0009

माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

मु.उ.पु. 24 पृष्ठ

कार्यालयीन उपयोग के लिए

परीक्षा के नाम की सील

केन्द्र क्रमांक की सील

केन्द्र क्रमांक-212023

निम्न रिक्तियों की सही प्रविष्टि परीक्षार्थी द्वारा की जाए।

1. विषय कोड 220 परीक्षा का विषय Chemistry

2. परीक्षा का माध्यम English परीक्षा की दिनांक 6-3-09

3. परीक्षार्थी प्रश्न पत्र का पूर्ण कोड नम्बर (सेट A, B, C,या D) अनिवार्यतः भरें — कोड U-2044 सेट C

स्टीकर तीर के निशान

परीक्षार्थी का अनुक्रमांक (अंग्रेजी अंकों में)

2 9 2 1 1 8 2 0 0

नीचे दिये प्रत्येक कालम में ऊपर दिये गये अनुक्रमांक के अंकों को उसी क्रम में शब्दों में लिखा जाए :-

Two | One | One | Eight | Two | zero | zero

पर्यवेक्षक/केन्द्राध्यक्ष का प्रमाणीकरण

प्रमाणित किया जाता है कि परीक्षार्थी द्वारा निम्नानुसार पूरक उत्तरपुस्तिका ली गई है :-

क :- संख्या शब्दों में X अंकों में २

ख :- परीक्षार्थी की बैठक व्यवस्था कक्ष क्रमांक 10 में है।

ग :- उत्तर पुस्तिका पर प्रश्न-पत्र का कोड नम्बर एवं सेट सही लिखा है।

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हस्ताक्षर (पर्यवेक्षक)

नाम पद

पता/संस्था

परीक्षार्थी द्वारा ली गई सभी पूरक उत्तर पुस्तिकायें, मुख्य उत्तर पुस्तिका के साथ संलग्न हैं।

हस्ताक्षर केन्द्राध्यक्ष

प्रश्न	पृष्ठ	प्राप्तांक	प्रश्न	पृष्ठ	प्राप्तांक
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
कु. प्रा.					

परीक्षार्थी, परीक्षक से अपेक्षा है कि वे पृष्ठ भाग पर दिये गये निर्देशों का यथेष्ट पालन सुनिश्चित करेंगे।

प्रमाणित किया जाता है कि उपरोक्तानुसार संलग्न पूरक उत्तर पुस्तिकाएं यथा स्थिति में यथावत् रखते हुए ही उत्तरपुस्तिका का मूल्यांकन किया गया पुस्तिका के अन्दर के अंक एवं कव्हर पृष्ठ पर दर्शाये अंक एक समान

हस्ताक्षर (परीक्षक)

परीक्षक क्रमांक 9160

हस्ताक्षर (उपमुख्य परी

दिनांक

दिनांक

परीक्षार्थी के लिए निर्देश

1. परीक्षार्थी को अपना अनुक्रमांक/विषय/माध्यम/दिनांक एवं प्रश्न–पत्र का कोड (समूह) मुख पृष्ठ पर अंकित करना अनिवार्य है। अन्यत्र कहीं भी नहीं लिखा जाएगा।
2. अनुक्रमांक नीचे दिये गए उदाहरण अनुसार लिखा जाए :–

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

3. उत्तर पुस्तिका के दोनों ओर पृष्ठों में लिखें। बीच में रिक्त स्थान न छोड़ें। भूल से छूटा/रिक्त स्थान तथा शेष खाली पृष्ठों को क्रास किया जाए।
4. परीक्षार्थी प्रश्न पत्र हल करते समय ही, कव्हर पृष्ठ पर दी गई तालिका में प्रश्न क्रमांक के सम्मुख वाले कालम में उत्तरपुस्तिका का वह पृष्ठ क्रमांक अनिवार्य रूप से अंकित करें जिस पर प्रश्न का उत्तर लिखा गया है। यदि पूरक उत्तरपुस्तिका का उपयोग किया गया हो, तो उस पर 25 से प्रारंभ करते हुए पृष्ठ क्रमांक परीक्षार्थी द्वारा स्वयं डाले जाएँ।

परीक्षक के लिए निर्देश

1. केवल उन्हीं उत्तरपुस्तिकाओं का मूल्यांकन करें जिन पर होलो क्राफ्ट स्टीकर चस्पा है।
2. उत्तरपुस्तिका का मूल्यांकन होलो क्राफ्ट स्टीकर को चस्पा स्थिति में यथावत् रखते हुए ही किया जाये।
3. बिना होलो क्राफ्ट स्टीकर वाली तथा फटे हुए होलो क्राफ्ट स्टीकर वाली सभी उत्तरपुस्तिकाऐं मूल्यांकन हेतु परीक्षा नियंत्रक, माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल को व्यक्तिशः रूप से भेजी जाये।

मूल्यांकन केन्द्र के लिए निर्देश

1. **O.M.R. SHEET** पर प्राप्तांक की प्रविष्टि करने हेतु केवल वही उत्तरपुस्तिकाएँ प्राप्त करें, जिनका मूल्यांकन होलो क्राफ्ट स्टीकर को चस्पा स्थिति में यथावत् रखते हुए ही किया गया है। यदि होलो क्राफ्ट स्टीकर फटा हुआ पाया जाता है तो ऐसी उत्तरपुस्तिकाऐं मूल्यांकन केन्द्र अधिकारी को पृथक से सौपी जाएँ। ऐसे प्रकरणों के प्राप्तांकों की प्रविष्टि **O.M.R. SHEET** में नहीं की जाए। मूल्यांकन केन्द्र अधिकारी ऐसी उत्तरपुस्तिकाऐं पुनः मूल्यांकन के लिये परीक्षा नियंत्रक, माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल को व्यक्तिशः रूप से सौपेंगे।
2. उत्तरपुस्तिका के मुख्य पृष्ठ में अंकों एवं शब्दों में अंकित प्राप्तांकों को मिलान कर **O.M.R. SHEET** में अंकों की सटीक प्रविष्टि करें।
3. **O.M.R. SHEET** पर प्रमाणीकरण कर हस्ताक्षर करें।

(1) (A) (iv) ~~Decreases~~ Does not change

(B) (ii) $ohm^{-1} cm^{-1}$

(C) (iv) colloidal solution

(D) (ii) $C_6H_5N_2Cl$

(iii) Morphine

BSEM

int defects are present in NaCl type crystals.

(b) Number of moles of solute is 1000 gram solvent is known as molality

Fast reactions are completed in less than 10^{-9} seconds

Vitamin K is responsible for the clotting of blood

Primary amines on heating with $CHCl_3$ and NaOH or KOH form alkyl isothio-cyanide

पृष्ठ के अंकों का योग

(3) (A) Diamond – Covalent solid

(B) CCl_3NO_2 – Chloro picrin

(C) Coagulation = Precipitation of colloidy solutions

(D) Laughing gas – N_2O

Argon – Useful in bulbs

(4) (i) Ni

(ii) Colloidal movement

(iii) Homogeneous

(iv) = completely filled d-orbitals

(v) $AgNO_3$

BSEM

पृष्ठ के अंकों का योग

Ans- 5. "The time at which half of the concentration of reactant is converted into product is called half life"

It is denoted by $t_{1/2}$.

We know, for first order reaction, if the conc. 'x' of the reactant has converted into product whose initial concentration was "a" then the rate constant 'k' and time 't' are related as :-

$$kt = 2.303 \log_{10} \frac{a}{a-x}$$

when $x = a/2$ then $t = t_{1/2}$ as defined above :

$$\Rightarrow kt_{1/2} = 2.303 \log_{10} \frac{a}{a - a/2}$$

$$= 2.303 \log_{10} 2$$

$$\Rightarrow t_{1/2} = \frac{2.303 \times 0.3010}{k}$$

$$\Rightarrow \quad t_{1/2} = \frac{0.693}{k}$$

This is the required relationship.

Ans- 6. Photography is the process of finding an exact impression of the object on the paper.

First of all, for photography we have to prepare a photographic plate with the use of silver halide, & this photographic plate is used to produce the negative impression of the object which is opposite to that of exact impression. then by toning, the colour and brightness of the photograph gets clears and by fixing of photograph and by the use of $S_2O_3^{2-}$, the exact impression finally got on the photographic plate.

Ans: 7. Bleaching of flowers is permanently by Cl_2 while temporary by SO_2, the explaination is :-

Bleaching action by SO_2.

When SO_2 is reacted in the moist it gives highly reducing agent i.e. nascent hydrogen as given as follows.

$$SO_2 + 2H_2O \longrightarrow H_2SO_4 + 2[H]$$

When any coloured substance reacted with nascent hydrogen then it becomes colourless and again when moist they become coloured again, hence bleaching by SO_2 is temporary. i.e.

Coloured substance + $[H]$ $\longrightarrow$ Colourless $\xrightarrow{\text{moist}}$ Coloured.

(2)

B S F

Bleaching action by Cl_2 :-

When Cl_2 is reacted in moist then it produced nascent oxygen, which once decolourise any substance will not allow to regain its colour again even on again reacted with moist.

i.e. $Cl_2 + H_2O \longrightarrow 2HCl + [O]$

Coloured $\xrightarrow{[O]}$ Colourless substance

B S E M P

Ans-8 The main physical properties of noble gases are :-

(i) They are chemically inerty and does not react with any other element to form molecule at normal temperature as they have their octet complete and hence more stable.

(ii) Their ionization energy is quite

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very high as they have all the paired electron in their respective subshell.

(iii) as they do not react with other element they are also known as noble gases as their electronic configuration is complete according to octet rule.

Helium, Neon, Argon, Krypton, Xenon are gases at ordinary temperature and Radon is a radioactive element.

Ans- 9

(i) $K_4[Fe(CN)_6]$

Potassium Hexacyanoferrate (II)

(ii) $[Cr(NH_3)_6](NO_2)_3$

Hexaamminechromium (III) nitrite

~~(iii) $Ni(CN)_3Cl$ $[Ni(CN)_3Cl_2]$~~

~~(iii)~~ (iii) $[Ni(CN)_3]Cl_3$

Tricyanonickel (VI) chloride.

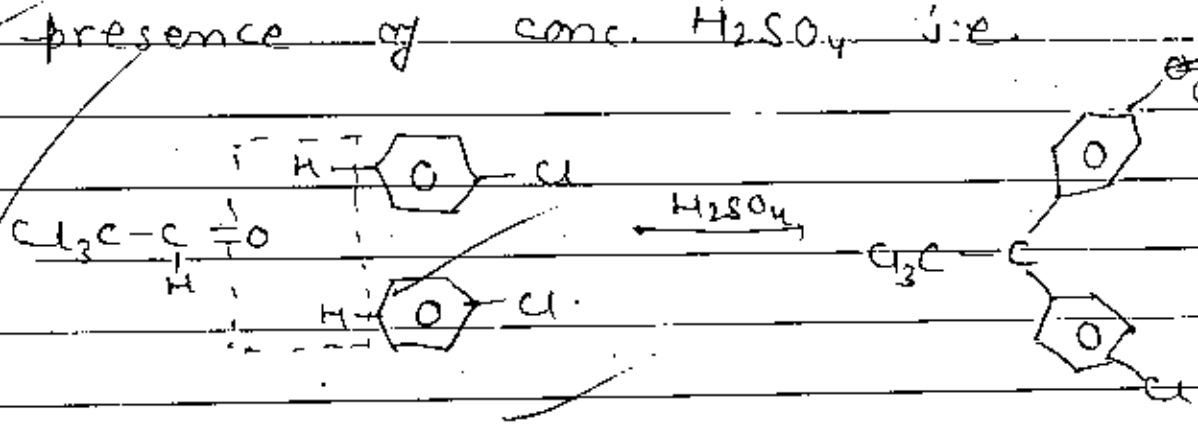
(iv) $K_2[PtCl_6]$

Potassium Hexachloroplatinate (IV)

Ans - 10

(i) D.D.T.

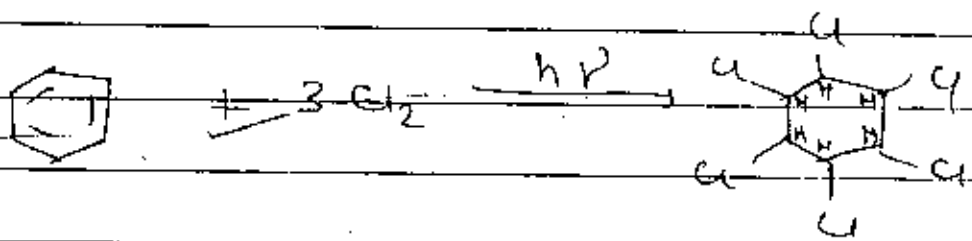
The full form of DDT is dichlorodiphenyl trichloro ethane. It is prepared by the reaction of chloro benzene with chloral in the presence of conc. H_2SO_4 i.e.



It is used as insecticide. In past days but nowadays it is not frequently used because it can harm to the crops also.

B.H.C. (gammexane)

It is also known as lindane. It is prepared by the reaction of benzene with chlorine gas in the presence of sunlight i.e.



B HC

Its name is Hexa chloro benzene also it called as gammexane and lindane.

It is a pesticide and used is controlling pests.

Ans-11 Williamson's continuous etherification is a process of preparing ether. In this process ethanol is allowed to react with H_2SO_4 i.e. sulphuric acid which inturn produces the ether, the reactions occurs are as follows :-

$$C_2H_5OH + H_2SO_4 \longrightarrow C_2H_5HSO_4 + H_2O$$

$$C_2H_5HSO_4 + C_2H_5OH \longrightarrow C_2H_5OC_2H_5 + H_2SO_4$$

In this process H_2SO_4 used in the reactant is again created in the product and hence it does not take in ex

It is not the continous etherification process due to the following reasons :-

(i) Water produced in the reaction diluted H_2SO_4 solution which reduces its reducing power

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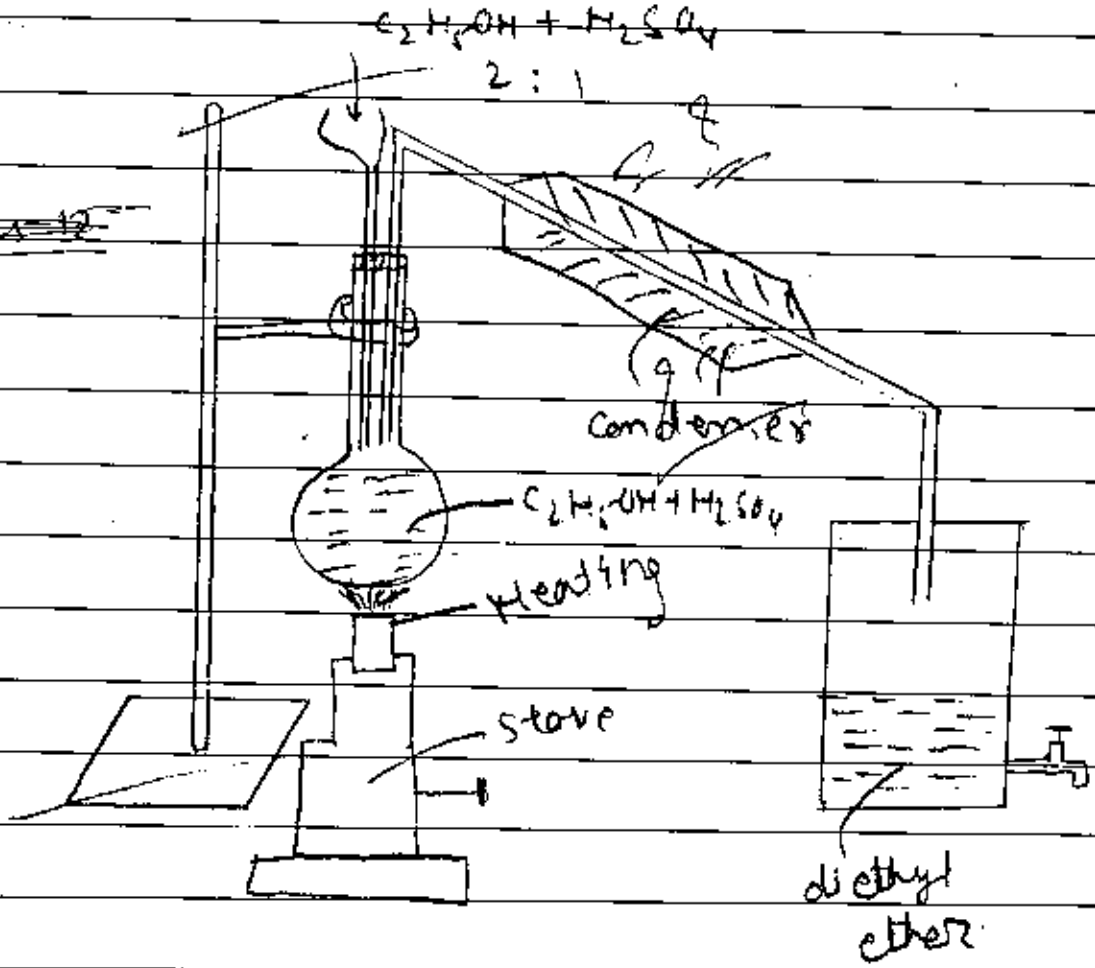
(ii) Alcohol in the reaction also reduces some part of the H_2SO_4.

Due to all these reasons, it is not continuous etherification process

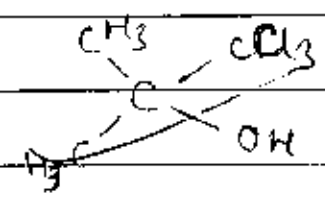


Williamson continuous etherification

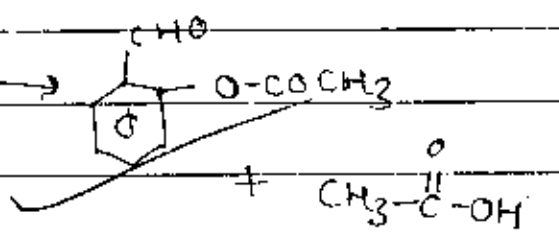
Ans- 12.

(i) $CH_3COOH + C_2H_5OH \longrightarrow CH_3-\overset{O}{\overset{\|}{C}}-O-C_2H_5 + H_2O$

(ii) $CH_3COOH + NH_3 \longrightarrow CH_3-\overset{O}{\overset{\|}{C}}-NH_2 + H_2O$

(iii) $CH_3-\overset{O}{\overset{\|}{C}}-CH_3 + CHCl_3 \longrightarrow$ 

Chloretone

$C_6H_5CHO + CH_3-\overset{O}{\overset{\|}{C}}-O-\overset{O}{\overset{\|}{C}}-CH_3 \longrightarrow$ 

Ans-13

	DNA	RNA
(i)	It is found in nucleic cell only	These are found in nucleic cell as well as cytoplasm.

2.	It consists of deoxyribose sugar.	2. It consists of ribose sugar.
3.	The full form of DNA is deoxyribose nucleic acid.	4. Its full form is Ribose nucleic acid.
4.	It is responsible for the heredity character in the human beings.	4. It is used in the different meta - bolism reaction.
	In DNA, uracil group is not present	5. In RNA, thyamine is absent

Ans - 14. Kanad :-

Kanad was the Indian first scientist who proposed the theory of atomic model and the atom. ~~He says that~~ He proposed that atom is the simplest form of compound,

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Atom is the unit cell which cannot be cut more and its shows the property the matter.

(ii) Sushrut:

Sushrut is known as the "father of surgery". He was the one who made many surgical device and instrument for the surgery.

He proposed many ~~a~~ ways to knew more about the ~~the~~ bone facture and many other surgical things.

He had about 300 surgical devices and about 139 surgical instruments and their cure.

Just because of all this he was called the "father of surgery".

Ans:- 15. When a non volatile solute is added to the solvent then the resultant solution have depressed in freezing point in its solution, occurs, this is called depression in freezing point."

Numerical solve :-

mass of solute NaCl = 1 gm

Mass of solvent H_2O = 100 gm.

$K_f = 1.85$ K kg/mol.

$\Delta T_f = 0.604$ K.

We have $\Delta T_f = i \, K_f \cdot m$

$0.604 = i \cdot 1.85 \times \frac{1}{58.5} \Big/ \frac{100}{1000}$

$0.604 = i \times 1.85 \times \frac{10}{58.5}$

$\Rightarrow i = 1.909$ — (1)

[ ]
पृष्ठ के अंकों का योग

Now

$$NaCl \rightleftharpoons Na^+ + Cl^-$$

a	–	–
$a-x$	x	x

$\therefore i = 1 - x + nx$

$\because n = 2$

$i = 1 - x + 2x$

$i = 1 + x$

from eq ①, we have

$1 + x = 1.909$

$\Rightarrow x = 1.909 - 1$

$= 0.909$

hence degree of dissociation

$= 90.9\ \%$

Ans-16 Kohlrausch's law :-

The law states that :-

"The molar conductivity of any compound at infinite dilution is equal to the partial sum of the ions elements molar conductivity at infinite dilution multiplied by their respective no. in the given molecule"

e.g. $\lambda^{\infty}_{CH_3COOH} = \lambda^{\infty}_{CH_3COO^{\ominus}} + \lambda^{\infty}_{H^+}$

$\lambda^{\infty}_{BaCl_2} = \lambda^{\infty}_{Ba^{++}} + 2\lambda^{\infty}_{Cl^{\ominus}}$

Applications

(i) If we know the molar conductivity at infinite dilution of CH_3COONa and HCl then we can find its molar conductivity at infinite dilution of CH_3COOH, according to Kohlrausch's law as follows.

$$\lambda^{\infty}_{CH_3COOH} = \lambda^{\infty}_{CH_3COO^-} + \lambda^{\infty}_{H^+}$$

$$= \left(\lambda^{\infty}_{CH_3COO^-} + \lambda^{\infty}_{Na^+}\right) + \left(\lambda^{\infty}_{H^+} + \lambda^{\infty}_{Cl^-}\right) - \left(\lambda^{\infty}_{Na^+} + \lambda^{\infty}_{Cl^-}\right)$$

$$\lambda^{\infty}_{CH_3COOH} = \lambda^{\infty}_{CH_3COONa} + \lambda^{\infty}_{HCl} - \lambda^{\infty}_{NaCl}$$

(iii) With its help, we can find the molar conductivity at infinite dilution of any compound by knowing its molar conductivity at infinite dilution of its elementary cation or anion by which it constituted to make a molecule.

Ans-17 ~~Ans~~

Lanthanoids contraction :-

The first series of inner transition metal i.e f-block element are called the lanthanides i.e after lanthanium i.e Ce to Lu.

These elements have very similarities in many properties due to their contraction, they have very minute differece in their sizes although with the increase in atomic number, their radiiy decreases Thus the similar properties shown by the lanthanides is called lanthanide contraction.

Reason :-

(i) In inner transition metal, the electron filled in (n-1) f orbital instead of going in the respective subshells due to which sheilding effect becomes almost zero.

(iii) The electrons in the (n-1) f orbital reduces the screening effect and also the sheilding effect due to which they shows very similar properties which is called the lanthanide contraction.

Consequences :-

(i) Due to lanthanides contraction, the properties of lanthanides became so much equal due to which differentiate between them ~~ome~~ es so difficult.

(ii) Their properties are so similar, so, they shows almost same properties, and due to low sheilding effect, their atomic radius decreases on increasing atomic no.

योग पूर्व पृष्ठ + पृष्ठ 23 के अंक = कुल अंक

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पृष्ठ के अंकों का योग

Rough

$0.604 \times 58.5 = 1$

18.5

117

$604 \times 10^{-3} \times 585 \times 10$

185×10^{-1}

37

664×117

4228

$604 \times$

$604 \times x$

$37 \overline{)70668} \; 1909$

37

336

333

368

1909×10^{-3}

1.909

$CH_3 - NC$

$CH_3 - NH_2$

CH_4

O_2

$CsCl$

fcc

5

$a\sqrt{2} =$

पृष्ठ के अंकों का योग