



माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

परीक्षार्थी द्वारा भरा जाये ↓

वर्ष-2022

24 पृष्ठीय

विशेष नोट :- सिलाई खुली हुई अथवा क्षतिग्रस्त उत्तर पुस्तिका को न तो पर्यवेक्षक वितरण करे और न ही छात्र उपयोग में ले। ऐसी उत्तर पुस्तिका में लिखे उत्तरों का मूल्यांकन नहीं किया जायेगा।
परीक्षार्थी द्वारा भरा जाये ↓
केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष एवं पर्यवेक्षक द्वारा भरा जाये ↓
परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जाये ↓

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 -	145216
अंकों में	परीक्षार्थी का रोल नम्बर	
2 2 1 3 3 2 3 3 9		
शब्दों में	two two one three three nine	
BOARD OF SECONDARY EDUCATION, MADHYA PRADESH, BHOPAL		

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 अंकों में	५	शब्दों में	५
ख - परीक्षार्थी का कक्ष क्रमांक	GALLERY		
ग - परीक्षा की दिनांक	28 02 2022		
परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा			
हायर सेकेण्डरी परीक्षा केन्द्र क्रमांक-132080			
पर्यवेक्षक का नाम एवं हस्ताक्षर	केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर		
Shyamsunder	Shikha Vishwakarma		

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जाये ↓

प्रमाणित किया जाता है कि मूल्यांकन के समय पूरक उत्तर पुस्तिकाओं की संख्या उपरोक्तनुसार सही पाई हो। क्राफ्ट स्टीकर क्षतिग्रस्त नहीं पाया गया अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अंकों की प्रविष्टि अंकों का योग सही है। निर्धारित मुद्रा : नाम, पदनाम, मोबाईल नम्बर, परीक्षक क्रमांक एवं पदांकित संस्था के नोच की मुद्रा लगाएं।	
उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा	परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा
T. KHAN 71V5569	Shikha Vishwakarma 71V5432

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% अधिमा. स्वाध्यायी छात्रों को 100 अंक के प्राप्तांक ही अंकसूची में प्रदर्शित किये जायेंगे।"

केवल परीक्षक द्वारा भरा जाये		
प्रश्न क्रमांक के सम्मुख प्राप्तांकों की प्रविष्टि करें		
प्रश्न क्रमांक	पृष्ठ क्रमांक	प्राप्तांक (अंकों में)
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प्रश्न

प्रश्न क्र.

Question-1

(i) Molecular

(ii) CsCl

(iii) Gelatine

(iv) Hg_2Cl_2

(v) OF_2

(vi) Polyamide

(vii) Seconal

Question-2

(i) 7

(ii) directly proportional

(iii) Peptization

(iv) CaF_2

(v) Chlorine

(vi) Tetrafluoro ethene



प्रश्न क्र.

(vii) Hypnotic

Question-3(i) Glass $\Rightarrow$ Amorphous solid(ii) Slag $\Rightarrow$ CaSiO_3 (iii) Square planar $\Rightarrow$ XeF_4 (iv) Neutral ligand $\Rightarrow$ CO(v) Spirit of wine $\Rightarrow$ $\text{C}_2\text{H}_5\text{OH}$ **S** (vi) Primary Amine $\Rightarrow$ RNH_2 **E** (vii) Glucose $\Rightarrow$ $\text{C}_6\text{H}_{12}\text{O}_6$ Question-4(i) $k = Ae^{-E_a/RT}$

(ii) Radon is used in therapy of cancer.

(iii) Benzoin condensation

(iv) Due to the absence of hydrogen on nitrogen atom.



प्रश्न क्र.

(v) Keratin is present in hair, wool, silk.(vi) Ethene is the polymer of polythene(vii) AspirinQuestion-5M
P
B
S
E

We know that
Molality is the number of moles of
solute present in 1 kg solvent.

$$\therefore W_A = 1 \text{ kg}$$

let A represent
solvent & represent
solute

Question-5 OR

Molarity $\Rightarrow$ Molarity is the number of
moles of solute dissolved in
1 litre solution. It is denoted by
M. Its unit is mol/l.

$$M = \frac{\text{no. of moles of solute}}{\text{volume of solution in litre}}$$

where, no. of moles = $\frac{\text{mass of solute (g)}}{\text{molar mass of solute}}$



प्रश्न क्र.

Question-6 OR

Brownian Movement $\Rightarrow$ When colloidal particles are seen under a high power ultra microscope, then particles of colloidal sol are seen to be moving in zig-zag path in all possible directions. It was discovered by Robert Brown, hence it is called as Brownian motion or movement. It is produced due to collision of dispersion medium particles to dispersed phase particles.

Question-7 OR

Sulphur exists as S_8 molecules, so it has a puckered giant structure and there is strong covalent bond between the molecules of sulphur, so it exists in solid state.

P.T.O.



प्रश्न क्र.

Question-8 OR

Noble gases are inert because their orbitals are completely filled electrons and all electrons are paired so they have no tendency to gain the electron. They have very high ionisation energy, it is hard to lose electron from noble gases. So they can neither lose nor gain the electron. Hence they are inert.

M

P

B

S

E

Question-9

Double salt

Complex compound

1. They are stable only in solid state when they are dissolved in aqueous solution they completely breaks up.

1. They are stable in both solid as well as in aqueous solution.

2. Their physical and chemical properties are similar to their constituents.

2. Their Physical and chemical properties are changed.



प्रश्न क्र.

Question-10

Primary amine $\Rightarrow$ $\text{CH}_3\text{-NH}_2$

N-methyl amine

Secondary amine $\Rightarrow$ $\begin{array}{c} \text{CH}_3 \backslash \\ \text{CH}_3 \text{---} \text{NH} \end{array}$

N,N-Dimethyl amine

Question-11 OR

M
P
B
S
E

DNA

RNA

1. It has deoxyribose sugar.

1. It has ribose sugar.

2. It is involved in inheritance of character from one generation to other.

2. It is not involved in inheritance of character. It is responsible for protein synthesis.

Question-12

Antibiotics $\Rightarrow$ Penicillin, Streptomycin.



प्रश्न क्र.

Question-13

Given,

Mass of solute, $W_B = 5.85 \text{ gm}$ Mass of solvent, $W_A = 250 \text{ gm}$

Molecular mass of solute, $M_B = 23 + 35.5$
(NaCl) $= 58.5 \text{ g/mol}$
 $= 58.5 \text{ g/mol}$

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

$$m = \frac{5.85}{58.5} \times \frac{1000}{250}$$

$$m = \frac{585}{5850} \times 4$$

$$m = 0.4 \text{ mol/kg}$$

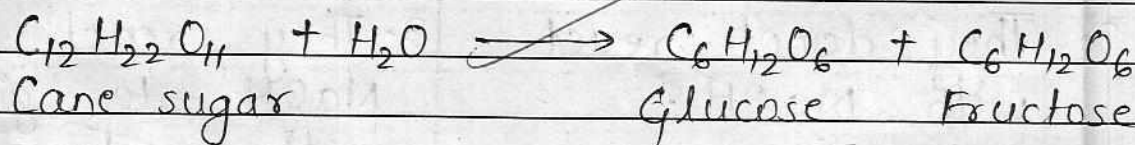


प्रश्न क्र.

Question-14 OR

Pseudo Order Reaction $\Rightarrow$ Those reactions in which the order of reaction is different as calculated by rate law prepared by using law of mass action is called as pseudo order reactions.

Example - Hydrolysis of Cane sugar



According to law of mass action

$$r = k [\text{C}_{12}\text{H}_{22}\text{O}_{11}] [\text{H}_2\text{O}]$$

Here order of reaction seems to be two
But actually,

$$r = k [\text{C}_{12}\text{H}_{22}\text{O}_{11}] [\text{H}_2\text{O}]^0$$

$\therefore$ Order of reaction = 1



प्रश्न क्र.

Question-15 Or

Alcohol

Phenol

1. It has no effect on litmus paper. (neutral nature)

1. It turns blue litmus to red. (acidic nature)

2.

It has alcoholic odour.

2.

It has specific phenolic odour.

M

3. They do not react with NaOH.

P

B

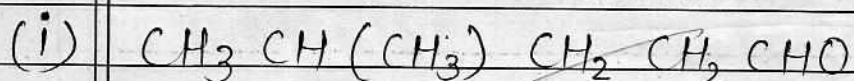
S

E

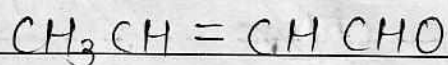
3. They react with NaOH to give sodium phenoxide (salt) and water.



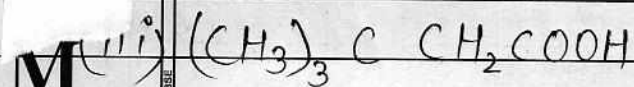
प्रश्न क्र.

Question-16

4-methyl pentanal



But-2-enal



P

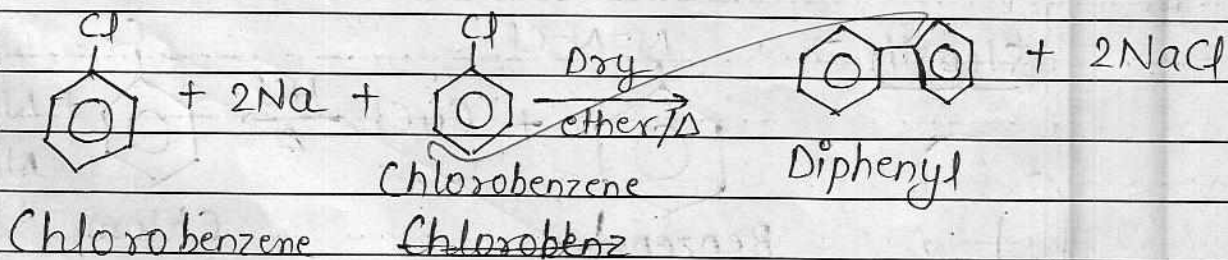
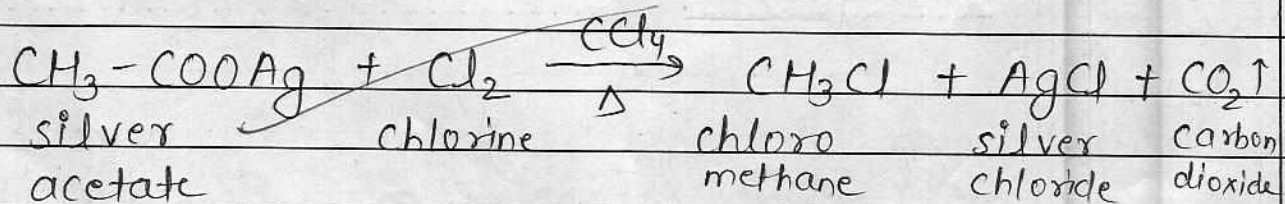
3,3-Dimethyl Butanoic acid

B

Question-17 OR

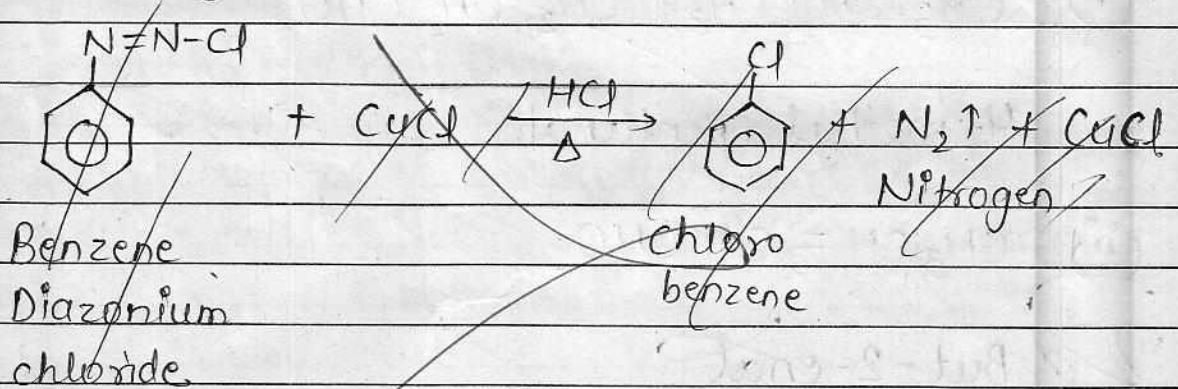
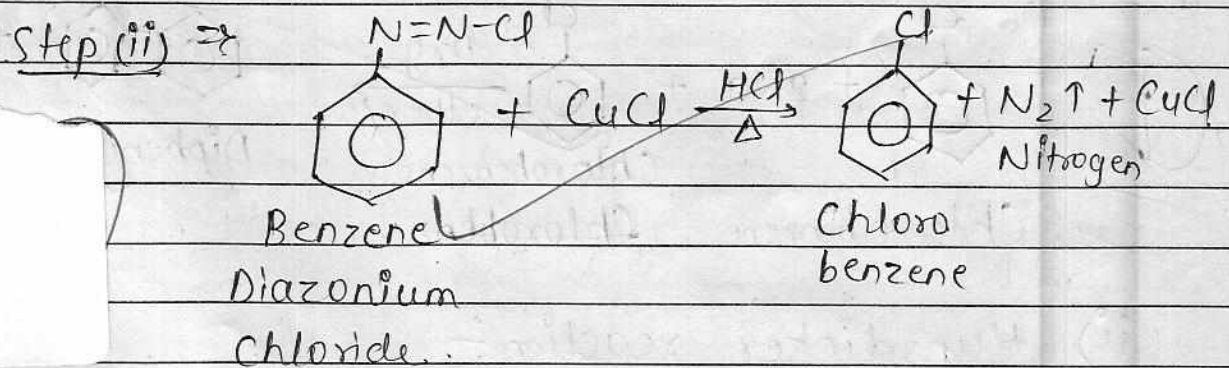
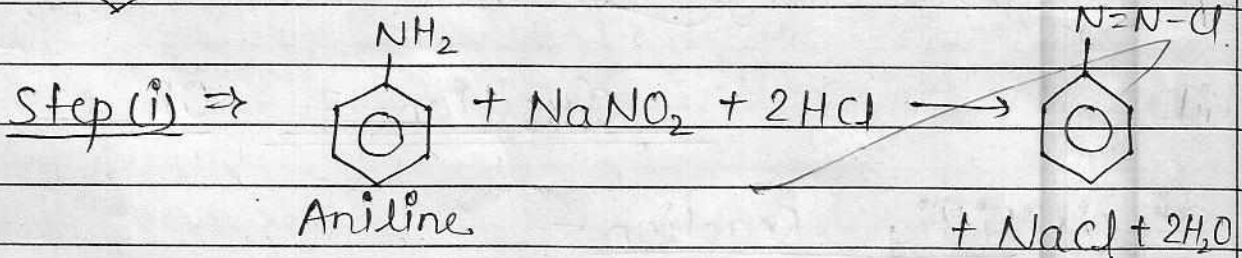
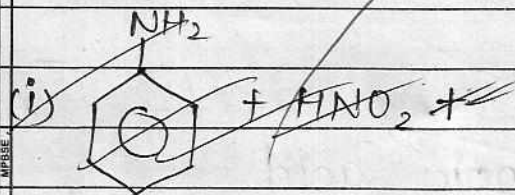
S

F

(i) Fittig Reaction -(ii) Hunsdieker reaction:-

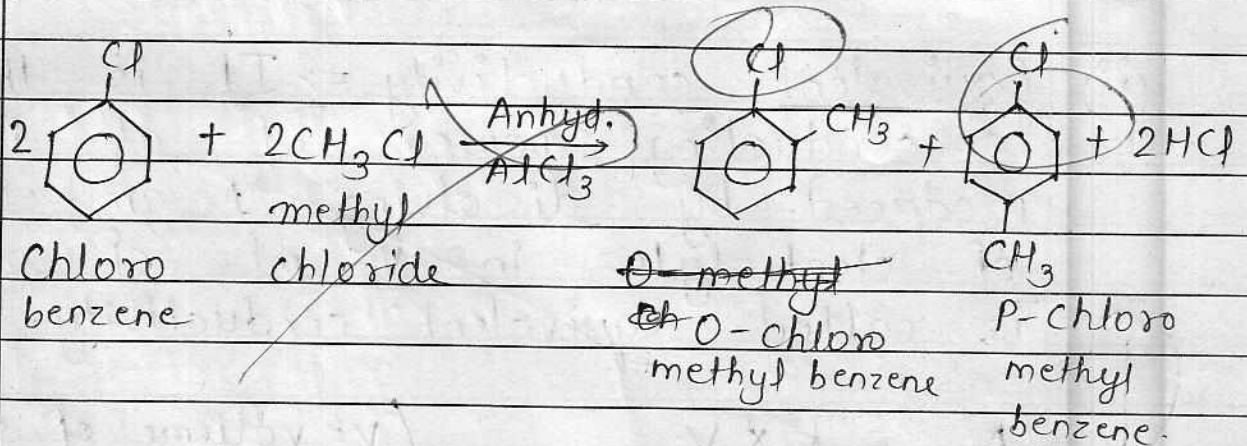


प्रश्न क्र.

(iii) Sandmeyer's reaction -M
P
B
S
E



प्रश्न क्र.

(iv) Friedel Crafts reaction $\Rightarrow$ 

M

Question-18 OR

P

(i) Specific conductivity $\Rightarrow$ It is reciprocal of specific resistance. It is denoted by k (kappa).

B

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

S

$$\therefore \rho = \frac{Ra}{l}$$

E

$$k = \frac{l}{Ra}$$

if $l = 1 \text{ cm}$
 $a = 1 \text{ cm}^2$

$$k = \frac{1}{R} = G$$

It is the conductance of a conductor having 1 cm length and 1 cm² area of cross section. In case of electrolyte it is the conductance of 1 ml electrolyte.



प्रश्न क्र.

$$\text{Unit} \Rightarrow \text{CGS} = \Omega^{-1} \text{cm}^{-1}$$
$$\text{SI} = \text{S m}^{-1}$$

(ii) Equivalent conductivity $\Rightarrow$ It is the conducting power of all ions produced by dissolving 1 gm-equivalent of electrolyte in V ml of solution, is called equivalent conductivity.

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

(V = volume of solution)
(K = specific conductivity)

$$\text{or } \Lambda_{eq} = \frac{K \times 100}{N}$$

(Unit - CGS - $\Omega^{-1} \text{cm}^2 \text{eq}^{-1}$)
(SI - $\Omega^{-1} \text{m}^2 \text{eq}^{-1}$)

**M
P
B
S
E** (iii) Molar conductivity $\Rightarrow$ It is the conducting power of all ions produced by dissolving by 1 mole of electrolyte in V ml of solution, is called as Molar conductivity. It is denoted by Λ_m .

$$\Lambda_m = K \times V$$

(V = Volume of solution)
(K = specific conductivity)

or

$$\Lambda_m = \frac{K \times 100}{M}$$

$$\text{Unit} = \text{CGS} - \Omega^{-1} \text{cm}^2 \text{mol}^{-1}$$
$$\text{SI} - \Omega^{-1} \text{m}^2 \text{mol}^{-1}$$



प्रश्न क्र.

(iv) Cell constant $\Rightarrow$ In electrolytic cell, the distance between electrodes is denoted by $[l]$ and area of cross section by $[a]$. The ratio l/a is always constant for a particular electrolytic cell, it is called as cell constant. It is denoted by G^*

$$G^* = \frac{l}{a}$$

M

P

B

S

E

$$\text{Unit} = \text{CGS} = \text{cm}^{-1}$$

$$\text{SI} = \text{m}^{-1}$$

(v) Specific resistance $\Rightarrow$ It is the resistance of 1 cm^3 of material.

We know that

$$R = \frac{\rho l}{a}$$

$$\text{if } l = 1 \text{ cm}$$

$$a = 1 \text{ cm}^2$$

$$R = \rho \quad \text{or} \quad \rho = R$$

It is the resistance of a conductor having 1 cm length and 1 cm^2 area of cross section of conductor. It is called as specific resistance. Its units in CGS $\Rightarrow$ is $\Omega \text{ cm}$ and in SI $\Rightarrow \Omega \text{ m}$.



प्रश्न क्र.

Question-19

lanthanoids

Actinoids

1. Their last electron enters in $4f$ orbital.1. Their last electron enters in $5f$ orbital.2. Their general electronic configuration is $6s^2 4f^{1-14} 5d^{0-1}$.2. Their general electronic configuration is $7s^2 5f^{1-14} 6d^{0-1}$.M 3. They are not
P radioactive in nature
B (except: Pm)

3. They are radioactive in nature.

S 4. They occur in nature.

4. Except: Th, Pa, U^{artificial} all are radioactive.

They are less basic in nature.

5. They are more basic in nature.