# ©゙doubtnut 

India's Number 1 Education App

## CHEMISTRY

## VMC MODULES ENGLISH

## JEE MAIN REVISION TEST - 25 | JEE - 2020

## Chemistry

1. For following reactions
$A \xrightarrow{400 K}$ Product
$A \xrightarrow[\text { catalyst }]{200 \mathrm{~K}}$ Product
it was found that the $E_{a}$ is decreased by $20 \mathrm{~kJ} / \mathrm{mol}$ in
the presence of catalyst. If the rate remains unchanged, the activation energy for catalysed reaction is (Assume per exponential factor is same ) :
A. $40 \mathrm{~kJ} / \mathrm{mol}$
B. $20 \mathrm{~kJ} / \mathrm{mol}$
C. $80 \mathrm{~kJ} / \mathrm{mol}$
D. $35 \mathrm{~kJ} / \mathrm{mol}$

Answer:

D Watch Video Solution
2. The increasing order of $p K_{b}$ for the following amines is

(1)

(2)

(3)

(4)
A. $3<2<4<1$
B. $1<2<3<4$
C. $1<2<4<3$
D. $1<3<2<4$

## Answer:

3. According to the following diagram, which of the following option is correct?

A. B can reduce $C O_{2}$ above $800^{\circ} \mathrm{C}$
B. C can reduce $A O_{2}$ below $600^{\circ} \mathrm{C}$
C. Both B and A can reduce $\mathrm{CO}_{2}$ above $400^{\circ} \mathrm{C}$
D. A can reduce both $\mathrm{BO}_{2}$ and $\mathrm{CO}_{2}$ below $600^{\circ} \mathrm{C}$

## Answer:

## D Watch Video Solution

4. Al has a smaller first ionization enthalpy than Mg.

Consider the following statements:
I. It is easier to remove $3 p$ electron than 3 s electron .
II. 3p electron of Al is more shielded from the nucleus
by the inner coreof electron than the 3 s electrons of
Mg
III. 3s electron hasmore penetration power than $3 p$
electron

IV . Atomic radius of Al is more than Mg ( atomic
number $\mathrm{Al}=13, \mathrm{Mg}=12$ )

The correct statements are :

A. I, II and IV

B. I,II and III

C. II, III and IV
D. I, III and IV

## Answer:

5. Identify ( $A$ ) in the following reaction sequence


A.

B.

C.


D.


## Answer:

## D Watch Video Solution

6. The number of wave made by electron in one complete revolution in third Bohr's orbit are :
A. nine
B. zero
C. six
D. three

Answer:
7. 1 equivalent of complex $X$ of composition
$\mathrm{Co}\left(\mathrm{NH}_{3}\right)_{5} \mathrm{Cl}_{n}$ reacts with two equivalent of $\mathrm{AgNO}_{3}$ and does not show geometrical isomerism. The IUPAC nomenclature of X is :
A. Hexaamminecobalc (III) chloride
B. Pentaamminechlorocobalt (III) chloride
C. Tetramminedichlorocobalt (III) chloride
D. Triamminetrichlorocobalt (III) chloride
8. The major product $Z$ obtained in the following reaction scheme is :


A. $\mathrm{CH}_{3}$


$\mathrm{CH}_{3}$
C.

$\mathrm{CH}_{3}$
D.

## Answer:

## D Watch Video Solution

9. Enthalpy of the reaction
$\mathrm{CH}_{4}+\frac{1}{2} \mathrm{O}_{2} \rightarrow \mathrm{CH}_{3} \mathrm{OH}$, is negative, if enthalpy of
combustion of $\mathrm{CH}_{4}$ and $\mathrm{CH}_{3} \mathrm{OH}$ are x and y respectively, then which relation is correct ?
A. $x \geq y$
B. $x=y$
C. $x>y$
D. $x<y$

## Answer:

## D Watch Video Solution

10. A certain compound gives negative test with ninhydrin and positive test with Benedict's solution.

The compound is
A. A protein
B. An amino acid
C. A lipid
D. A monosaccharide

## Answer:

## D Watch Video Solution



The major products $A$ and $B$ are
A. and $\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{CHO}$
B.

C.

D.


## Answer:

## D Watch Video Solution

12. The $K_{s p}$ for the following dissociation is
$2.2 \times 10^{-2}$
$P b C l_{2(s)} f P b_{(a q)}^{2+}+2 C l_{(a q)}^{-}$

Which of the following choices is correct for a mixture of $350 \mathrm{~mL} 0.225 \mathrm{M} \mathrm{Pb}\left(\mathrm{NO}_{3}\right)_{2}$ and 200 mL 0.6 M NaCl ?
A. $Q>K_{s p}$
B. $Q=K_{s p}$
C. Not enough data provided
D. $Q<K_{s p}$

## Answer:

D Watch Video Solution
13. The correct order of heat of combustion for following alkadiene is :
III.
A. $I I<I I I<I$
B. $I<I I<I I I$
C. $I<I I I<I I$
D. $I I I<I<I I$

Answer:

- Watch Video Solution

14. The compound that canact both as oxidixising and reducing agent is :
A. $\mathrm{KO}_{2}$
B. $\mathrm{Mn}_{2} \mathrm{O}_{7}$
C. $\mathrm{Al}_{2} \mathrm{O}_{3}$
D. $\mathrm{SO}_{3}$

## Answer:

## D Watch Video Solution

15. The acidic, basic and neutral oxides respectively are
A. $\mathrm{SO}_{3}, \mathrm{Al}_{2} \mathrm{O}_{3}, \mathrm{CO}_{2}$
B. $\mathrm{MgO}, \mathrm{CaO}, C O$
C. $\mathrm{CO}_{2}, \mathrm{MgO}, \mathrm{N}_{2} \mathrm{O}$
D. $\mathrm{N}_{2} \mathrm{O}, \mathrm{CaO}, \mathrm{NO}$

## Answer: ${ }^{`}$

## D Watch Video Solution

16. Which of the following halide does not exist
A. Thalium (I) iodide
B. Thalium (III) iodide
C. Thalium (I) triiodide

## D. Bis-aluminium (III) iodide

## Answer:

## - Watch Video Solution

17. The major product (Y)in the following reaction sequency is :
$\mathrm{CH}_{3}-\stackrel{\mathrm{CH}_{3}}{\mathrm{C}} \mathrm{H}-\mathrm{CH}=\mathrm{CH}_{2} \xrightarrow{\mathrm{Br}_{2} / \mathrm{H}_{2} \mathrm{O}} \mathrm{X} \xrightarrow{\text { conc. } \mathrm{H}_{2} \mathrm{SO}_{4} / \Delta} Y$
A. $\mathrm{CH}_{3}-\stackrel{\mathrm{CH}_{3}}{\stackrel{!}{\mathrm{C}} \mathrm{H}-\mathrm{CH}=\mathrm{CH}-\mathrm{Br}}$
B. $\mathrm{CH}_{3}-\stackrel{\mathrm{CH}_{3}}{\stackrel{\text { I }}{\mathrm{C}}} \underset{\mathrm{H}}{\mathrm{C}}-\underset{\mathrm{Br}}{\mathrm{C}} \mathrm{C}=\mathrm{CH}_{2}$

$$
\begin{aligned}
& \text { C. } \mathrm{CH}_{3}-\stackrel{\mathrm{CH}_{3}}{\mathrm{~L}}=\underset{\mid}{\mathrm{C}} \mathrm{C}-\mathrm{CH}_{3} \\
& \text { D. } \mathrm{CH}-\stackrel{C H_{3}}{\mathrm{C}}=\mathrm{CH}-\mathrm{CH}_{2}-\mathrm{Br}
\end{aligned}
$$

## Answer:

## D Watch Video Solution

18. The magnetic moment of two dioxygen species $x$ and $y$ are $2.83 \& 1.73 \mathrm{BM}$ Which of the following option is always correct about the above species.
A. Bon order of $x>y$
B. Bond order of $y>x$
C. x is $\mathrm{O}_{2}$ and y is $\mathrm{O}_{2}^{-}$
D. x is $\mathrm{O}_{2}$

## Answer: D

## - Watch Video Solution

19. The electronic configuration of bivalent europium and trivalent cerium are: (atomic number: $\mathrm{Xe}=54$, $\mathrm{Ce}=58, \mathrm{Eu}=63$ )
A. $[X e] 4 f^{8}$ and $[X e] 4 f^{13}$
B. $[X e] 4 f^{7}$ and $[X e] 4 f^{14}$
C. $[X e] 4 f^{8} 6 s^{1}$ and $[X e] 4 f^{13} 6 s^{1}$
D. $[X e] 4 f^{8}$ and $[X e] 4 f^{14}$

## Answer:

## - Watch Video Solution

20. (i) $\left[\mathrm{Co}\left(\mathrm{H}_{2} \mathrm{O}\right)_{6}\right]^{n-6}$
(ii) $\left[\mathrm{PtCl}_{2} \mathrm{BrF}\right]^{2-} \mathrm{m}$ geometrical isomers

The spin only magnetic moment of complex (i) is 3.87 .
The value of $m+n$ is
A. 8
B. 9
C. 10
D. 11

## Answer:

## - Watch Video Solution

21. the hardness of a water sample (in terms of Equivalents of $\mathrm{CaCO}_{3}$ ) containing $10^{-3} \mathrm{MCaSO}_{4}$ Is :
(Molar mass of $\mathrm{CaSO}_{4}=136 \mathrm{gmol}^{-1}$ )

## D Watch Video Solution

22. The mass percentage of nitrogen in histidine is
[Atomic mass $\mathrm{H}=1, \mathrm{C}=12, \mathrm{~N}=14, \mathrm{O}=16$ ]

## - Watch Video Solution

23. The normality of $\mathrm{H}_{2} \mathrm{SO}_{4}$ in a sample which has density $1.5 \mathrm{~g} / \mathrm{mL}$ and mass percentage of $49 \%$ is
(Molecular weight of $\mathrm{H}_{2} \mathrm{SO}_{4}=98$ )

## - Watch Video Solution

24. Electrolysis of dilute aqueous NaCl solution was carried out by passing 10 mA current. The time
required to liberate 0.01 mol of $\mathrm{H}_{2}$ gas at the cathode is $\left(1 F=96500 \mathrm{Cmol}^{-1}\right)$

## - Watch Video Solution

25. How much amount of NaCl in g should be added to 900 g of water $(\rho=1.00 \mathrm{~g} / \mathrm{mL})$ to decrease the freeezing point of water to $-0.3^{\circ} \mathrm{C}$ (

The freezing point depression constant for water $=3 \mathrm{Kkgmol}^{-1}$ Atomic mass: $\mathrm{H}=1, \mathrm{O}=16, \mathrm{Na}=23, \mathrm{Cl}$ $=35.5$ )

