



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PRACTICE SET 21

Paper 1 Physics Chemistry

1. What is the half-life of ${}_6C^{14}$, if its disintegration constant is $2.31 \times 10^{-4} yr^{-1}$?

A. $0.3 \times 10^4 yr$

B. $0.3 \times 10^3 \text{ yr}$

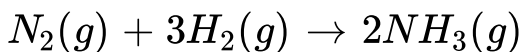
C. $0.3 \times 10^8 \text{ yr}$

D. $0.3 \times 10^2 \text{ yr}$

Answer: A

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2. For the reaction,



A. $\Delta H = \Delta E$

B. $\Delta H > \Delta E$

C. $\Delta H < \Delta E$

D. None of these

Answer: C



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3. Metals are good conductor of electricity because they contain

- A. a network structure
- B. ionic bonds
- C. very few valence electrons
- D. free electrons

Answer: D



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4. Which of the following is an ester ?

A. Coconut oil

B. Kerosene oil

C. Soap

D. Glycerine

Answer: A



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5. The chemical name of aspirin is

- A. acetyl salicylic acid
- B. o-hydroxy benzoic acid
- C. methyl salicylate
- D. methyl benzoate

Answer: A



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6. Bronze is an alloy of:

- A. $Pb + Sn$
- B. $Cu + Sn$
- C. $Cu + Zn$

D. $Zn + Pb$

Answer: B



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7. Terylene is a

A. polyamide

B. polyester

C. vegetable fiber

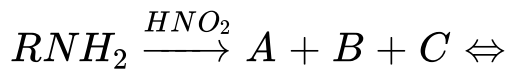
D. natural fibre

Answer: B



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8. Identify the 'C' in the reaction,



A. NH_3

B. O_2

C. N_2

D. CO_2

Answer: C



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9. The lanthanide contraction is responsible for the fact that

- A. Zr and Yt have about the same radius
- B. Zr and Nb have similar oxidation state
- C. Zr and Hf have about the same radius
- D. Zr and Zn have the same oxidation state

Answer: C



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10. $0.5M$ ammonium benzoate is hydrolysed to 0.25 percent, hence its hydrolysis constant is

A. 2.5×10^5

B. 1.25×10^{-5}

C. 3.125×10^{-6}

D. 6.25×10^{-6}

Answer: C



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11. 60 g of a compound on analysis gave 24 g C, 4 g H and 32 g O. The empirical formula of the compound is



C. CH_4O

D. $C_2H_4O_2$

Answer: B

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12. The pH of 0.02 M solution of HCl is

A. 2.2

B. 2.0

C. 0.3

D. 1.7

Answer: D



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13. The solubility product of $Mg(OH)_2$ at $25^\circ C$ is

1.4×10^{-11} . What is the solubility of $Mg(OH)_2$ in g/L?

A. $0.0047g/L$

B. $0.047g/L$

C. $0.0087g/L$

D. $0.087g/L$

Answer: C



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14. 34.2 g sugar is present in 214.2 g sugar syrup. What will be the molar concentration ?

A. 0.55

B. 0.66

C. 0.44

D. 0.75

Answer: A



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15. $Ni|Ni^{2+}(1.0M)||Au^{3+}(1.0M)|Au$ (where E° for Ni^{2+}/Ni is -0.25 and V and E° for Au^{3+}/Au is

(0.150V). What is the emf of the cell ?

A. +0.4V

B. - 1.75V

C. + 1.25V

D. + 1.75V

Answer: A



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16. If 8.0g of radioactive isotope has a half life of 10 hours, the half life of 2.0g of the same substance is a)2.5 hours
b)5 hours c)10 hours d)40hours

A. 2.5 h

B. 5 h

C. 10 h

D. 40 h

Answer: C



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17. The heat of formation of CO_2 is -393kJmol^{-1} . The amount of heat evolved in the formation of 0.156 kg of CO_2 is

A. -1393kJ

B. $+1165.5\text{KJ}$

C. $+1275.9\text{KJ}$

D. -1165.5KJ

Answer: A



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18. Which is used to obtain salicylic acid from phenol ?

A. CCl_4

B. CHI_3

C. $\text{C}_2\text{H}_5\text{OH}$

D. CCl_2F_2

Answer: A



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19. A first order reaction takes 40 min for 30% decomposition. Calculate $t_{1/2}$. (Given $\log 7 = 0.845$)

A. 97.7 min

B. 77.7 min

C. 80.5 min

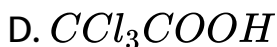
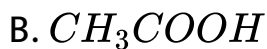
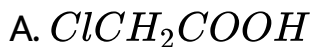
D. 70.7 min

Answer: B



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20. Which is the strongest acid ?



Answer: D



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21. Which of the following elements show maximum valency ?

A. Carbon

B. Barium

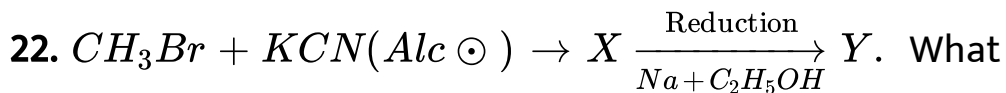
C. Nitrogen

D. Sulphur

Answer: D



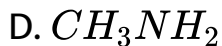
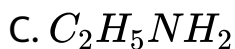
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is Y in the series ?

A. CH_3CN

B. C_2H_5CN



Answer: C

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23. The number of α and β -particles emitted in the nuclear reaction ${}_{90}^{210}\text{Th} \rightarrow {}_{83}^{212}\text{Bi}$ are:

A. $4\alpha, 1\beta$

B. $3\alpha, 7\beta$

C. $8\alpha, 1\beta$

D. $4\alpha, 7\beta$

Answer: A

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24. Slow oxidation of chloroform in air leads to

- A. formyl chloride
- B. phosphene
- C. phosgene
- D. trichloroacetic acid

Answer: C

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25. Graph between p and V at constant temperature is

A. straight

B. curved increasing

C. straight line with slope

D. None of these

Answer: B



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26. Which of the following compounds is optically active ?

A. 1-butanol

B. Ethanol

C. 2-butanol

D. Isopropyl alcohol

Answer: C

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27. The molecule which does not exhibit dipole moment is

A. NH_3

B. $CHCl_3$

C. CCl_4

D. H_2O

Answer: C



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28. The reaction of methyl bromide with aq KOH to form methyl alcohol is an example of

- A. electrophilic addition
- B. nucleophilic substitution
- C. nucleophilic addition
- D. electrophilic substitution

Answer: B

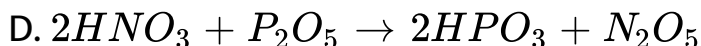


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29. In one of the following reactions, HNO_3 does not behave as an oxidising agent. Identify it.



C.



Answer: A



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30. During electrolysis of water, the volume of oxygen liberate is $2.24dm^3$. The volume of hydrogen liberated, under same conditions will be

A. $2.24dm^3$

B. $1.12dm^3$

C. $4.48dm^3$

D. $0.56dm^3$

Answer: C



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31. The number of half-filled 5f-orbitals present in Am (95) are

A. 2

B. 4

C. 5

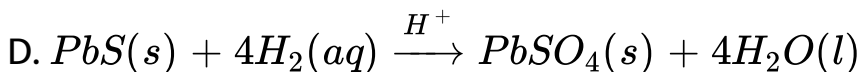
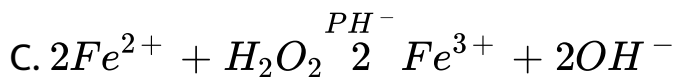
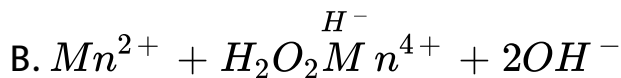
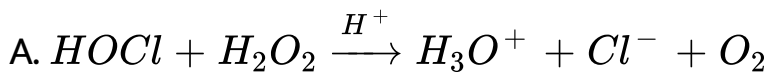
D. 7

Answer: D



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32. In which of the following reactions H_2O_2 acts as a reducing agent ?



Answer: A



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33. If $3A \rightarrow 2B$, then the rate of reaction of $+\frac{dB}{dt}$ is equal to

$$\text{A. } -\frac{3}{2} \frac{d[A]}{dt}$$

$$\text{B. } -\frac{2}{3} \frac{d[A]}{dt}$$

C. $-\frac{1}{3} \frac{d[A]}{dt}$

D. $+2 \frac{d[A]}{dt}$

Answer: B

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34. The ionic mobility of alkali metal ions in aqueous solution is maximum for:



Answer: B

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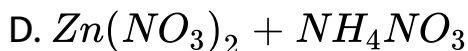
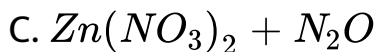
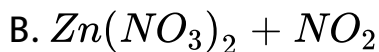
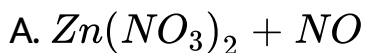
35. Proteins are

- A. polypeptides with low molecular weights
- B. polypeptides with high molecular weights
- C. polymers of amides
- D. polymers of secondary amines

Answer: B

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36. Reduction of zinc with cold and very dilute nitric acid yields



Answer: D



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37. The product of vinyl chloride and HCl is

A. gem dichloride

B. ethylidene chloride

C. 1,1-dichloro ethane

D. All of the above are correct

Answer: D



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38. By which one of the following compounds both CH_4 and $CH_3 - CH_3$ can be prepared in one step ?

A. CH_3I

B. CH_3OH

C. CH_3CH_2I

D. C_2H_5OH

Answer: A

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39. Which one of the following is incorrect ?

- A. Nylon-6 is obtained by polymerisation of amino caproic acid
- B. Rayon is semi-synthetic fibre
- C. Terylene has low moisture absorption property
- D. Terylene has high tensile strength

Answer: A



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40. Which of the following is used to detect protein ?

A. Meercury in nitric acid

B. Oil in sulphuric acid

C. Lassaigne's test

D. Molisch test

Answer: A



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41. The ratio of carbon, hydrogen and oxygen and oxygen in 3-methyl benzoic acid is

A. 4: 2: 2

B. 2: 4: 1

C. 4: 4: 1

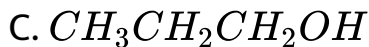
D. 4: 4: 2

Answer: C



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42. When $CH_2 = CH - COOH$ is reduced with $LiAlH_4$ the compound obtained will be



Answer: B



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43. Osmotic pressure of 40% (wt./vol.) urea solution is 1.64atm and that of 3.42% (wt./vol.) cane sugar is 2.46atm . When equal volumes of the above two solutions are mixed, the osmotic pressure of the resulting solution is:

A. 0.82 atm

B. 2.46 atm

C. 1.64 atm

D. 4.10 atm

Answer: D



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44. Which of the following metal ions is not coloured ?

A. Ti^{3+}

B. V^{2+}

C. Fe^{3+}

D. Zn^{2+}

Answer: D



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45. Equal moles of water and urea are taken in a flask.

What is mass percentage of urea in the solution ?

A. 23.077 %

B. 230.77 %

C. 2.3077 %

D. 0.23077 %

Answer: A



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46. The radiant energy from the sun is due to

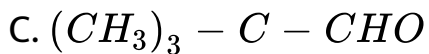
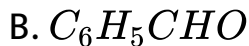
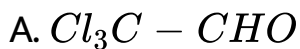
- A. combustion
- B. chemical reaction
- C. nuclear fusion
- D. nuclear fission

Answer: A



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47. Which will give Cannizaro reaction ?



D. All of the above

Answer: C



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48. Which property of colloids is not dependent on the change on colloidal particles?

A. Coagulation

B. Electrophoresis

C. Electroosmosis

D. Tyndal effect

Answer: D

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49. Ethoxy ethane with dil. H_2SO_4 gives

A. C_2H_5OH

B. CH_3OH , $C_2H_5HSO_4$

C. C_2H_5OH , $C_2H_5HSO_4$

D. CH_3OH , C_2H_4

Answer: C



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50. The isomerism due to unequal distribution of C-atoms on either side of functional group i.e., -O- in ethers is called

- A. tautomerism
- B. metamerism
- C. chain isomerism
- D. group

Answer: B



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