CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PRACTICE SET 03

Paper 1 Pysics Chemistry

1. What is the atomic weight of an element X for which a sample containing 1.58×10^{22}

atoms weigh 1.05 g?

A. 28 g

B. 20 g

C. 40 g

D. 23 g

Answer: C

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2. For the reduction of lead oxide by coke $(PbO + C \rightarrow Pb + CO)$, ΔH and ΔS are found to be $108.8kJmol^{-1}$ and $190JK^{-1}mol^{-1}$ respectively. The minimum temperature above which the reaction will be spontaneous will be

A. $100^{\circ}C$

B. $200^{\circ}C$

C. $300^{\circ}C$

D. $400^{\circ}C$

Answer: C

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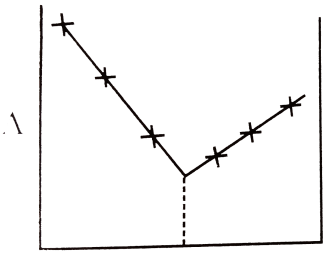
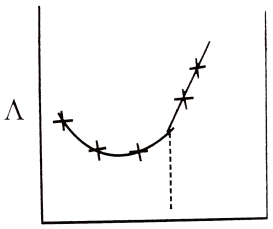
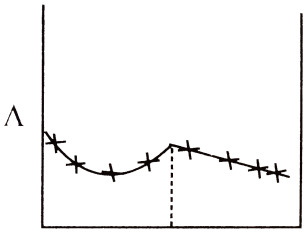
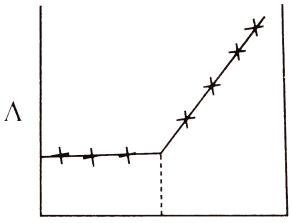
3. $AgNO_3(aq.)$ was added to an aqeous KCl solution gradually and the conductivity of the solution was measured. The plot of conductance (Λ) versus the volume of $AgNO_3$ is :









A. P

B. Q

C. R

D. S

Answer: D

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4. The number of atoms or molecules whose concentration changes during a chemical change is its

A. order of reaction

B. molecularity

C. change in reaction

D. dynamics

Answer: A

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5. Potassium has a bcc structure with nearest neighour distance $4.52Å$its atomic weight is 39 its density (in kg m^{-3}) will be

A. $454kg/m^3$

B. $804kg/m^3$

C. $852kg/m^3$

D. $910kg/m^3$

Answer: D

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6. Nitrogen (N_2) is relatively unreactive, because

A. its electronegativity is high

B. its dissociation energy is large

C. its atomic radius is small

D. it is the first element of group-15

Answer: B

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7. Which one of the following order is correct?

A. $F_2 > Cl_2 > Br_2 > I_2$: Electronegativity

B. $F_2 > Cl_2 > Br_2 > I_2$: bond dissociation energy

C. $F_2 > Cl_2 > Br_2 > I_2$: Oxidising power

D. $HI > HBr > HCl > HF$: Acidic property in water

Answer: B

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8. Which of the following substance has the highest melting point? .

A. BaO

B. MgO

C. KCl

D. NaCl

Answer: B

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9. Match the terms of column I with column II and mark the correct option from the codes

given below:

	Column I (Definition)		Column II (Type of compounds)
A.	Compounds containing carbon atoms joined in the form of a ring	1.	Homocyclic compounds
B.	When atoms other than carbon atoms are present in the ring	2.	Non-benzenoid compound
C.	Benzene and other related ring compounds	3.	Heterocyclic compound
D.	Compounds which do not contain benzene ring but aromatic in nature.	4.	Benzenoid compound

A. A-1,B-3,C-4,D-2

B. A-1,B-2,C-3,D-4

C. A-4,B-3,C-2,D-1

D. A-3,B-2,C-2,D-4

Answer: A

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10. Among the following ethers, which one will produce methyl alcohol on treatment with hot concentrated HI?

A. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - O - CH_3$

B. $CH_3 - \underset{\underset{CH_3}{|}}{C}\ H - CH_2 - O - CH_3$

C.

$$CH_3 - CH_2 - CH_2 - CH_2 - O - CH_3$$

D. $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{C}H - O - CH_3$

Answer: A

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11. Mole fraction of solute in 1 mole aqueous solution is

A. 1.77

B. 0.177

C. 0.0177

D. 0.0344

Answer: C

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12. Heat of solution is defined as

A. heat required to dissolved one mole in excess of water

B. heat evolved, when one molee is dissolved in excess of water

C. change in heat content of the system when one mole of the slute is dissolved in excess of water, so that further dilution of solutio does not bring any heat change.

D. heat required when one mole of solute is dissolved in limited quantity of water.

Answer: C

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13.

$E^{\circ}_{Fe^{3+}/Fe} = -0.036V, E^{\circ}_{Fe^{2+}/Fe} = -0.0439V$

. The value of standard electrode potential for the change, $Fe^{3+}(aq) + e^{-} \rightarrow Fe^{2+}(aq)$ will be

A. $-0.072V$

B. $-0.385V$

C. $-0.020V$

D. $-0.270V$

Answer: C

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14. The rate constant of first order reaction is 10^{-2}min^{-1}. The half-life period of reaction is

A. 693 min

B. 69.3 min

C. 6.93 min

D. 0.693 min

Answer: B

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15. In the closest packing atoms, there are

A. one tetrahedral voids and one octahedral void per atom

B. two tetrahedral voids and one octahedral void per atom

C. two of each tetrahedral and octahedral voids per atom

D. one of each tetrahedral and octaheral void per atom

Answer: B

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16. Ellingham diagram represents:

A. change of ΔG with temperature

B. change of ΔH with temperature

C. change ΔG will pressure

D. change of $(\Delta G - T\Delta S)$ will temperature.

Answer: A

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17. Which of the following is the correct order of increasing enthalpy of vaporisation?

A. $NH_3 > PH_3 > AsH_3$

B. $AsH_3 > PH_3 > NH_3$

C. $PH_3 > AsH_3 > NH_3$

D. $NH_3 > AsH_3 > PH_3$

Answer: D

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18. Which is the most common oxidation state exhibited by lanthanoids ?

A. $+2$

B. $+3$

C. $+4$

D. $+5$

Answer: B

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19. When neopentyl bromide is subjected to Wurtz reaction, the product formed is

A. 2,2,4,4-tetramethyl hexane

B. 2,2,4,4-tetramethyl pentane

C. 2,2,5,5-tetramethyl hexane

D. 2,2,3,3-tetramethyl hexane

Answer: C

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20. The Temperature at which 28 g of N_2 will occupy a volume of 10.0 L at 2.46 atm is

A. 299.6 K

B. $0^\circ C$

C. $273K$

D. $10^{\circ}C$

Answer: A

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21. A solution of two liquids boils at a temperature more than the boiling point of either of them. Hence, the binary solution shows

A. negative deviation from raoult's law

B. positive deviation from raoult's law

C. no deviation from raoult's law

D. positive or negative deviation from raoult's law depending upon the composition.

Answer: A

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22. Both oxidation and reduction takes place in

A. $NaBr + HCl \rightarrow NaCl + HBr$

B. $HBr + AgNO_3 \rightarrow AgBr + HNO_3$

C. $H_2 + Br_2 \rightarrow 2HBr$

D. $CaO + H_2SO_4 \rightarrow CaSO_4 + H_2O$

Answer: C

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23. By diluting a weak electrolyte, specific conductivity (K_c) and equivalent conductivity (λ_c) change as

A. both increase

B. K_c increases λ_c decreases

C. K_c decreases, λ_c increases

D. Both decreases

Answer: C

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24. A first orde reaction is 75% completed after 32min. When was 50% of the reaction completed?

A. 16 min

B. 8 min

C. 4 min

D. 40 min

Answer: A

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25. A sample of H_2O_2 is labelled 10 vol. Its percentage strength will be nearly___ %.

A. 3

B. 6

C. 9

D. 12

Answer: A

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26. The solubility of $Na_2, SO_4, BeSO_4, MgSO_4$ and $BaSO_4$ will follow the order

A.

$$BeSO_4 > MgSO_4 > Na_2SO_4 > BaSO_4$$

B.

$$BeSO_4 > Na_2SO_4 > MgSO_4 > BaSO_4$$

C.

$$MgSO_4 > BeSO_4 > Na_2SO_4 > BaSO_4$$

D.

$$Na_2SO_4 > BeSO_4 > MgSO_4 > BaSO_4$$

Answer: D

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27. The statement, which prompted Neil Bartlett to prepare the first noble gas compound was

A. Xe-F bond has high bond energy

B. F_2 has exceptionally low bond energy

C. PtF_6 is a strong oxidant

D. O_2 molecule and Xe atom have very similar ionisation energies.

Answer: D

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28. Radioactivity is the phenomenon most common with the

A. d-block elements

B. p-block elements

C. s-block elements

D. actinides

Answer: D

29. Gammexane is

A. chlorobenzene

B. benzylchloride

C. bromobenzene

D. benzene hexachloride

Answer: D

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30. When acetylene is passed through di. H_2SO_4 in presence of $HgSO_4$, the compound formed is

A. C_2H_5OH

B. acetone

C. carbide of Hg

D. CH_3CHO

Answer: D

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31. Which isomer of hexane has only two different sets of structuraly equivalent hydrogen atom?

A. 2,2-dimethylbutane

B. 2-methylpentane

C. 3-methylpentane

D. None of these

Answer: A

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32. How many mL of perhydrol is requried to produce sufficient oxygen which can be used

to completely convert 2 L of SO_2 gas of SO_3 gas?

A. 10 mL

B. 5 mL

C. 20 mL

D. 30 mL

Answer: A

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33. Which of the following statements is incorrect about coordination compounds?

A. Coordination compounds and complexes are synonym terms

B. complexes always give ions in the solution

C. complexes may or may not give ions in the solution

D. complex ion does not dissociate into its component parts even in the solution.

Answer: B

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34. When phenol is distilled with zinc dust, it gives

A. benzene

B. toluene

C. benzaldehyde

D. benzoic acid

Answer: A

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35. To correct the order of basic nature is

A. $NH_3 > CH_3NH_2 > C_6H_5NH_2$

B. $C_6H_5NH_2 > NH_2 > CH_3NH_2$

C. $CH_3NH_2 > NH_3 > C_6H_5NH_2$

D. None of these

Answer: C

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36. Reaction of nitrous acid wiith aliphatic primary aminie in cold gives

A. a diazonium salt

B. an alcohol

C. a nitrite

D. a dye

Answer: B

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37. Identify A and B in the reaction given below

Ethane nitrile

$$\xrightarrow[aq.\quad H_2SO_4+2H_2O-NH_3]{\text{Hydrolysi}} A \xrightarrow[\text{Soda lime}\quad \Delta\ -CO_2]{\text{Decarboxylation}} B$$

A. acetic, acid, methanol

B. acetone, methane

C. ethanoic acid, ethane

D. ethanoic acid, methane

Answer: D

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38. On heating with conc. HNO_3, proteins give yellow colour. This test is called

A. oxidising test

B. xanthoproteic test

C. benedict test

D. acid-base's test

Answer: B

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39. Correct statement among the following is

A. All macromolecules are polymers

B. Physical and mechanical properties of a polymer are similar to its monomer

C. majority of bonds in polymer molecule are covalent

D. vitamins are polymers

Answer: D

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40. Dettol, a common antiseptic is a combination of

A. creson and ethanol

B. chloroxylenol and terpineol

C. xylenol and terpineol

D. phenol and cresol

Answer: B

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41. Which of the following oxo acids of chlorine is the best oxidisinig agent?

A. $HClO$

B. $HClO_2$

C. $HClO_3$

D. $HClO_4$

Answer: A

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42. Which characteristic is not associated with chemical adsorption?

A. is irreversible

B. forms monolayer

C. not very specific

D. heat of adsorptiongt50Kj mol^{-1}

Answer: C

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43. Hydrated copper sulphate is

A. Square planer

B. Tetrahedral

C. Octahedral

D. None of these

Answer: C

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44. Dehydration of alcohols to ethers is catalysed by

A. Conc. H_2SO_4 at 413 K

B. Hot NaOH

C. hot HBr

D. hot HNO_3

Answer: A

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45. Glacial acetic acid is so called because

A. it contains 75% of acid

B. if freezed to ice like crystalline solid

C. it is manufactured by quick vinegar

D. none of the above is true

Answer: B

46. The stability of arenediazonium ion is due to resonating structures.

A. 1

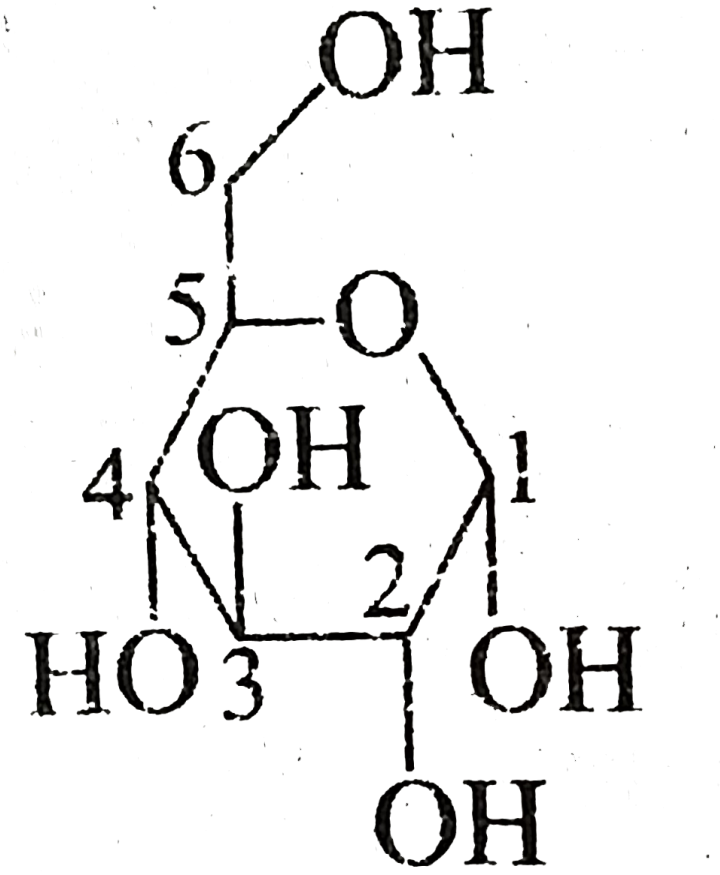
B. 3

C. 5

D. 7

Answer: C

47. In α-D-Glucose, the anomeric carbon is at:



A. C-1 carbon

B. C-2 carbon

C. C-5 carbon

D. C-6 carbon

Answer: A

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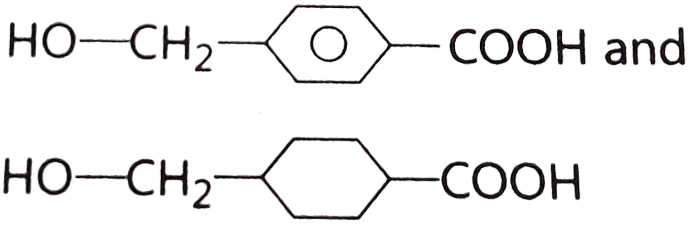
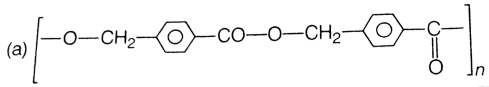
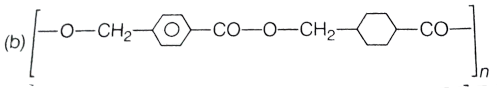
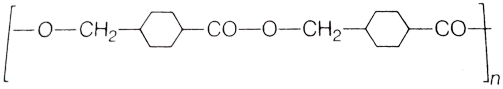
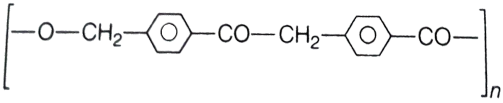
48. Polymer obtained by polymerisation of monomers



A. 

B. 

C. 

D. 

Answer: B

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49. Paracetamol is used as

A. an analgesic

B. an antimalarial

C. an antipyretic

D. both analgesic and antipyretic

Answer: D

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50. The IUPAC name of the complex ion formed when gold dissolves in aque-regia is

A. tetrachloridoaurate (III)

B. tetrachloridoaurate (I)

C. tetrachloridoaurate (II)

D. dicoloridoaurate (III).

Answer: A

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