

National Testing Agency

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PGQP25

Group Number : 1
Group Id : 864351334
Group Maximum Duration : 0
Group Minimum Duration : 120
Show Attended Group? : No
Edit Attended Group? : No
Break time : 0
Group Marks : 400
Is this Group for Examiner? : No

PART A - General

Section Id : 8643511212
Section Number : 1
Section type : Online
Mandatory or Optional : Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511445
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 86435129130 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the correct word from the options:

After you _____ , your lifestyle usually changes.

1. play
2. sleep
3. go shopping
4. get married

Options :

864351100971. 1

864351100972. 2

864351100973. 3

864351100974. 4

Question Number : 2 Question Id : 86435129131 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable synonym:

SWANKY

1. posh
2. poor
3. plain
4. modest

Options :

864351100975. 1

864351100976. 2

864351100977. 3

864351100978. 4

Question Number : 3 Question Id : 86435129132 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which is the nearest meaning of the phrase **to rain cats and dogs**?

1. heavy rain
2. to rain non-stop
3. fight among cats and dogs
4. drizzling

Options :

864351100979. 1

864351100980. 2

864351100981. 3

864351100982. 4

Question Number : 4 Question Id : 86435129133 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Fill in the blank with the right word :

_____ he is well known, he is very honest.

1. Despite the fact that
2. In spite of the fact that
3. notwithstanding
4. even if

Options :

864351100983. 1

864351100984. 2

864351100985. 3

864351100986. 4

Question Number : 5 Question Id : 86435129134 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Select the most suitable antonym:

VAGABOND

1. unsettled
2. fly-by-night
3. aimless
4. permanent

Options :

864351100987. 1

864351100988. 2

864351100989. 3

864351100990. 4

Question Number : 6 Question Id : 86435129135 Question Type : MCQ Option Shuffling : No Is

Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the correct spelling:

1. opporunity
2. opportunity
3. ooportunity
4. aportunity

Options :

864351100991. 1

864351100992. 2

864351100993. 3

864351100994. 4

Question Number : 7 Question Id : 86435129136 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Identify the meaning of the following idiom from the options given:

spill the beans

1. To be untidy
2. To be very talkative
3. To reveal something that is supposed to be kept a secret
4. To leave a place quickly

Options :

864351100995. 1

864351100996. 2

864351100997. 3

864351100998. 4

Question Number : 8 Question Id : 86435129137 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which is the nearest meaning of the phrase **out of blue**

1. stranger
2. unexpectedly
3. to bring happiness
4. emerging out of blue colour

Options :

864351100999. 1

864351101000. 2

864351101001. 3

864351101002. 4

Question Number : 9 Question Id : 86435129138 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Fill in the blank with the right option :

A treasurer must ____ the money he spends.

1. allow for
2. give account for
3. account for
4. ask for

Options :

864351101003. 1

864351101004. 2

864351101005. 3

864351101006. 4

Question Number : 10 Question Id : 86435129139 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The phrase, **A hard nut to crack** means

1. an interesting problem
2. a difficult problem
3. a unique problem
4. a simple problem

Options :

864351101007. 1

864351101008. 2

864351101009. 3

864351101010. 4

Question Number : 11 Question Id : 86435129140 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the number which is different from others in the group.

1. 8
2. 64
3. 125
4. 28

Options :

864351101011. 1

864351101012. 2

864351101013. 3

864351101014. 4

Question Number : 12 Question Id : 86435129141 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In a row of trees, one tree is fifth from either end of the row. How many trees are there in the row?

1. 8
2. 9
3. 10
4. 11

Options :

864351101015. 1

864351101016. 2

864351101017. 3

864351101018. 4

Question Number : 13 Question Id : 86435129142 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If \times means \div , \div means \times , $+$ means $-$, and $-$ means $+$, then

$$40 \times 12 \div 3 - 6 + 60 = ?$$

1. 7.95
2. 16
3. 44
4. None of these

Options :

864351101019. 1

864351101020. 2

864351101021. 3

864351101022. 4

Question Number : 14 Question Id : 86435129143 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the correct answer:

$$39798 + 3798 + 378 = ?$$

1. 43576
2. 43974
3. 43984
4. 49532

Options :

864351101023. 1

864351101024. 2

864351101025. 3

864351101026. 4

**Question Number : 15 Question Id : 86435129144 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Find the lowest common multiple of 24, 36 and 40.

1. 120
2. 240
3. 360
4. 480

Options :

864351101027. 1

864351101028. 2

864351101029. 3

864351101030. 4

**Question Number : 16 Question Id : 86435129145 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Find the number which when multiplied by 15 increased by 196.

1. 14
2. 20
3. 26
4. 28

Options :

864351101031. 1

864351101032. 2

864351101033. 3

864351101034. 4

Question Number : 17 Question Id : 86435129146 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the correct alternative based on relationship:

Planet : Orbit :: Projectile : ?

1. Trajectory
2. Track
3. Milky Way
4. Path

Options :

864351101035. 1

864351101036. 2

864351101037. 3

864351101038. 4

Question Number : 18 Question Id : 86435129147 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the word which is least like the other words in the group:

1. Pistol
2. Sword
3. Gun
4. Rifle

Options :

864351101039. 1

864351101040. 2

864351101041. 3

864351101042. 4

**Question Number : 19 Question Id : 86435129148 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Choose the number which is different from others in the group.

1. 21
2. 36
3. 49
4. 56

Options :

864351101043. 1

864351101044. 2

864351101045. 3

864351101046. 4

**Question Number : 20 Question Id : 86435129149 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Find out the missing number in the following sequence :

1, 3, 3, 6, 7, 9, ?, 12, 21.

1. 10
2. 11
3. 12
4. 13

Options :

864351101047. 1

864351101048. 2

864351101049. 3

864351101050. 4

Question Number : 21 Question Id : 86435129150 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If in a certain code TWENTY is written as 863985 and ELEVEN is written as 323039, how is TWELVE written in that code ?

1. 863203
2. 863584
3. 863903
4. 863063

Options :

864351101051. 1

864351101052. 2

864351101053. 3

864351101054. 4

Question Number : 22 Question Id : 86435129151 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

DGCA stands for

1. Director General of Civil Association
2. Direct General of Civil Aviation
3. Director General of Cost Accounts
4. Director General of Coal Authority

Options :

- 864351101055. 1
- 864351101056. 2
- 864351101057. 3
- 864351101058. 4

**Question Number : 23 Question Id : 86435129152 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

The 46th President of the USA is

1. Donald Trump
2. Joe Biden
3. Kamala Harris
4. Mike Pence

Options :

- 864351101059. 1
- 864351101060. 2
- 864351101061. 3
- 864351101062. 4

**Question Number : 24 Question Id : 86435129153 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

According to the NEP 2020, the school system will change to

1. 5+2+2+4
2. 5+3+3+4
3. 5+2+3+4
4. 5+4+3+4

Options :

864351101063. 1
864351101064. 2
864351101065. 3
864351101066. 4

**Question Number : 25 Question Id : 86435129154 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Russian vaccine for COVID-19 is

1. Sputnik V
2. Sputnik VI
3. Sputnik
4. Sputnik IV

Options :

864351101067. 1
864351101068. 2
864351101069. 3
864351101070. 4

PART B - CHEMISTRY

Section Id : 8643511213

Section Number : 2

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	8643511446
Question Shuffling Allowed :	Yes

**Question Number : 26 Question Id : 86435129155 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Which of the following metalloenzyme can interconvert carbon dioxide to carbonates?

1. Carbonic anhydrase
2. Xanthine oxidase
3. Carboxypeptidase A
4. Nitrogenase

Options :

864351101071. 1

864351101072. 2

864351101073. 3

864351101074. 4

**Question Number : 27 Question Id : 86435129156 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Read the statements and pick out the correct option :

Statement (I) : Metal in low oxidation states are usually strong reducing agents.

Statement (II) : To date, no example as an oxidizing agent is known when the metal is in a zero oxidation state.

In the context of the above two statements, which of the following is correct?

1. Statement (I) is wrong
2. Statement (II) is wrong
3. Both statements are correct
4. Both statements are wrong

Options :

- 864351101075. 1
- 864351101076. 2
- 864351101077. 3
- 864351101078. 4

Question Number : 28 Question Id : 86435129157 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What type of defect can arise when a cation and an anion are missing in the crystal lattice?

1. Dislocation
2. F center
3. Frenkel
4. Schottky

Options :

- 864351101079. 1
- 864351101080. 2
- 864351101081. 3
- 864351101082. 4

Question Number : 29 Question Id : 86435129158 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The Fermi level is

1. the energy level of the highest occupied orbital in a metal at 273 K
2. the energy level of the lowest occupied orbital in a metal at 273 K
3. the energy level of the highest occupied orbital in a metal at absolute zero
4. the energy level of the lowest occupied orbital in a metal at absolute zero

Options :

864351101083. 1

864351101084. 2

864351101085. 3

864351101086. 4

Question Number : 30 Question Id : 86435129159 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Calculate the effective nuclear charge experienced by the 4s electron for Potassium ($Z = 19$)?

1. 1.00
2. 2.20
3. 1.80
4. 1.40

Options :

864351101087. 1

864351101088. 2

864351101089. 3

864351101090. 4

Question Number : 31 Question Id : 86435129160 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Pick out a correct molecule that has stereochemically inactive lone pair/s of electron?

1. ClF_3
2. SF_4
3. $[\text{TeF}_5]^-$
4. $[\text{SeCl}_6]^{2-}$

Options :

864351101091. 1

864351101092. 2

864351101093. 3

864351101094. 4

Question Number : 32 Question Id : 86435129161 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Pick out a correct increasing order of ionization energy for diatomic molecules.

1. $\text{N}_2 < \text{O}_2 < \text{NO}$
2. $\text{NO} < \text{N}_2 < \text{O}_2$
3. $\text{O}_2 < \text{N}_2 < \text{NO}$
4. $\text{NO} < \text{O}_2 < \text{N}_2$

Options :

864351101095. 1

864351101096. 2

864351101097. 3

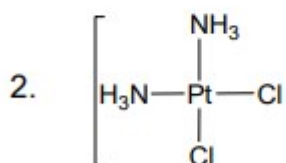
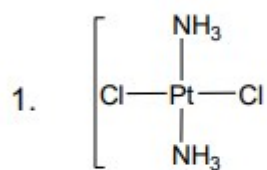
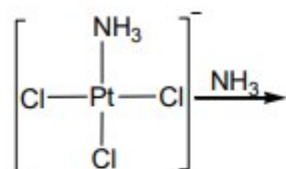
864351101098. 4

Question Number : 33 Question Id : 86435129162 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

By using the *trans* effect, find out the product/s in the following reaction :



3. Both 1 and 2 in equal amount
4. 1 is a major yield and 2 is a minor

Options :

864351101099. 1

864351101100. 2

864351101101. 3

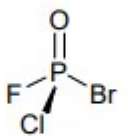
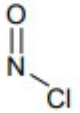
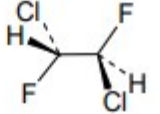
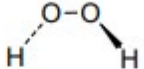
864351101102. 4

Question Number : 34 Question Id : 86435129163 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Match the molecule (A-D) with the most suitable point group (I-IV) in the following List :

List-I	List-II
(A) 	(I) C_2
(B) 	(II) C_i
(C) 	(III) C_1
(D) 	(IV) C_s

Choose the correct option from the options given below :

1. (A)-(III); (B)-(IV); (C)-(II); (D)-(I)
2. (A)-(IV); (B)-(III); (C)-(II); (D)-(I)
3. (A)-(II); (B)-(IV); (C)-(III); (D)-(I)
4. (A)-(III); (B)-(I); (C)-(II); (D)-(IV)

Options :

864351101103. 1

864351101104. 2

864351101105. 3

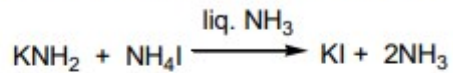
864351101106. 4

Question Number : 35 Question Id : 86435129164 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The following reaction is an example for



1. amphoteric
2. precipitation
3. neutralization
4. solvolysis

Options :

864351101107. 1

864351101108. 2

864351101109. 3

864351101110. 4

Question Number : 36 Question Id : 86435129165 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The structure of $[\text{XeF}_5]^-$ is

1. pentagonal planar
2. square pyramidal
3. trigonal bipyramidal
4. pentagonal pyramidal

Options :

864351101111. 1

864351101112. 2

864351101113. 3

864351101114. 4

Question Number : 37 Question Id : 86435129166 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Choose the correct order of xenon halides stability :

1. $\text{XeBr}_2 > \text{XeCl}_2 > \text{XeF}_2$
2. $\text{XeF}_2 > \text{XeBr}_2 > \text{XeCl}_2$
3. $\text{XeCl}_2 > \text{XeF}_2 > \text{XeBr}_2$
4. $\text{XeF}_2 > \text{XeCl}_2 > \text{XeBr}_2$

Options :

864351101115. 1

864351101116. 2

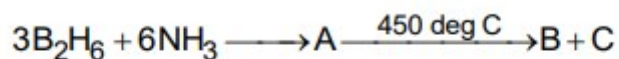
864351101117. 3

864351101118. 4

Question Number : 38 Question Id : 86435129167 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Complete the following reaction :



1. $\text{A} = 6\text{H}_3\text{BNH}_3$; $\text{B} = 2\text{B}_3\text{N}_3\text{H}_6$; $\text{C} = 12\text{N}_2$
2. $\text{A} = 6\text{H}_3\text{BNH}_3$; $\text{B} = 2\text{B}_3\text{N}_3\text{H}_6$; $\text{C} = 12\text{H}_2$
3. $\text{A} = 3[\text{BH}_2(\text{NH}_3)_2][\text{BH}_4]$; $\text{B} = 2\text{B}_3\text{N}_3\text{H}_6$; $\text{C} = 12\text{H}_2$
4. $\text{A} = 3[\text{BH}_2(\text{NH}_3)_2][\text{BH}_4]$; $\text{B} = 2\text{B}_3\text{N}_3\text{H}_6$; $\text{C} = 12\text{N}_2$

Options :

864351101119. 1

864351101120. 2

864351101121. 3

864351101122. 4

Question Number : 39 Question Id : 86435129168 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Read both Statement and Reason, then choose the right option :

Statement : Reduction in size of lanthanides (M^{3+}) with increasing atomic number.

Reason : Consequence of the poor shielding of the 4f electron so there is a steady increase in effective nuclear charge.

1. Statement is incorrect
2. Reason is incorrect
3. Statement and reason are correctly matched
4. Both statement and reason are incorrect

Options :

864351101123. 1

864351101124. 2

864351101125. 3

864351101126. 4

Question Number : 40 Question Id : 86435129169 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

From the following coordination complexes ($[Co(NH_3)_6]Cl_3$, $[Co(NH_3)_5Cl]Cl_2$, $[Co(NH_3)_5Br]Br_2$ and *cis*- $[Pt(NH_3)_2Cl_4]$) the highest conductivity is expected for

1. $[Co(NH_3)_6]Cl_3$
2. $[Co(NH_3)_5Cl]Cl_2$
3. $[Co(NH_3)_5Br]Br_2$
4. *cis*- $[Pt(NH_3)_2Cl_4]$

Options :

864351101127. 1

864351101128. 2

864351101129. 3

864351101130. 4

Question Number : 41 Question Id : 86435129170 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The crystal field stabilization energy for a weak field octahedral d^6 complex is

1. $0.4 \Delta_o$
2. $0.6 \Delta_o$
3. $0.8 \Delta_o$
4. $2.4 \Delta_o$

Options :

864351101131. 1

864351101132. 2

864351101133. 3

864351101134. 4

Question Number : 42 Question Id : 86435129171 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following statements is wrong about the valence bond theory?

1. Utilized hybridization concept
2. Reaction between the ligands and a metal ion with the formation of co-ordinate covalent bonds
3. Explained magnetic properties of complexes
4. Support to compute lattice energies of transition metals for d^6-d^9 electronic configuration

Options :

864351101135. 1

864351101136. 2

864351101137. 3

864351101138. 4

Question Number : 43 Question Id : 86435129172 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following carbide on hydrolysis can produce methane gas?

1. CaC_2
2. Al_4C_3
3. AlC_3
4. Li_4C_3

Options :

864351101139. 1

864351101140. 2

864351101141. 3

864351101142. 4

Question Number : 44 Question Id : 86435129173 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Silicones have a wide range of advantageous chemical and physical properties.
For example, they are

- A. Resistant to attack by acids and bases.
- B. Readily combustible.
- C. Remain unchanged on exposure to UV radiation.

The correct statements are

1. A and B
2. A and C
3. B and C
4. A, B and C

Options :

864351101143. 1

864351101144. 2

864351101145. 3

864351101146. 4

Question Number : 45 Question Id : 86435129174 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The wrong feature about the organolithium compound, RLi (R = Me, nBu, t-Bu), is

1. pyrophoric
2. aggregates as various oligomer in solution
3. should access only under inert atmosphere
4. moisture insensitive

Options :

864351101147. 1

864351101148. 2

864351101149. 3

864351101150. 4

Question Number : 46 Question Id : 86435129175 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The origin of color in BiI₃ (orange-red) is due to

1. metal-to-ligand charge transfer process
2. ligand-to-metal charge transfer process
3. *d-d* transition
4. bismuth in +3 oxidation state.

Options :

864351101151. 1

864351101152. 2

864351101153. 3

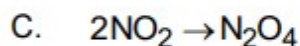
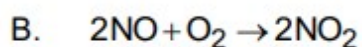
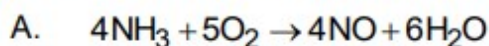
864351101154. 4

Question Number : 47 Question Id : 86435129176 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The following reactions are involving in the Ostwald process for nitric acid production. Of these, identify the exothermic reaction :



1. B and C
2. A and C
3. A and B
4. A, B and C

Options :

864351101155. 1

864351101156. 2

864351101157. 3

864351101158. 4

Question Number : 48 Question Id : 86435129177 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Based on molecular orbital theory, the highest occupied molecular orbital/s for B_2 has

1. two unpaired electrons with parallel spins
2. an empty orbital
3. two unpaired electrons with one parallel and another anti-parallel spins
4. a paired electron

Options :

864351101159. 1

864351101160. 2

864351101161. 3

864351101162. 4

Question Number : 49 Question Id : 86435129178 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The calculated magnetic moment (in Bohr Magnetons) for $[\text{Cr}(\text{OH}_2)_6]^{3+}$ is

1. 1.73
2. 2.83
3. 3.88
4. 4.90

Options :

864351101163. 1

864351101164. 2

864351101165. 3

864351101166. 4

Question Number : 50 Question Id : 86435129179 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Find the incorrect characteristic chemical property of halogen fluorides, XF_3 , XF_5 ($\text{X} = \text{Cl}, \text{Br}, \text{I}$).

1. Ready to undergo hydrolysis
2. Strong fluorinating agent
3. Strong oxidizing agent
4. Can carry out reaction even in aqueous medium

Options :

864351101167. 1

864351101168. 2

864351101169. 3

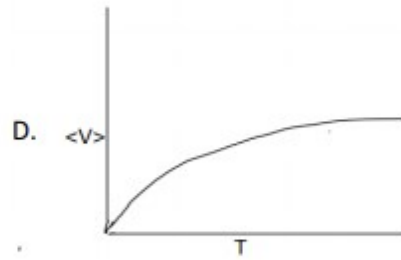
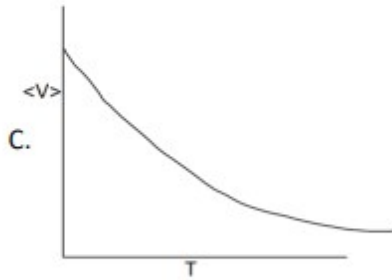
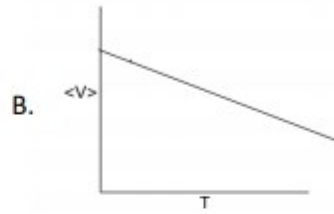
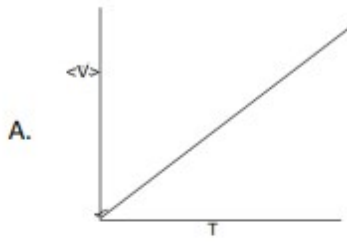
864351101170. 4

Question Number : 51 Question Id : 86435129180 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Considering the Maxwell's distribution of molecules of a gas, which one of the following graphs is a qualitative representation of average speed of molecules with change in absolute temperature?



1. Figure A
2. Figure B
3. Figure C
4. Figure D

Options :

864351101171. 1

864351101172. 2

864351101173. 3

864351101174. 4

Question Number : 52 Question Id : 86435129181 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of van der Waals constants 'a' for some gases are given as

Gas	a (L.atm.mol ⁻²)
N ₂	1.390
O ₂	1.360
NH ₃	4.170
CH ₄	2.253

The order of liquefaction of these gases is

1. N₂ > O₂ > NH₃ > CH₄
2. NH₃ > CH₄ > N₂ > O₂
3. NH₃ < CH₄ < N₂ < O₂
4. N₂ < O₂ < NH₃ < CH₄

Options :

864351101175. 1

864351101176. 2

864351101177. 3

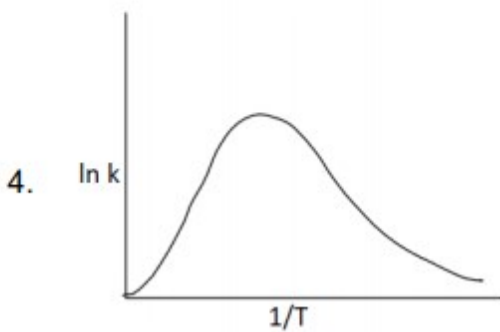
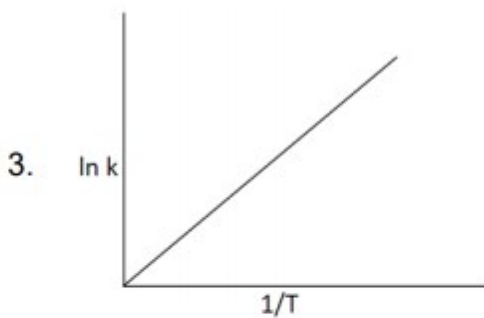
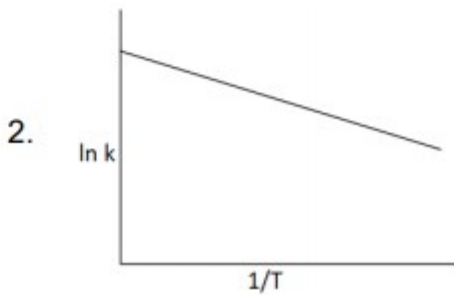
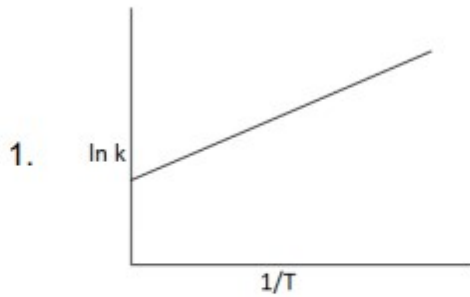
864351101178. 4

Question Number : 53 Question Id : 86435129182 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

From the Arrhenius equation of relation between the rate constant of a reaction and temperature, identify the correct plot among following (k is rate constant and T is absolute temperature).



Options :

864351101179. 1

864351101180. 2

864351101181. 3

864351101182. 4

**Question Number : 54 Question Id : 86435129183 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

The unit of rate constant of a reaction $A \rightarrow P$ is s^{-1} . If the half-life of the reaction is found to be 45 mins for initial concentration of A equal to 100 mol. L^{-1} then what will be the half-life when the initial concentration of A is 200 mol L^{-1} ?

1. 90 mins
2. 22.5 mins
3. 45 mins
4. 60 mins

Options :

864351101183. 1

864351101184. 2

864351101185. 3

864351101186. 4

Question Number : 55 Question Id : 86435129184 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The $t_{1/2}$ of a reaction is doubled if the initial concentration is doubled. What is the order of the reaction?

1. Zero-order
2. First-order
3. Second-order
4. Third-order

Options :

864351101187. 1

864351101188. 2

864351101189. 3

864351101190. 4

Question Number : 56 Question Id : 86435129185 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

What is the efficiency of a Carnot engine that operates in between 100 °C and 0 °C?

1. 100.0%
2. 26.8%
3. 78.3%
4. 50.2%

Options :

864351101191. 1

864351101192. 2

864351101193. 3

864351101194. 4

Question Number : 57 Question Id : 86435129186 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following is *not true* for a Joule-Thompson expansion process?

1. It is isoenthalpic
2. $\mu_{J,T} = 0$ for the ideal gases
3. $\frac{\partial T}{\partial P} = \frac{1}{C_P} \left(\frac{\partial H}{\partial P} \right)_P$
4. $\mu_{J,T} > 0$ for all the temperature

Options :

864351101195. 1

864351101196. 2

864351101197. 3

864351101198. 4

Question Number : 58 Question Id : 86435129187 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following equations is **not** correct?

1. $\left(\frac{\partial T}{\partial V}\right)_S = \left(\frac{\partial P}{\partial S}\right)_V$

2. $\left(\frac{\partial T}{\partial P}\right)_S = \left(\frac{\partial V}{\partial S}\right)_P$

3. $\left(\frac{\partial S}{\partial P}\right)_T = -\left(\frac{\partial V}{\partial T}\right)_P$

4. $\left(\frac{\partial S}{\partial V}\right)_T = \left(\frac{\partial P}{\partial T}\right)_V$

Options :

864351101199. 1

864351101200. 2

864351101201. 3

864351101202. 4

Question Number : 59 Question Id : 86435129188 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The entropy change in a reversible adiabatic process is

1. 0

2. ∞

3. $c_v(T_2 - T_1)$

4. $R \ln\left(\frac{V_1}{V_2}\right)$

Options :

864351101203. 1

864351101204. 2

864351101205. 3

864351101206. 4

Question Number : 60 Question Id : 86435129189 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which one of the following is **true** for the viscosity of a liquid?

1. The viscosity increases with increasing temperature.
2. Viscosity decreases with increasing temperature.
3. Viscosity remains independent of temperature.
4. Viscosity first increases with temperature and then decreases after reaching a critical value.

Options :

864351101207. 1

864351101208. 2

864351101209. 3

864351101210. 4

Question Number : 61 Question Id : 86435129190 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If drops do not collapse under the effect of gravity, it indicates that

1. the pressure inside the drop is greater than outside of the drop
2. viscosity of the liquid is large
3. the surface tension is low
4. the pressure outside the drop is greater than inside of the drop

Options :

864351101211. 1

864351101212. 2

864351101213. 3

864351101214. 4

Question Number : 62 Question Id : 86435129191 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The equilibrium constant (K_p) is

1. independent of temperature
2. independent of pressure
3. independent of Gibbs free energy
4. independent of enthalpy

Options :

864351101215. 1

864351101216. 2

864351101217. 3

864351101218. 4

Question Number : 63 Question Id : 86435129192 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A solution is prepared by dissolving solute S in a solvent V . The solution will be called an ideal-dilute solution if

1. S obeys Raoult's law and V obeys Henry's law
2. S is an ionic compound and V is a polar solvent
3. S obeys Henry's law and V obeys Raoult's law
4. the dissociation constant of S is very low and V is a polar solvent

Options :

864351101219. 1

864351101220. 2

864351101221. 3

864351101222. 4

Question Number : 64 Question Id : 86435129193 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The correct order of ionic conductance at infinite dilution is

1. $H^+ > Li^+ > Na^+ > K^+$
2. $K^+ > Na^+ > Li^+ > H^+$
3. $Li^+ > Na^+ > K^+ > H^+$
4. $H^+ > K^+ > Na^+ > Li^+$

Options :

864351101223. 1

864351101224. 2

864351101225. 3

864351101226. 4

Question Number : 65 Question Id : 86435129194 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The aqueous solution of which of the following compounds is the best conductor of electric current?

1. Hydrochloric acid
2. Acetic acid
3. Ammonia
4. Fructose

Options :

864351101227. 1

864351101228. 2

864351101229. 3

864351101230. 4

Question Number : 66 Question Id : 86435129195 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The Lambert-Beer law fails at

1. Low concentration of solution
2. High concentration of solution
3. Monochromatic light
4. High pressure

Options :

864351101231. 1

864351101232. 2

864351101233. 3

864351101234. 4

Question Number : 67 Question Id : 86435129196 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A crystal with $a = b = c$ and $\alpha = \beta = \gamma$ is

1. trigonal
2. monoclinic
3. orthorhombic
4. tetragonal

Options :

864351101235. 1

864351101236. 2

864351101237. 3

864351101238. 4

Question Number : 68 Question Id : 86435129197 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following wavenumbers of stretching vibration will have highest value?

1. ν_{C-H}
2. ν_{C-C}
3. $\nu_{C=O}$
4. ν_{C-Br}

Options :

864351101239. 1

864351101240. 2

864351101241. 3

864351101242. 4

Question Number : 69 Question Id : 86435129198 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

How many normal modes of vibration of CO_2 molecule is IR active?

1. 5
2. 2
3. 3
4. 4

Options :

864351101243. 1

864351101244. 2

864351101245. 3

864351101246. 4

Question Number : 70 Question Id : 86435129199 Question Type : MCQ Option Shuffling : No Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following iron rods will undergo corrosion faster?

1. Iron rod covered with magnesium
2. A part of iron rod covered with magnesium
3. Iron rod is galvanized but there is a breaking in the plating
4. Iron rod is plated with copper, but there is a breaking in the plating

Options :

864351101247. 1

864351101248. 2

864351101249. 3

864351101250. 4

Question Number : 71 Question Id : 86435129200 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The bond length of a homonuclear diatomic molecule can be determined from

1. IR spectrum
2. Microwave spectrum
3. Rotational Raman spectrum
4. Vibrational Raman spectrum

Options :

864351101251. 1

864351101252. 2

864351101253. 3

864351101254. 4

Question Number : 72 Question Id : 86435129201 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following relations is true for mixing of two ideal gases? (H is enthalpy, G is Gibbs free energy, V is volume, S is entropy)

1. $\Delta H = 0; \Delta V > 0$
2. $\Delta H = 0; \Delta S > 0$
3. $\Delta H = 0; \Delta G > 0$
4. $\Delta H < 0; \Delta G < 0$

Options :

864351101255. 1

864351101256. 2

864351101257. 3

864351101258. 4

Question Number : 73 Question Id : 86435129202 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following spectroscopy techniques is associated with molecular emission?

1. UV-Visible spectroscopy
2. IR spectroscopy
3. Fluorescence spectroscopy
4. X-ray diffraction

Options :

864351101259. 1

864351101260. 2

864351101261. 3

864351101262. 4

Question Number : 74 Question Id : 86435129203 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A real hydrogen-like wavefunction is given as $\Psi = \frac{1}{4\sqrt{2\pi}} \left(\frac{Z}{a_0}\right)^{5/2} r e^{-Zr/2a_0} \cos\theta$.

What are the principal (n), azimuthal (ℓ) and magnetic (m_ℓ) quantum numbers?

1. $n = 1, \ell = 1, m_\ell = 0$
2. $n = 2, \ell = 1, m_\ell = 1$
3. $n = 2, \ell = 1, m_\ell = 0$
4. $n = 1, \ell = 0, m_\ell = 0$

Options :

864351101263. 1

864351101264. 2

864351101265. 3

864351101266. 4

Question Number : 75 Question Id : 86435129204 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider a free particle of mass m in 1D box of length L . If the length of the box is extended to $2L$, then the difference between the ground state energy before and after expansion of length will be

1. $\frac{h^2}{8 mL^2}$
2. $\frac{h^2}{32 mL^2}$
3. $\frac{3 h^2}{32 mL^2}$
4. $\frac{h^2}{16 mL^2}$

Options :

864351101267. 1

864351101268. 2

864351101269. 3

864351101270. 4

Question Number : 76 Question Id : 86435129205 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

S_N2 reactions are correctly defined by the combination of terms

1. intermediate and retention of configuration
2. intermediate and inversion of configuration
3. transition state and retention of configuration
4. transition state and inversion of configuration

Options :

864351101271. 1

864351101272. 2

864351101273. 3

864351101274. 4

Question Number : 77 Question Id : 86435129206 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The exceptional stability of cyclopropyl methyl cation is attributed to

1. conjugation between the bent orbitals of the cyclopropyl ring and the vacant p orbital of the cationic carbon
2. +I effect of the cyclopropyl ring
3. conjugation between the bent orbitals of the cyclopropyl ring and the filled p orbital of the cationic carbon
4. ring strain of cyclopropyl group

Options :

864351101275. 1

864351101276. 2

864351101277. 3

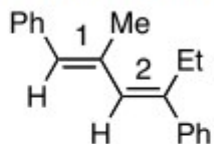
864351101278. 4

Question Number : 78 Question Id : 86435129207 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Configuration (*E/Z*) of the following molecule is



1. 1*E*, 2*E*
2. 1*Z*, 2*Z*
3. 1*E*, 2*Z*
4. 1*Z*, 2*E*

Options :

864351101279. 1

864351101280. 2

864351101281. 3

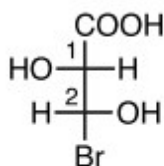
864351101282. 4

Question Number : 79 Question Id : 86435129208 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The configurations (*R,S*-notation) of carbons 1 and 2 of the following compound are



1. 1*S*, 2*S*
2. 1*S*, 2*R*
3. 1*R*, 2*S*
4. 1*R*, 2*R*

Options :

864351101283. 1

864351101284. 2

864351101285. 3

864351101286. 4

**Question Number : 80 Question Id : 86435129209 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

The major product of hydroboration-oxidation of 1-propene is

1. 1, 2-Dihydroxypropane
2. 2-Propanol
3. 1-Propanol
4. *n*-Propane

Options :

864351101287. 1

864351101288. 2

864351101289. 3

864351101290. 4

**Question Number : 81 Question Id : 86435129210 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

Hybridization of the central carbon of allenes is

1. sp^3
2. sp^2
3. sd
4. sp

Options :

864351101291. 1

864351101292. 2

864351101293. 3

864351101294. 4

Question Number : 82 Question Id : 86435129211 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The reaction product(s) of *o*-bromotoluene in the presence of $\text{NaNH}_2/\text{liq. NH}_3$ is(are)

1. *o*-Toluidine
2. *m*-Toluidine
3. Both *o*- and *m*-toluidines
4. Toluene

Options :

864351101295. 1

864351101296. 2

864351101297. 3

864351101298. 4

Question Number : 83 Question Id : 86435129212 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following DOES NOT give a positive test with Fehling's solution?

1. Galactose
2. Maltose
3. Fructose
4. Sucrose

Options :

864351101299. 1

864351101300. 2

864351101301. 3

864351101302. 4

Question Number : 84 Question Id : 86435129213 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The reactive species in the transformation of phenol into salicylaldehyde in the presence of KOH/ CHCl_3 is

1. carbocation
2. free radical
3. nitrene
4. carbene

Options :

864351101303. 1

864351101304. 2

864351101305. 3

864351101306. 4

Question Number : 85 Question Id : 86435129214 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Lossen rearrangement involves the transformation of

1. amide to isocyanate
2. activated hydroxamate to isocyanate
3. acid azide to isocyanate
4. isocyanate to amide

Options :

864351101307. 1

864351101308. 2

864351101309. 3

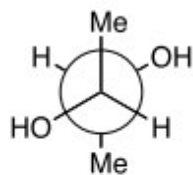
864351101310. 4

Question Number : 86 Question Id : 86435129215 Question Type : MCQ Option Shuffling : No

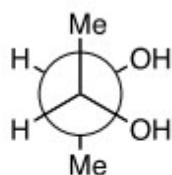
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

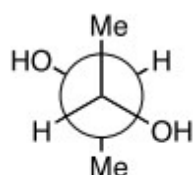
Among the following, the Newmann projections of *meso* 2,3-butanediol are



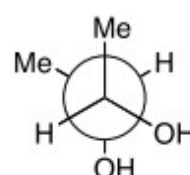
P



Q



R



S

1. P and Q
2. P and R
3. R and S
4. Q and S

Options :

864351101311. 1

864351101312. 2

864351101313. 3

864351101314. 4

Question Number : 87 Question Id : 86435129216 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Zaitsev product will not be the major product under E2 conditions when

1. sterically bulky base is used
2. unhindered base is used
3. no base is used
4. acidic conditions employed

Options :

864351101315. 1

864351101316. 2

864351101317. 3

864351101318. 4

Question Number : 88 Question Id : 86435129217 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The reaction between *cis* olefin and *triplet* carbene affords

1. *cis* Cyclopropane
2. *trans* Cyclopropane
3. mixture of *cis* and *trans* cyclopropanes
4. *trans* Olefin

Options :

864351101319. 1

864351101320. 2

864351101321. 3

864351101322. 4

Question Number : 89 Question Id : 86435129218 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The enantiomeric excess (*ee*) of a mixture containing 40% *R* enantiomer and 60% *S* enantiomer is

1. 60%
2. 40%
3. 20%
4. 50%

Options :

864351101323. 1

864351101324. 2

864351101325. 3

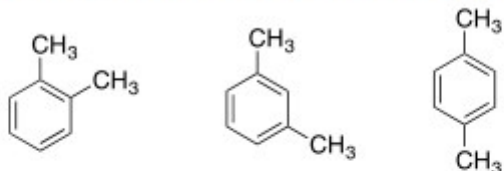
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Question Number : 90 Question Id : 86435129219 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The number of $^1\text{H-NMR}$ signals of the following compounds respectively



1. 6, 6, 4
2. 3, 3, 3
3. 3, 4, 3
4. 3, 4, 2

Options :

864351101327. 1

864351101328. 2

864351101329. 3

864351101330. 4

Question Number : 91 Question Id : 86435129220 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Bathochromic shift in UV-Vis spectroscopy refers to

1. shift to longer wavelength
2. shift to shorter wavelength
3. blue shift
4. Both (2) and (3)

Options :

864351101331. 1

864351101332. 2

864351101333. 3

864351101334. 4

Question Number : 92 Question Id : 86435129221 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following single bonds would show the strongest absorption in the IR?

1. Carbon-oxygen
2. Carbon-nitrogen
3. Carbon-carbon
4. Carbon-hydrogen

Options :

864351101335. 1

864351101336. 2

864351101337. 3

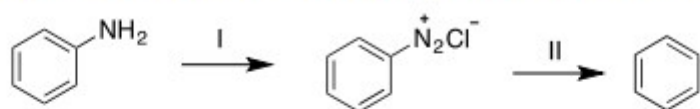
864351101338. 4

Question Number : 93 Question Id : 86435129222 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The reagents used in the following transformation respectively :



1. NaNO₃/HCl, H₃PO₂/H₂O
2. NaNO₂/HCl, HCl/H₂O
3. NaNO₂/HCl, H₃PO₃/H₂O
4. NaNO₂/HCl, H₃PO₂/H₂O

Options :

864351101339. 1

864351101340. 2

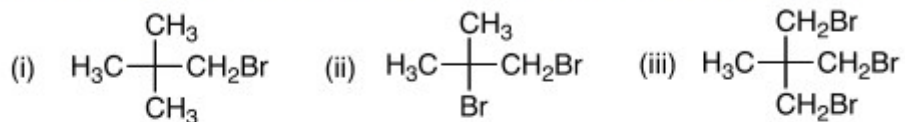
864351101341. 3

864351101342. 4

Question Number : 94 Question Id : 86435129223 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

How could you distinguish the following compounds by $^1\text{H-NMR}$?



1. Number of signals and Chemical shifts
2. Number of signals and Coupling constants
3. Chemical shifts and Integration
4. Integration and Coupling constants

Options :

864351101343. 1

864351101344. 2

864351101345. 3

864351101346. 4

Question Number : 95 Question Id : 86435129224 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The major product obtained when allyl *o*-bromophenyl ether is heated at 200 °C is

1. 6-Allyl-2-bromo-2,4-cyclohexadienone
2. 3-Allyl-6-bromophenol
3. 5-Allyl-6-bromophenol
4. 2-Allyl-6-bromophenol

Options :

864351101347. 1

864351101348. 2

864351101349. 3

864351101350. 4

**Question Number : 96 Question Id : 86435129225 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

The correct DECREASING order of aromaticity is represented by

1. Benzene > Pyridine > Pyrrole > Furan
2. Pyridine > Benzene > Furan > Pyrrole
3. Benzene > Pyrrole > Pyridine > Furan
4. Pyridine > Benzene > Pyrrole > Furan

Options :

864351101351. 1

864351101352. 2

864351101353. 3

864351101354. 4

**Question Number : 97 Question Id : 86435129226 Question Type : MCQ Option Shuffling : No
Is Question Mandatory : No**

Correct Marks : 4 Wrong Marks : 1

The relationship between the energy of the transition state and the structure is described by

1. Curtin Hammett principle
2. Hammond's postulate
3. Hammett equation
4. Taft equation

Options :

864351101355. 1

864351101356. 2

864351101357. 3

864351101358. 4

Question Number : 98 Question Id : 86435129227 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Reagents used for Sharpless asymmetric epoxidation are

1. Diethyl tartrate, $Ti(Oi-Pr)_3$, *t*-BuOOH
2. Diethyl tartrate, $Ti(Oi-Pr)_4$, *t*-BuOH
3. Diethyl tartrate, $Ti(Oi-Pr)_2$, *t*-BuOOH
4. Diethyl tartrate, $Ti(Oi-Pr)_4$, *t*-BuOOH

Options :

864351101359. 1

864351101360. 2

864351101361. 3

864351101362. 4

Question Number : 99 Question Id : 86435129228 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

1,3,5-Cyclooctatrienyl cation is

1. Aromatic
2. Anti-aromatic
3. Non-aromatic
4. Homoaromatic

Options :

864351101363. 1

864351101364. 2

864351101365. 3

864351101366. 4

Question Number : 100 Question Id : 86435129229 Question Type : MCQ Option Shuffling : No

Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following statements is correct?

1. Rigid *trans* 1,2-diols readily react with periodic acid.
2. Periodic acid cleaves vicinal diols into two aldehydes or two ketones or an aldehyde and a ketone.
3. Osmium tetroxide is a key reagent in the conversion of alkenes into geminal diols.
4. Grignard and organolithium reagents react with ethylene oxide to give secondary alcohols.

Options :

864351101367. 1

864351101368. 2

864351101369. 3

864351101370. 4