. It is irregular movement of particles.

→ Zig-Zag motion
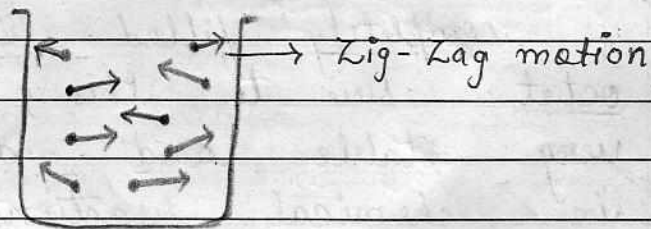
Fig : Brownian Movement

प्रश्न क्र.

Answer - 7

Ammonia has a high boiling point. It is because in ammonia the molecules are associated due to intermolecular hydrogen bonding. Due to this association, there is a strong force of attraction. Due to this, the bond length decreases. Thus, hydrogen bonding between nitrogen and hydrogen results in high boiling point.

Answer - 8

Noble gases are inert. It is because their outermost orbit except helium is completely filled. They have complete octet. Due to this, they are very stable and do not participate in chemical reactions. Their ionisation enthalpy is also very high. Therefore, noble gases are inert.

प्रश्न क्र.

Answer - 9

Difference between double salt and complex compound :-

Double salt :- The addition compounds which on dissolving in water give all their ions are called double salts.

Example :- $KCl \cdot MgCl_2 \cdot 6H_2O$

Complex compound :- The addition compounds which on dissolving in water do not give all ions are called complex compound. In these compounds the ligand donates lone pair of electrons to the central metal ion forming coordination bonds.

Example : $K_4[Fe(CN)_6]$

प्रश्न क्र.

M
P
B
S
E

Answer - 10

Examples of primary and secondary amines :-

Primary amines :- CH_3-NH_2 , $C_2H_5NH_2$, $R-NH_2$

Secondary amines :- CH_3-NH $\{C_2H_6NH\}$,
$$\underset{CH_3}{|}$$

$$R-NH$$
$$\underset{R}{|}$$

$$C_2H_5-NH$$
$$\underset{C_2H_5}{|}$$
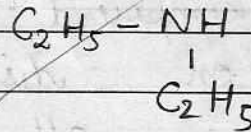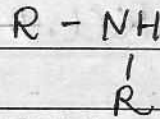
Answer - 11

	DNA		RNA
(i)	It stands for Deoxyribo-nucleic acid	(i)	It stands for ribonucleic acid.
(ii)	Thymine is present in DNA.	(ii)	Uracil is present in RNA.
(iii)	It is used for passing characteristics	(iii)	It is used for protein synthesis.

प्रश्न क्र.

Answer - 12

Some of the antibiotics are :-
- Penicillin
- Chloramphenicol.

_ _ help in preventing the growth of microorganisms inside our body.

M P B S E

Answer - 13

Given :- 5.85 gm of NaCl is dissolved in 250 gm water.

Mass of NaCl (W_B) = 5.85 gm

Mass of water (W_A) = 250 gm

To find :- Molality (m) = ?

Solution :- We know that,

$$Molality = \frac{No. \ of \ moles \ of \ solute}{Mass \ of \ solvent \ (in \ Kg)}$$

$$m = \frac{W_B \times 1000}{M_B \times W_A}$$

Molecular mass (M_B) of NaCl
is :-

$$M_B = 23 + 35.5$$
$$= 58.5 \, gm$$

So, $m = \dfrac{5.85 \times 1000}{58.5 \times 250}$

$$m = \dfrac{4}{10}$$

$$m = 0.4 \, g \, mol/kg$$

So, molality is $\boxed{0.4 \, mol/kg}$
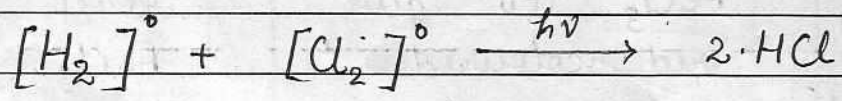
Answer - 14

Zero order reaction :- The reaction in which the rate of reaction does not depend on the initial concentration of reactants is known as zero order reaction.

In zero order reaction, the rate of reaction depends on catalyst such as sunlight etc.

प्रश्न क्र.

Example of zero order reaction is :-

$$[H_2]^0 + [Cl_2]^0 \xrightarrow{h\nu} 2 \cdot HCl$$

In this reaction, the rate of reaction does not depend on the concentration of H_2 and concentration of Cl_2 but it depends of presence of sunlight which acts as a catalyst.

Answer - 15

Differences between phenol and alcohol :-

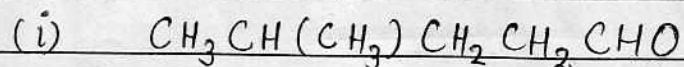|	Phenol		Alcohol
i)	Phenol has a characteristic phenolic smell. It is acidic in nature.	(i)	Alcohol has a characteristic alcoholic smell. It is neutral in nature.
ii)	It turns blue litmus red.	(ii)	It has no effect on litmus paper.
iii)	It reacts with NaOH.	(iii)	It does not react with NaOH.

प्रश्न क्र.

It reacts with $FeCl_3$ to give red coloured compound.	It does not react with $FeCl_3$.

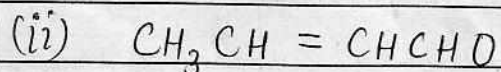## Answer - 16

IUPAC names are as follows :-

(i) $CH_3 CH(CH_3) CH_2 CH_2 CHO$

$\Rightarrow$ 4- Methyl pentanal

(ii) $CH_3 CH = CHCHO$

$\Rightarrow$ But - 2 - en - al

(iii) $(CH_3)_3 C CH_2 COOH$
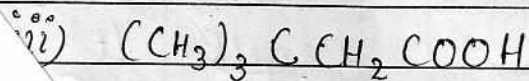
$\Rightarrow$ 3,3 - Dimethyl butanoic acid

Answer - 17

(i) <u>Fittig reaction</u> :- In Fittig reaction, haloarenes react with sodium in presence of dry ether, to give diphenyl.

Chemical equation :-

Haloarene   Sodium   Diphenyl + NaX
                                    Sodium halide

Ex:

Chlorobenzene   Sodium   Diphenyl + NaCl
                                   Sodiumchloride
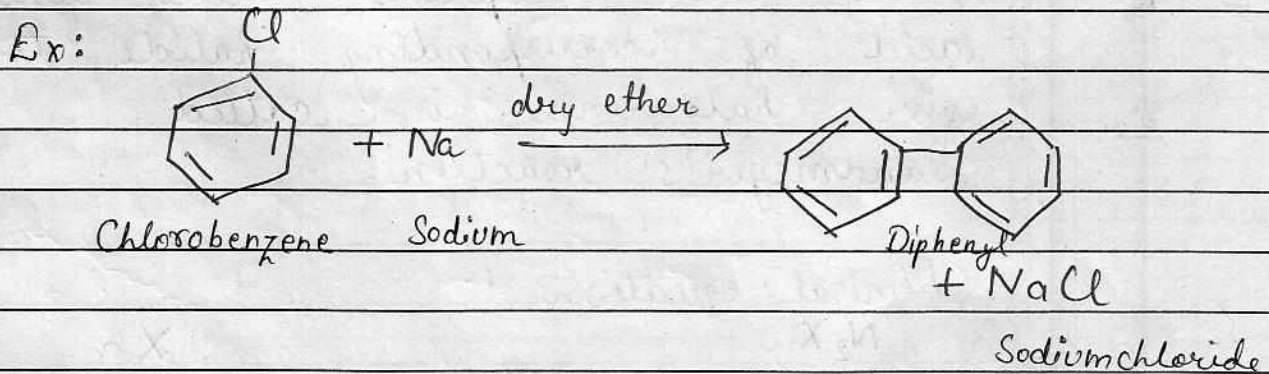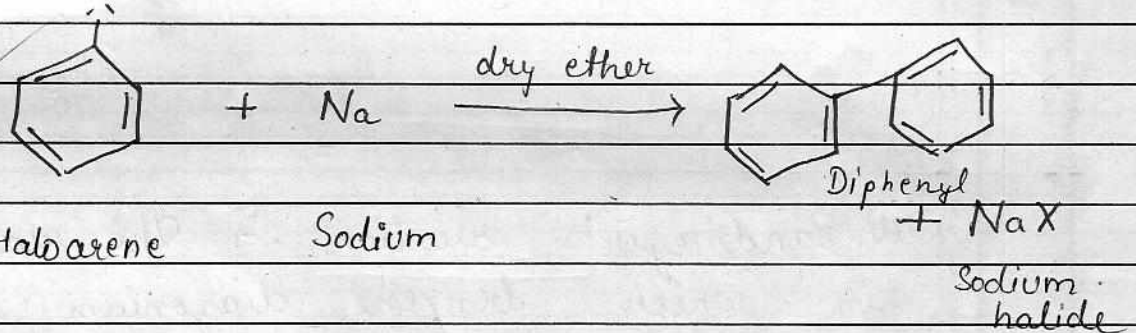
(ii) Hunsdiecker reaction :- In hunsdiecker reaction, silver salt of fatty acid reacts with bromine or chlorine to form haloalkane and haloarenes.

प्रश्न क्र.

Chemical equation :-

$$\text{C}_6\text{H}_5\text{COOAg} + Br_2 \longrightarrow \text{C}_6\text{H}_5\text{Br} + AgBr + CO_2$$

$$\text{C}_6\text{H}_5\text{COOAg} + Cl_2 \longrightarrow \text{C}_6\text{H}_5\text{Cl} + AgCl + CO_2$$
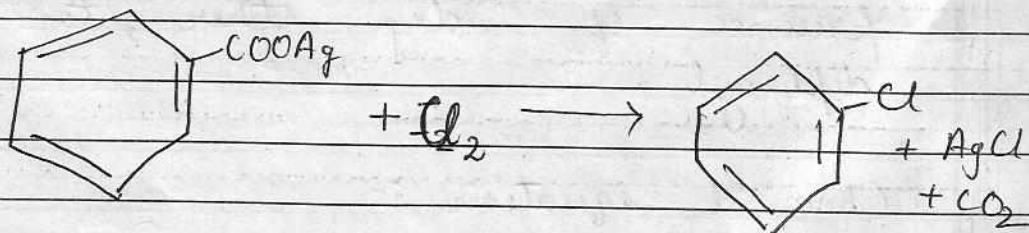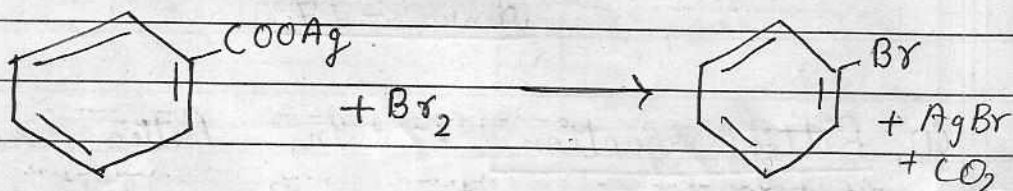
(iii) Sandmeyer's reaction :- The reaction in which benzene diazonium salt reacts with cuprous halide and acid of corresponding halide to give haloarenes, is called Sandmeyer's reaction.

Chemical equation :-

$$\text{C}_6\text{H}_5\text{N}_2X \xrightarrow[\text{reaction}]{Cu_2X_2 + XH \quad \text{Sandmeyer's}} \text{C}_6\text{H}_5X$$

Example :-

N_2Cl ——$Cu_2Cl_2 + HCl$——> Cl
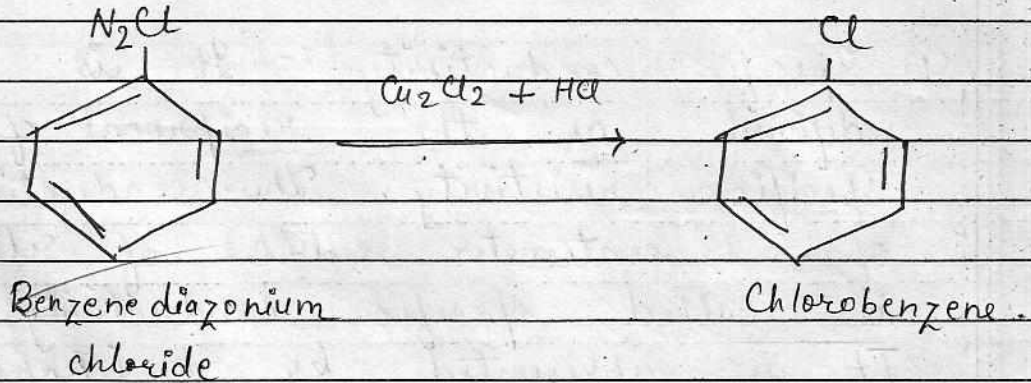
Benzene diazonium   Chlorobenzene.
chloride

(iv) Friedel Crafts reaction :-
The reaction in which acetyl
(C = O) group is substituted
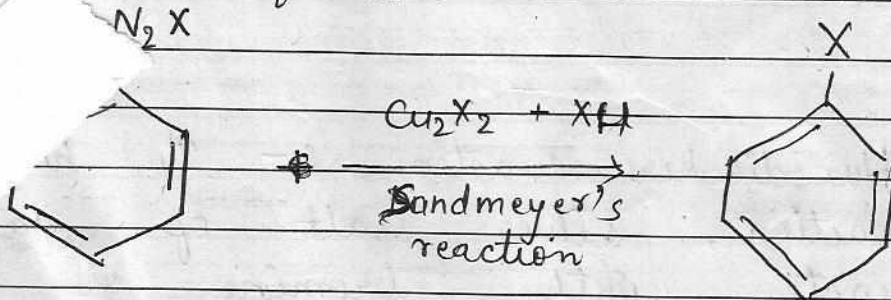CH_3 in place of hydrogen
is called Friedal Crafts reaction.

Chemical equation :-

X + CH_3COCl ——$\frac{anhydrous}{AlCl_3}$——> X—$COCH_3$

Cl + CH_3COCl ——$\frac{anhydrous}{AlCl_3}$——> Cl—$\overset{O}{\overset{||}{C}}-CH_3$
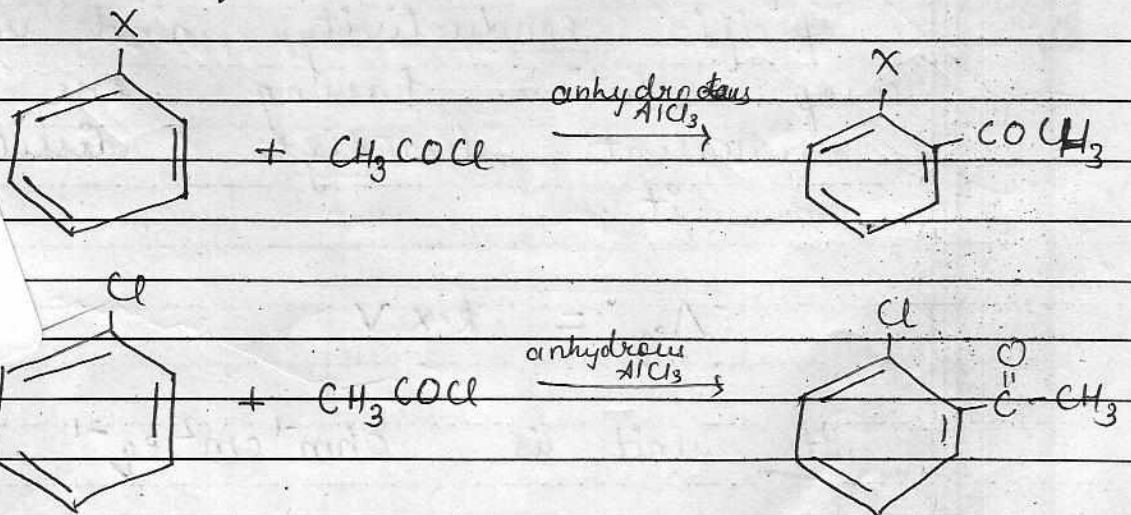
प्रश्न क्र.

Answer – 18

(i) Specific conductivity :- It is defined as the reciprocal of specific resistivity. The conductivity of 1 centimeter cubic of solution is called specific conductivity. It is represented by k (kappa)

Its unit is $ohm^{-1} cm^{-1}$.

$$k = \frac{1}{\rho} = \frac{\ell}{RA}$$

(ii) Equivalent conductivity : It is defined as the product of specific conductivity and volume of solution having one equivalent electrolyte dissolved in it.

$$\Lambda_{eq} = k \times V$$

Its unit is $ohm^{-1} cm^2 eq^{-1}$

Equivalent conductivity increases with dilution.

(iii) Molar conductivity :- It is defined as the product of specific conductivity and volume of solution containing one mole of electrolyte is called as Molar conductivity.

$$\Lambda_m = k \times V$$

where,

k is specific conductivity

V is volume of solution having 1 mole electrolyte

unit is $Ohm^{-1} cm^2 mol^{-1}$

→ increases with dilution of solution.

(iv) Cell constant :- In a cell, the distance between the two electrodes and the area of the electrodes remains constant. The ratio of this length of distance and area is called cell constant.

Its unit is cm^{-1}.

प्रश्न क्र.

$$\text{Cell constant} = \frac{l}{A}$$

(V) Specific resistance :- Specific resistance is defined as the obstruction offered by one centimeter long and one centimeter square thick conductor in the conductivity. Thus, specific resistance is the resistance of one centimeter cubic volume.

It is represented by 'ρ'

Its unit is ohm cm.

$$\rho = \frac{RA}{l}$$

M
P
L

प्रश्न क्र.

Answer - 19

	Lanthanoids	Actinoids
(i)	In Lanthanoids, the last electron is filled in 4f orbital of outermost shell.	(i) In Actinoids, the last electron is filled in the 5f orbital of outermost shell.
(ii)	The common oscidation state is +3 but they also show +2, +4 oxidation state.	(ii) The common oxidation state is +3 but they also show +4, +5, +6, +7 oxidation state.
(iii)	They have less tendency to form complex compounds.	(iii) They have high tendency to form complex compounds.
(iv)	They are found naturally and are less basic.	(iv) They are made artificially and are more basic.
(v)	They are mostly non-radioactive.	(v) They are mainly radioactive.

प्रश्न क्र.

(vi)	They do not form oxo ions.	vi)	They form oxo ions.
vii)	They come after lanthanum.	vii)	They come after actinium.