

2017



माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

24 पृष्ठीय

परीक्षार्थी द्वारा भरा जावे ↓

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

परीक्षा की तिथि के विषय में नीचे दिये गये दिनांक का ध्यान रखें।

पुस्तिका का
संलग्न क्रमांक

3540819

को में

परीक्षार्थी का रोल नम्बर

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One seven six seven three one seven zero two

नीचे दिये गये दिनांक का ध्यान रखें।

उदा

एक	एक	दो	चार	तीन	नौ	पाच	छः	आठ
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क - पूरक उत्तर पुस्तिकाओं की संख्या अंकों में 1 शब्दों में One

ख - परीक्षार्थी का कक्ष क्रमांक HALL-B

ग - परीक्षा का दिनांक 23 03 2017

परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

हायर सेकेण्डरी परीक्षा

केन्द्राध्यक्ष

केन्द्र क्रमांक-671054

पर्यवेक्षक का नाम एवं हस्ताक्षर

Shukh
23/03/17

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

Sonakia

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे ↓

प्रमाणित किया जाता है कि मूल्यांकन के समय पूरक उत्तर पुस्तिकाओं की संख्या उपरोक्तानुसार सही पाई होलो क्राफ्ट स्टीकर क्षतिग्रस्त नहीं पाया गया तथा अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अंकों की प्रविष्टि एवं अंकों का योग सही है।

निर्धारित मुद्रा : नाम, पदनाम, मोबाईल नम्बर, परीक्षक क्रमांक एवं पदांकित संस्था के नाम की मुद्रा लगाए।

उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा

(Signature)

परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा

(Signature)
अभिलाषा तिवारी
31710260 -
एम.एल.बी., गुना

केवल परीक्षक द्वारा भरा जावे।
प्रश्न क्रमांक के सम्मुख प्राप्तांकों की प्रविष्टि करें।

प्रश्न क्रमांक	पृष्ठ क्रमांक	प्राप्तांक (अंकों में)
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(Total marks in words and figures)

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Question - 01

(1)

(a) 8

(2)

(d) cm^{-1}

(3)

(a) fictive mass.

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S(4)

(a) Exothermic.

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(5)

(b) Chlorine.

Question - 2

(a) Seven (7)

(b) adsorbent

(c) HgCl_2

(d) Diamagnetic

(e) $(\text{C}_2\text{H}_5)_4\text{Pb}$. [Tetraethyl lead]

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□ + □ = □

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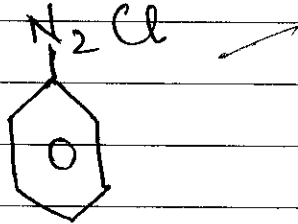
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Question - 3

(a) Bragg's Equation = $n\lambda = 2d \sin\theta$.

(b) Peptide bond links amino acid together.

(c) Benzene diazonium chloride.



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

$$\Rightarrow x - 6 = -3$$
$$\Rightarrow x = +6 - 3$$
$$\Rightarrow x = +3.$$

Oxidation no. of Fe = +3.

(e) Xenon is the noble gas which forms maximum compounds.

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Question 4

Column A

Column B.

(a) Smell of mustard gas

(iii) Methyl Isothiocyanate.

(b) Explosive

(iv) I.N.T

(c) Hair fall

(i) Biotin.

(d) Amorphous solid

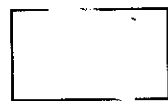
(ii) Glass.

(e) Glycogen

Hetero polysaccharide

(vi) Glycogen.

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Question 5

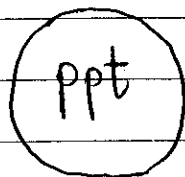
Ans. Peptization :-

Peptization is defined as a process to obtain a colloidal solution from precipitated compound or coagulated compound by addition of electrolyte into it.

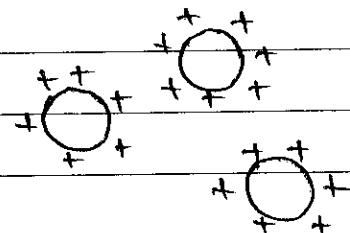
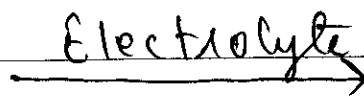
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precipitate



colloid.

Question - 6

Ans

Ionisation energy of noble gas is highest because they have complete duplet or octate. That is why all the electrons in its orbitals are paired and the element is stable.

To ionise an electron from noble gas require

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$$\boxed{2} + \boxed{\quad} = \boxed{\quad}$$

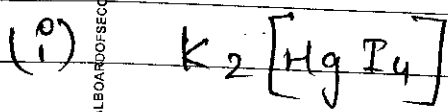
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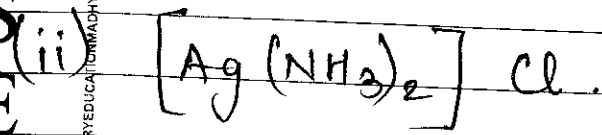
huge amount of energy. So, we can say that ionisation energy of noble gas is highest.

Question - 07

OR



→ Potassium tetra-iodomercurate(II)



→ Diammino silver(I) chloride.

Question - 08

OR

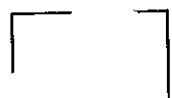
(i) Vitamin A

Diseases → Night Blindness
→ weak eyesight.

(ii) Vitamin D

Diseases → Rickets (Children)
→ Osteomalacia (Adults).

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Question - 09

OR.

Positive deviation

Negative Deviation.

Solution

Solution

(i) It shows +ve deviation from Raoult's law as it has higher vapour pressure than estimated by Raoult's law.

It shows -ve deviation from Raoult's law as it has lower vapour pressure than estimated by Raoult's law.

(ii) Change in enthalpy is +ve.

Change in enthalpy is negative.

$$\Delta H = +ve.$$

$$\Delta H = -ve.$$

(iii) Change in volume after mixing two components the change is +ve.

Change in volume after mixing two components the change is -ve.

$$\Delta V = +ve.$$

$$\Delta V = -ve.$$

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(4) It forms constant boiling azeotropic solution with lower boiling point.

It forms constant boiling azeotropic solution with higher boiling point.

(5) force of attraction between components of solution is weak.

force of attraction between component of solution is strong.

CCl₄ + Benzene.
CCl₄ + C₆H₅CH₃ (Toluene).

Eg → H₂O + HNO₃
→ Acetone + Chloroform.

Question 10

Solution ⇒ Given, wt of NaOH (solute) = 4 gm.
wt of solⁿ = 500 ml.
we know that,

Normality = $\frac{\text{Gram equivalent of solute}}{\text{Volume of solution.}}$

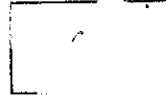
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$$\text{Gram equiv. of solute} = \frac{\text{Equivalent wt. of NaOH}}{\text{Molecular wt. of NaOH}}$$

$$\Rightarrow \text{Gram equivalent wt of NaOH} = \frac{\text{given wt of solute}}{\text{Equivalent wt.}}$$

$$\Rightarrow \text{Equivalent wt of NaOH} = 40 \text{ gm.}$$

So,

$$\Rightarrow \text{Gram equivalent wt of NaOH} = \frac{4 \text{ gm}}{40 \text{ gm.}} = \frac{1}{10}$$

$$\Rightarrow \text{Normality} = \frac{\text{Gram equiv.} \times 1000}{\text{Volume of sol}^n \text{ in ml}}$$

$$= \frac{1 \times 1000}{10 \times 500}$$

$$= \frac{1}{5} = \boxed{0.2 \text{ N.}}$$

Hence, normality of solution is 0.2 N.

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$$\boxed{\text{योग पूर्व पृष्ठ}} + \boxed{\text{पृष्ठ के अंक}} = \boxed{\text{उ. 1 अंक}}$$



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Question - 11

Ans Inner Transition Elements :-

- (1) Inner transition elements are also known as f-block elements.
- (2) In these elements last electrons enter in $(n-2)f$ orbital.

(3) The general electronic configuration of these elements is

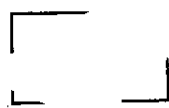
$$(n-2)f^{1-14} (n-1)d^{1-10} ns^{1-2}$$

- (4) Inner transition elements occupy two rows in periodic elements namely:-

- (i) Lanthanides
- (ii) Actinides.

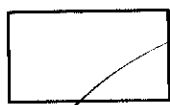
- (5) All the inner transition elements show metallic property and are electro positive.

12



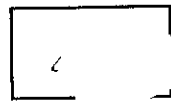
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(6) f-block elements are called inner transitional elements because in these elements transition takes place in anti-penultimate shells or inner orbital.

(7) Inner transitional elements are rarely found and are used for purpose of radioactivity.

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Question - 12

Lanthanides

Actinide.

(1) Last electron in these elements enters in 4f shell.

Last electron in these shells enters into 5f shell.

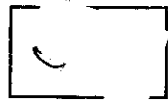
(2) Lanthanides are less basic.

Actinides are more basic in character.

(3) They have less tendency to form complexes.

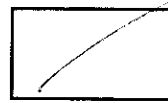
They have more tendency to form complexes.

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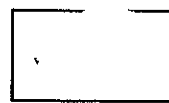
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(II) Temperature

→ Temperature of the system and surrounding is an important factor in determining the rate of reaction.

Exothermic reactions proceed rapidly in forward direction under the condition of low temperature.

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(III) Presence of catalyst

→ Involvement of catalyst enhance the rate of reaction in a drastic way. There are two type of catalyst:-

(a) Positive catalyst → enhance the rate of reaction.

(b) Negative catalyst → decrease the rate of reaction.



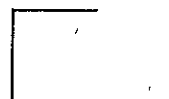
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IV] Nature of reactants

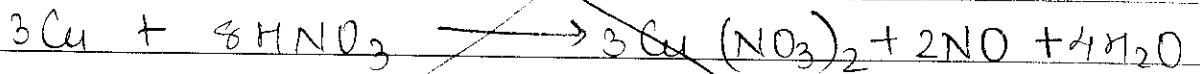
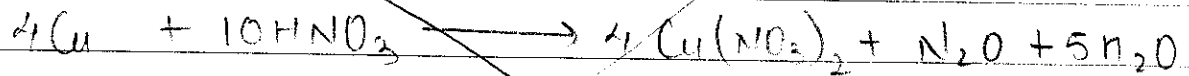
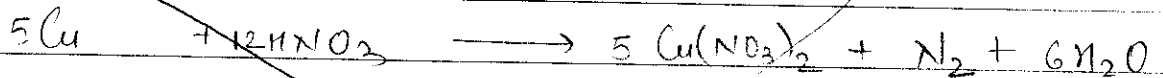
→ If the reactants

in reaction are reactive than the reactive rate will increase.

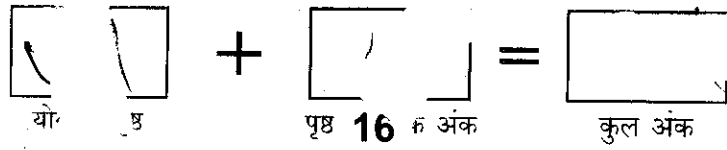
And if reactants have pre-existing strong bond between them than the rate of reaction will decrease.

V] Radiation →

Some reaction enhance its rate of reaction and are affected due to the presence of some radiation like UV rays.



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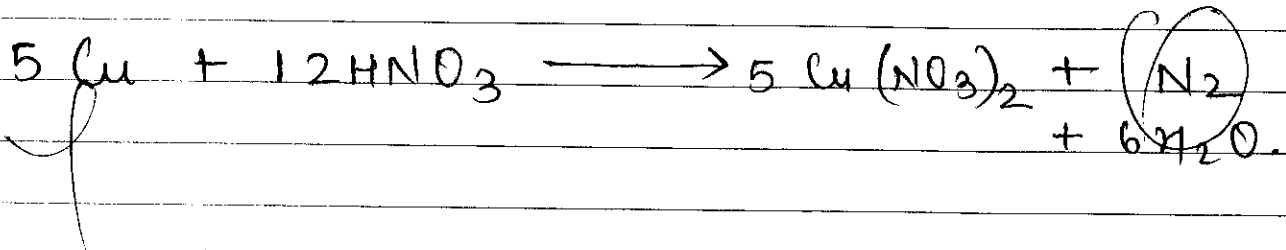
Question - 14

OR

Ans. Chemical Reaction of copper with nitric acid.

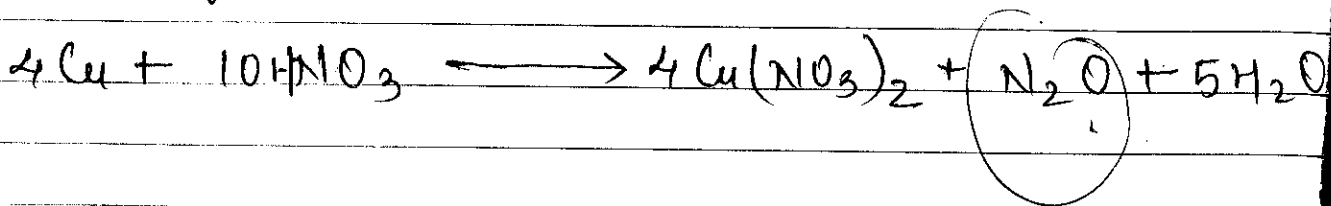
I Condition I \rightarrow cold & dilute HNO_3 used.

when cold and dilute HNO_3 is made to react with copper we get N_2 , $Cu(NO_3)_2$ and water as b.p product.



II Condition II \rightarrow Hot and dilute HNO_3 .

when hot and dilute HNO_3 is made to react with copper we get N_2O , $Cu(NO_3)_2$ & water.



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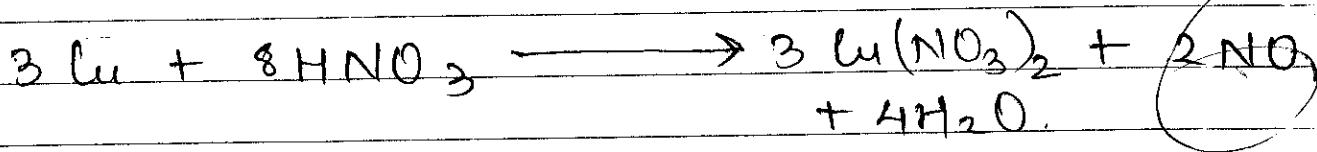
$$\boxed{\quad} + \boxed{\quad} = \boxed{\quad} +$$

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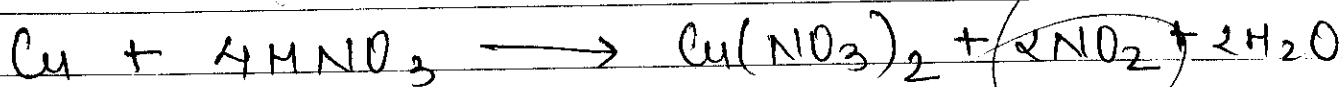
Condition III → 50% concentrated HNO₃

when 50% concentrated HNO₃ is made to react with copper we get NO, Cu(NO₃)₂ & water as by-product.



Condition IV :- Highly concentrated HNO₃

when highly concentrated HNO₃ is made to react with copper we get NO₂, Cu(NO₃)₂ & water as by-product.



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$$\boxed{\quad} + \boxed{\quad} = \boxed{\quad}^n$$

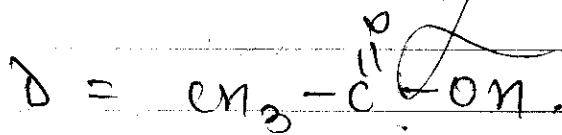
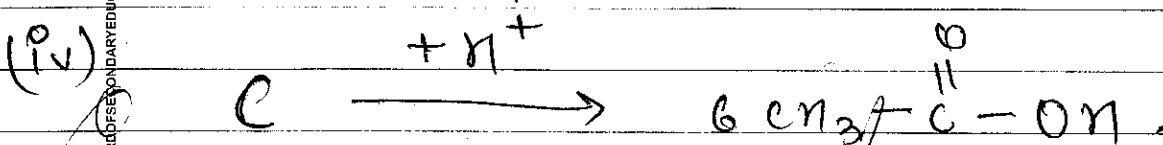
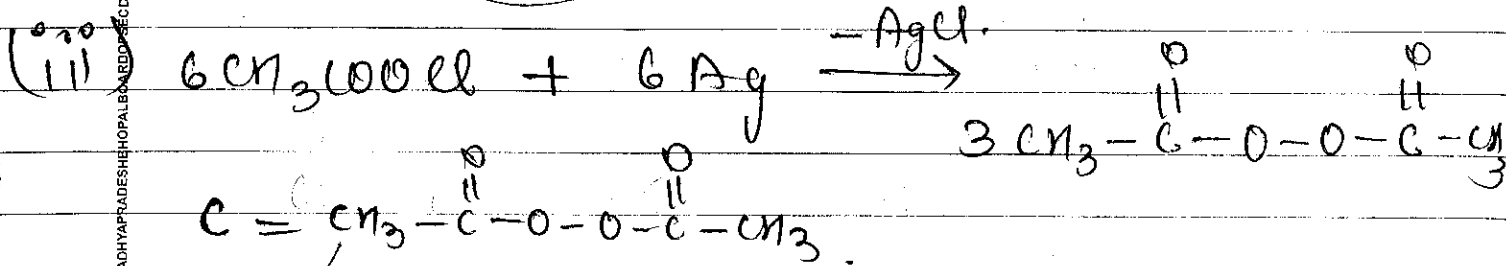
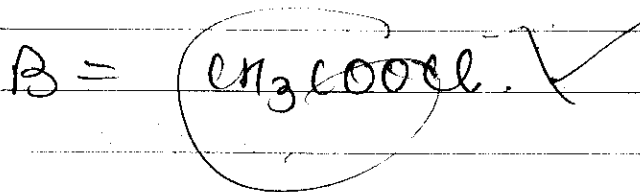
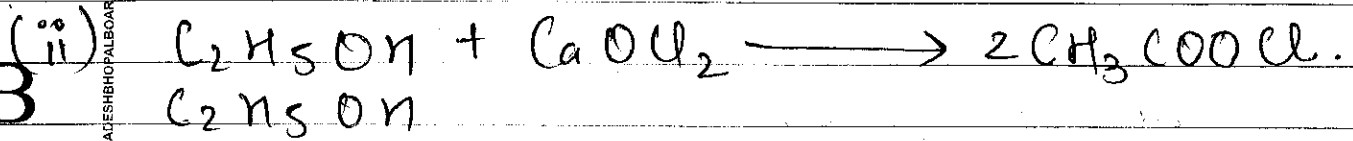
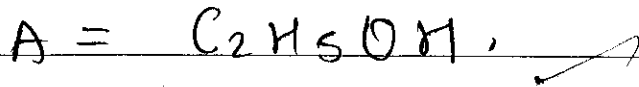
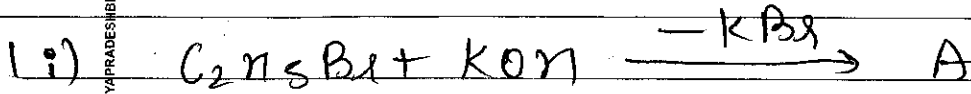
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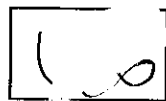
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Question - 15

OR.



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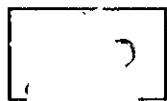


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Question - 16

S.no	Phenol	Alcohol.
(1)	Phenol is acidic in character.	Alcohol is neutral in character.
(2)	Phenol has a characteristic phenolic smell.	Alcohol has a pleasant smell.
(3)	Phenol has a toxic effect on cells.	Alcohol has narcotic effect.
(4)	Phenol do not perform esterification with carboxylic acid.	Alcohol gives esterification reaction with carboxylic acid.
(5)	Alcohol phenol do not react with halogen acid.	Alcohol react with halogen acid to give alkyl halide.
		$C_2H_5OH + HCl \rightarrow C_2H_5Cl + H_2O$

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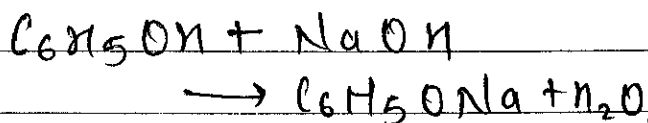
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(6) Phenol react with alkali to give salt.

Alcohol do not react with alkali.

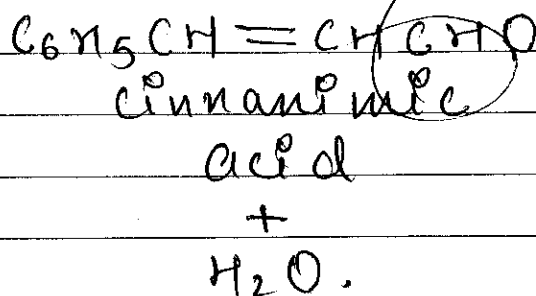
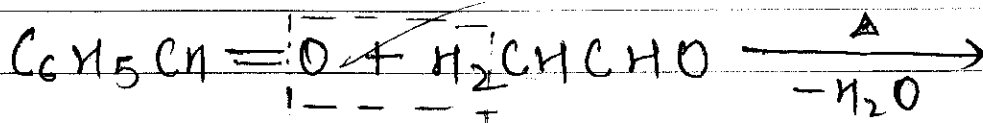


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Question - 17

(i) Perkin's Reaction :-

Perkin's reaction takes place between benzaldehyde and ~~acetic~~ any aliphatic aldehyde leading to formation of cinnamic acid.

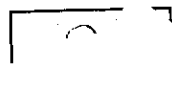


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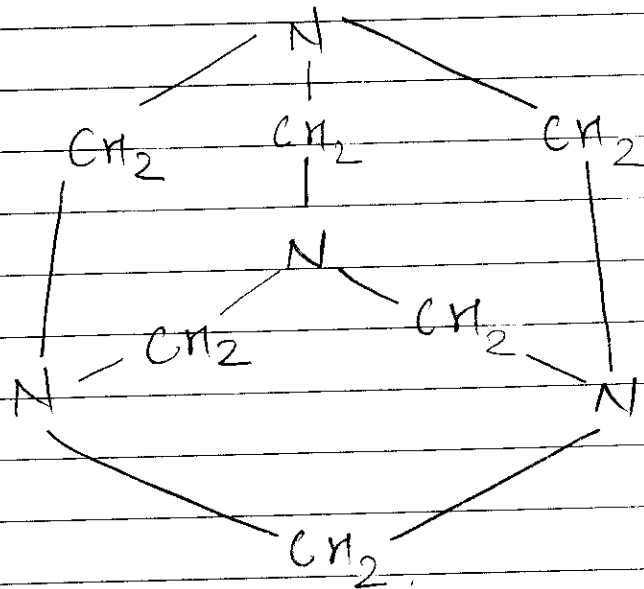
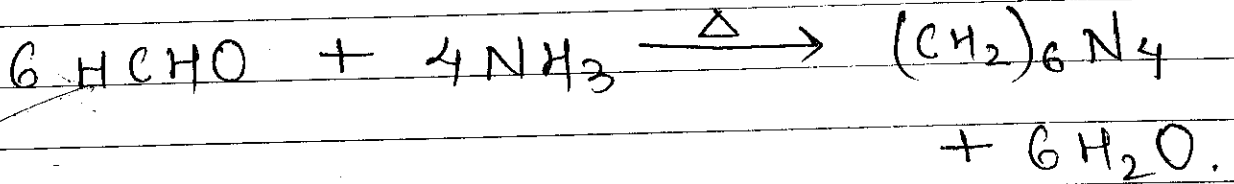
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(ii) Utropine →

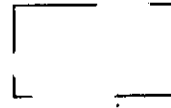
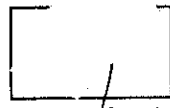
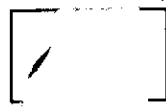
Utropine is a compound formed by reaction between ammonia and aldehyde.



Utropine

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Question - 18

The Kohlrausch Law

→ Kohlrausch law states that "at infinite dilution the molar conductance of solution is the sum of individual molar conductance of cation & anion."

$$\lambda_m^\infty = \nu \lambda_m^+ + \nu \lambda_m^-$$

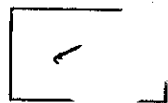
Here

λ_m^∞ = molar conductance of solution at infinity.

$\nu \lambda_m^+$ = molar conductance of cation

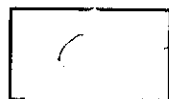
$\nu \lambda_m^-$ = molar conductance of anion

ν = no. of anion & cation.



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Application of Kohlrausch law :-

I] Kohlrausch law is used to determine the dissociation or to know the molar conductance of weak electrolyte.

Example

→ CH_3COOH is a weak electrolyte & its conductance can be known by Kohlrausch law if we know the molar conductance of CH_3COONa , HCl and NaCl which are strong electrolyte.



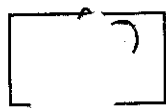
$$\lambda_m^\infty \text{CH}_3\text{COOH} + \lambda_m^\infty \text{NaCl} = \lambda_m^\infty \text{CH}_3\text{COONa} + \lambda_m^\infty \text{HCl}$$

→ By Kohlrausch law,

$$\lambda_m^\infty \text{CH}_3\text{COOH} = \lambda_m^\infty \text{CH}_3\text{COONa} + \lambda_m^\infty \text{HCl} - \lambda_m^\infty \text{NaCl}$$

II] Kohlrausch law is also used to determine the dissociation constant, i.e. alpha (α).

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Dissociation = α = molar conductance at constant concentration

molar conductance at infinite dilution.

$$\alpha = \frac{\lambda_m^c}{\lambda_m^\infty}$$

where,

λ_m^c = molar conductance at particular concentration.

λ_m^∞ = molar conductance at infinite dilution.

Question - 19

Ans. Oxy acids of Sulphur

S.No.	Name of comp.	Formula	Ox. no.	Structure.
1	Sulphurous acid	H_2SO_3	+4	

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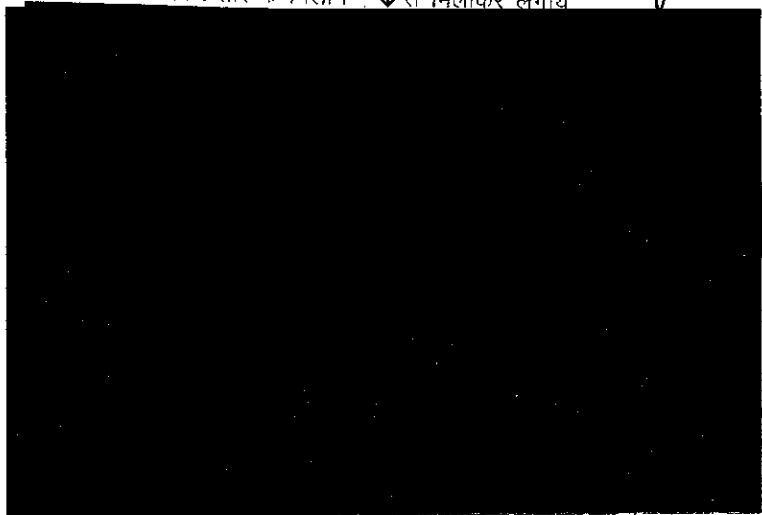
माध्यमिक शिक्षा मण्डल, मध्य प्रदेश, रा.पाल.

4 पृष्ठों में

परीक्षा का विषय : Chemistry विषय कोड : 220 परीक्षा का माध्यम : English परीक्षा का दिनांक : 23/03/2017

स्टीकर तीर के निशान ↓ से मिलाकर लगायें

परीक्षार्थी द्वारा भरा जावे →



परीक्षा का नाम एवं परीक्षा केंद्र क्रमांक

हाइवर्ड सेकेंडरी परीक्षा

पर्यवेक्षक का नाम एवं हस्ताक्षर

[Signature]

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

Sonakia

मुख्य उत्तर पुस्तिका के अंतिम पृष्ठ क्रमांक तक कुल प्राप्तांक + =

S.no	Name	Formula	Ox no.	Structure.
2.	Sulphuric acid	H_2SO_4	+6	
3.	Pyrosulphuric acid	$H_2S_2O_7$	+2	
4.	Oleum OR pyrosulphuric acid	$H_2S_2O_7$	+6	

अंकों का योग

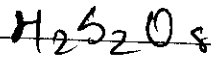
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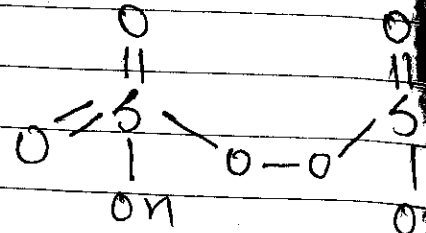
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5. Marshall's acid or peroxo sulphuric acid



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Question - 20

OR

B (i) Anti fertility drugs :-

These drugs are responsible for alteration in menstrual cycle of human female. These drugs are taken so as to avoid ovulation & fertilisation.

They are taken in form of oral pills which is composed of synthetic estrogen and progesterone.

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(ii) Disinfectant →

These are the chemical compounds used to avoid infection caused by bacteria and other micro-organisms.

These include Dettol, Chloroxyleneol, Biothenol, etc. which have antiseptic and antibacterial property.

(iii) Sulpha drugs →

Sulpha drugs are antibacterial drugs used as a resistance against various diseases.

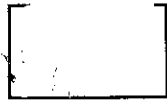
eg → Sulphadiazene
→ Sulphadiazine etc.

(iv) Analgesic

→ These drugs reduce pain. These drugs are given to patient who had an injury or fracture to reduce the pain in muscles or other body parts.

Example → Paracetamol
→ Aspirin.

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(V) Antipyretic →

Antipyretics are drugs which reduce body temperature. Antipyretics are given to patients suffering from fever and uneasiness.

It include drugs like paracetamol and aspirin.