



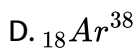
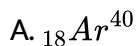
CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

MHTCET 2008

Chemistry

1. An isobar of ${}_{20}\text{Ca}^{40}$ is



Answer: A



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2. The point of dissimilarity between lanthanides and actinides is

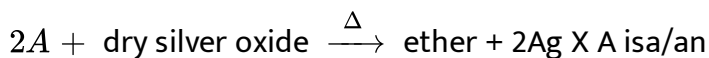
- A. three outermost shells are partially filled
- B. they show oxidation state of +3 (common)
- C. they are called inner transition elements
- D. they are radioactive in nature

Answer: D



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3. In the reaction,



- A. primary alcohol
- B. acid

C. alkyl halide

D. alcohol

Answer: C

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4. Glucose molecule reacts with X number of molecules of phenylhydrazine to yield osazone. The value of X is:

A. four

B. one

C. two

D. three

Answer: D

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5. How many alpha and beta particles are emitted when uranium ${}_{92}^{238}U$ decays to lead ${}_{82}^{206}Pb$?

A. $7\alpha, 5\beta$

B. $6\alpha, 4\beta$

C. $4\alpha, 3\beta$

D. $8\alpha, 6\beta$

Answer: D



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6. When acetamide is treated with Br_2 and caustic soda, the product formed is

A. N-bromamide

B. Bromoacetic acid

C. methanamine

D. ethanamine

Answer: C



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7. The final product of the following reaction is/are



A. 

B. 

C. 

D. 

Answer: B



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8. What is the general electronic configuration of transition elements

A. $(n - 1)d^{10}, (n + 1)s^2$

B. $(n - 1)d^{1-10}, (n + 1)s^{1-2}$

C. $(n - 1)d^{1-10}, np^6, ns^2$

D. $(n - 1)d^{1-10}, ns^{1-2}$

Answer: D



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9. Solution A, B, C and D are respectively 0.1 M glucose, 0.05 M NaCl, 0.05 M $BaCl_2$ and 0.1 M $AlCl_3$. Which one of the following pairs is isotonic ?

A. A and B

B. B and C

C. A and D

D. A and C

Answer: A

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10. Chloramine-R is a

- A. disinfectant
- B. antiseptic q
- C. analgesic
- D. antipyretics

Answer: B

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11. Cell reactiomn is spontaneous when

- A. E_{red}° is negative

B. E_{red}° is positive

C. ΔG° is negative

D. ΔG is positive

Answer: C

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12. If ΔE is the heat of reaction for

$C_2H_5OH(l) + 3O_2(g) \rightarrow 2CO_2(g) + 3H_2O(l)$ at constant volume the

ΔH (heat of reaction at constant pressure), at constant temperature is

A. $\Delta H = \Delta E + RT$

B. $\Delta H = \Delta E - RT$

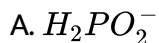
C. $\Delta H = \Delta E - RT$

D. $\Delta H = \Delta E - 2RT$

Answer: B

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13. Which one of the following species acts as both Bronsted acid and base ?



D. All of these

Answer: C

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14. For the reaction : $H_2 + I_2 \rightarrow 2HI$, the differential rate law is

A. $-\frac{d[H_2]}{dt} = -\frac{d[I_2]}{dt} = 2\frac{d[HI]}{dt}$

B. $-\frac{d[H_2]}{dt} = -2\frac{d[I_2]}{dt} = \frac{d[HI]}{dt}$

$$C. -\frac{d[H_2]}{dt} = -\frac{d[I_2]}{dt} = \frac{d[HI]}{dt}$$

$$D. -\frac{d[H_2]}{dt} = -\frac{d[I_2]}{dt} = \frac{d[HI]}{dt}$$

Answer: B

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15. Following reaction:

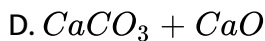
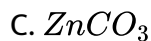
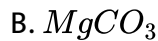
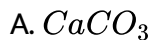
$(CH_3)_3C - Br + H_2O \rightarrow (CH_3)_3C - OH + HBr$ is an example of -

- A. elimination reaction
- B. free radical substitution
- C. nucleophilic substitution
- D. electrophilic substitution

Answer: C

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16. Calamine is

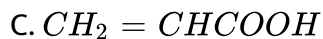
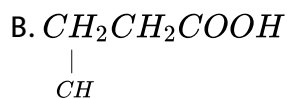
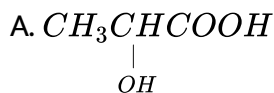
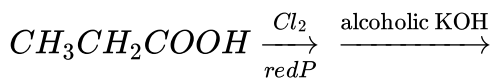


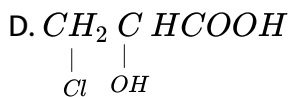
Answer: C



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17. End product of the following reaction is





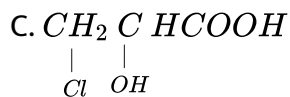
Answer: C

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18. On heating benzyl amine with chloroform and ethanolic KOH, product obtained is

A. benzyl alcohol

B. benzaldehyde



D. benzyl isocyanide

Answer: D

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19. Which of the following compounds is not chiral?

- A. 1-chloro-2-methyl pentane
- B. 2-chloropentane
- C. 1-chloropentane
- D. 3-chloro-2-methyl pentane

Answer: C



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20. Which of the following ions is colourless in solution?

- A. V^{3+}
- B. Cr^{3+}
- C. Co^{2+}
- D. Sc^{3+}

Answer: D

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21. The most common oxidation states of cerium are

A. +3, +4

B. +2, +3

C. +2, +4

D. +3, +5

Answer: A

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22. The number of ethers possible with the molecular formula $C_4H_{10}O$ is.

A. one

B. two

C. three

D. four

Answer: C



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23. The vapour pressure of pure benzene at a certain temperature is 640mm of Hg . A non-volatile non-electrolyte solid weighing 2.175g added 39.0g of benzene. The vapour pressure of the solution is 600mm of Hg . What is the molecular weight of solid substance?

A. 49.50

B. 59.60

C. 69.60

D. 79.82

Answer: C



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24. Terylene is a polymer obtained from

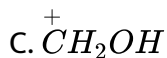
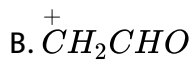
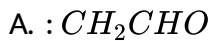
- A. ethylene glycol and glycerol
- B. ethylene glycol and glyceraldehyde
- C. ethylene glycol and terephthalic acid
- D. None of the above

Answer: C



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25. Which reactive intermediate is formed during the condensation reaction between acetaldehyde and formaldehyde ?



Answer: A

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26. For a first order reaction, the half-life period is

A. dependednt on the square of the initial concentration

B. dependent on first power of initial concentration

C. dependent on the square root of initial concentration

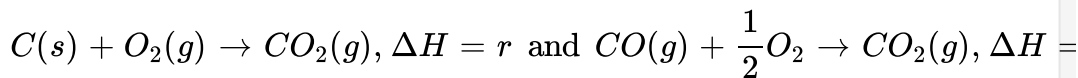
D. independent on initial concentration

Answer: D

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27.

If



then, the heat of formation of CO is

A. $r + s$

B. $r - s$

C. $s - r$

D. rs

Answer: B



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28. Which of the following concentration factors is affected by change in temperature ?

A. Molarity

B. Molality

C. Mole fraction

D. Weight fraction

Answer: A

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29. The correct order of boiling point for primary (1°), secondary (2°) and tertiary (3°) alcohols is

A. $1^\circ > 2^\circ > 3^\circ$

B. $3^\circ > 2^\circ > 1^\circ$

C. $2^\circ > 1^\circ > 3^\circ$

D. $2^\circ > 3^\circ > 1^\circ$

Answer: A

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30. The purest zinc is made by

- A. electrolytic refining
- B. zone refining
- C. the van Arkel method
- D. the Mond process

Answer: B



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31. Aspirin is an acetylation product of

- A. o-hydroxybenzoic acid
- B. o-hydroxybenzene
- C. m-hydroxybenzoic acid
- D. p-dihydroxybenzene

Answer: A

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32. For the sequence of reactions, $A \xrightarrow[\text{ether}]{C_2H_5MgI} B \xrightarrow{H_2O / H^+}$ tert-Pentyl alcohol. The compound A in the sequence is :

- A. 2-butanone
- B. acetaldehyde
- C. acetone
- D. propanal

Answer: C

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33. A radioactive isotope having $t_{1/2} = 3$ days was read after 12 days . If 3 g of the isotope is now left in the container, the initial weight of isotope

was

A. 12 g

B. 24 g

C. 36 g

D. 48 g

Answer: D



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34. Which of the following has the maximum penetrating power? a) α -particle b)Proton c) γ -particle d)Positron

A. α – particle

B. Proton

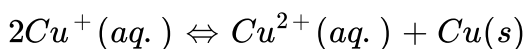
C. γ – radiation

D. Position

Answer: C

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35. $Cu^{2+}(aq.)$ is unstable in solution and under goes simultaneous oxidation and reduction according to the reaction



Choose the correct E° for the above reaction if

$$E^{\circ}_{Cu^{2+}/Cu} = 0.34V \text{ and } E^{\circ}_{Cu^{2+}/Cu^{+}} = 0.15V$$

A. $-0.38V$

B. $+0.49V$

C. $+0.38V$

D. $-0.19V$

Answer: C

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36. Solubility of $Ca(OH)_2$ is s mol L^{-1} . The solubility product (K_{sp}) under the same condition is

A. $4s^3$

B. $3s^4$

C. $4s^2$

D. s^3

Answer: A



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37. After how many seconds will the concentration of the reactant in a first order reaction be halved if the rate constant is $1.155 \times 10^{-3} s^{-1}$?

A. 600

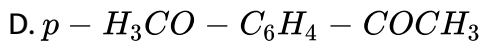
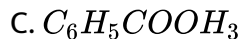
B. 100

C. 60

Answer: A

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38. An ester (A) with molecular formula $C_9H_{10}O_2$ was treated with excess of CH_3MgBr and the complex so formed was treated with H_2SO_4 to give an olefin (B). Ozonolysis of (B) gave a ketone with molecular formula C_8H_8O which shows positive iodoform test. The structure of (A) is



Answer: A

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39. Which of the following is the weakest base ?

- A. Ethyl amine
- B. Ammonia
- C. Dimethyl amine
- D. Methyl amine

Answer: B



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40. Rayon is

- A. natural silk
- B. artificial silk
- C. regenerated fibre
- D. synthetic fibre

Answer: C

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41. The pH of a 0.1 M solution of NH_4OH (having $K_b = 1.0 \times 10^{-5}$) is equal to

A. 10

B. 6

C. 11

D. 12

Answer: C

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42. Tranquilisers are also known as

- A. psychosomatic durgs
- B. psychoterapeutic durgs
- C. psychosystolic drugs
- D. None of the above

Answer: B

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43. The compound, which give a positive ninhydrin test and a negative Benedict's solution test, is

- A. a monosaccharide
- B. a disaccharide
- C. a lipid
- D. a protein

Answer: D

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44. Iodoform test is not given by

- A. 2-pentanone
- B. ethanol
- C. ethanal
- D. 3-pentanone

Answer: D

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45. Which of the following solution will have highest boiling point ?

- A. 0.1 M $FeCl_3$
- B. 0.1M $BaCl_2$
- C. 0.1M $NaCl$

D. 0.1 M urea (NH_2CONH_2)

Answer: A

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46. The IUPAC name of $H_3C - \underset{\substack{| \\ OC_3H_7}}{CH} - C_3H_7$

A. 4-propoxy pentane

B. pentyl-propyl ether

C. 2-propoxy pentane

D. 2-pentoxy propane

Answer: C

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47. For a reaction, $A + 2B \rightarrow C$, rate is given by $+\frac{d[C]}{dt} = k[A][B]$,

hence, the order of the reaction is

A. 1

B. 2

C. 1

D. 0

Answer: B



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48. Which one of the following compounds react with methylmagnesium iodide?

A. $CH_3CH_2CH_2CH_2CH_3$

B. $CH_3CH = CH - CH = CH_2$

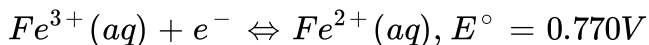
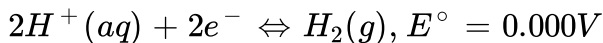
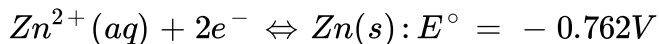
C. $CH_3 - C \equiv C - CH_2CH_3$



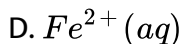
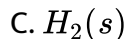
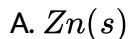
Answer: D

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49. The standard reduction potentials at 298K, for the following half cells are given:



Which is the strongest reducing agent?



Answer: A

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50. The alcohol that produces turbidity immediately with $ZnCl_2$ /conc. HCl at room temperature

- A. 1-hydroxy butane
- B. 2-hydroxy butane
- C. 2-hydroxy-2-methyl propane
- D. 1-hydroxy-2-methyl propane

Answer: C

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