CHEMISTRY

BOOKS - SAI CHEMISTRY (TELUGU ENGLISH)

MOCK TEST 2

Chemistry

1. The maximum number of electrons accommodated by 3d sublevel is

A. 2

B. 10

C. 6

D. 14

Answer: C

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2. Which of the following species has the highest ionization potential?

A. Li^+

B. Mg^{2+}

C. Al^{3+}

D. Ne

Answer: C

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3. Octet rule is mostly violated in the compounds formed by

A. Alkali metals

B. Alkaline earth metals

C. Group 3 elements

D. All of these

Answer: B

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4. During bond formation, potential energy of the system

A. Increases

B. Decreases

C. Remains the same

D. Cannot be predicted

Answer: A

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5. The volume of a given mass of a gas is 100ml at $100^\circ C$. If pressure is kept constant, at what temperature will the sample have the volume of 200ml?

A. $50^\circ C$

B. $473^\circ C$

C. $200^\circ C$

D. $400^\circ C$

Answer: A

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6. Which of the following is not the statement of kinetic theory of gases?

A. The kinctic energy depends on the temperature of the gas

B. The K E depends on pressure of the gas

C. The collisions are elastic

D. Pressure of the gas is due to the collision of gas molecules with the walls ol the vessel

Answer: C

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7. Hot milk in a thermos flask is an example for

A. Isolated system

B. Open system

C. Closed system

D. Adiabatic system

Answer: A

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8. Which of the following pair of solutions does not form a buffer solution?

A. NaH_2PO_4 and Na_2HPO_4

B. H_2CO_3 and $NaHCO_3$

C. NH_4OH and NH_4Cl

D. KOH and K_2SO_4

Answer: C

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9. Which of the following is a Bronsted-Lowry acid but not an Arrhenius acid?

A. HCl

B. NH^{4+}

C. BF_3

D. CH_3COOH

Answer: A

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10. Boiling point of heavy water is

A. $100^\circ C$

B. $99^\circ C$

C. $101.42^\circ C$

D. $110^\circ C$

Answer: C

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11. In certain matters, lithium differs from other alkali metals, the main reason for this is

A. Small size of lithium atom

B. Extremely high electro positivity

C. Greater hardness

D. Hydration of ion

Answer: C

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12. Magnesium wire burns in the atmosphere because

A. Magnesium acts as an oxidising agent

B. Magnesium has 2 electrons in the outermost orbit

C. Magnesium acts as a reducing agent and removes oxygen from CO_2

D. None of the above

Answer: A

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13. What is the C-C bond length (in A°) in diamond

A. 1.54

B. 3.34

C. 2

D. 5.2

Answer: C

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14. Match the following columns

List-I	List-II
A. NH_3	1. sp^3d, Trigonal bipyramidal
B. N_2O_5	2. sp^3, Tetrahedral
C. PC_5	3. sp, Linear
D. NH^{4+}	4. sp^3, Pyramidal

The correct match is

A. 1 4 3 2

B. 1 2 3 4

C. 4 5 1 2

D. 2 5 3 1

Answer: D

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15. P-P linkage is present in

A. Pyrophosphoric acid

B. Hypophosphoric acid

C. Peroxy phosphoric acid

D. Metaphosphoric acid

Answer: C

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16. Catalytic activity of transition elements and their compounds is due to their

A. Small size

B. Vacant d-orbitals

C. Higher densities

D. Colour

Answer: A

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17. Lanthanide contraction occurs because

A. The 4f electrons, which are gradually added, create a strong shielding effect.

B. The 4f orbitals are greater in size than the 3d and 3f orbitals.

C. The 5f orbitals strongly penetrate into the 4f orbitals.

D. The poor shielding effect of 4f electrons is coupled with increased attraction between the nucleus and the added electrons.

Answer: D

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18. Match the following columns

List-I	List-II
A. Freon's	1. Rise in temperature of earth's surface
B. Ozone	2. Forms holes in ozone layer
C. Carbon dioxide	3. Protects life from UV radiation
D. Sulphur dioxide	4. Increase in fluoride ion concentration
	5. Acid rain

The correct match is

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

B. A-3, B-4, C-5, D-2

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

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

Answer: A

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19. Match the following columns

List-I	List-II
A. Gas in liquid	1. Camphor in air
B. Liquid in gas	2. Bronze
C. Liquid in solid	3. Water in air
D. Solid in solid	4. Oxygen in water
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A. 5 4 3 2

B. 1 2 3 4

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A. 2

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21. The ratio of energies of photons with wavelengths $2000A^0$ and $4000A^0$ is

A. $1:2$

B. $4:1$

C. $2:1$

D. $1:4$

Answer: C

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C. 4 5 1 2

D. 2 5 3 1

Answer: D

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B. Hypophosphoric acid

C. Peroxy phosphoric acid

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B. A-3, B-4, C-5, D-2

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

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

Answer: A

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39. A metallic carbide on treatment with water gives a colourless gas which burns readily in air and gives a precipitate with ammoniacal silver nitrate solution. The gas evolved

A. CH_4

B. C_2H_6

C. C_2H_4

D. C_2H_2

Answer: A

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40. Chlorination of toluene in presence of light and heat followed by treatment with aqueous NAOH gives

A. o-Cresol

B. p-Cresol

C. 2: 4 dihydroxy toluene

D. Benzoic acid

Answer: B

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A. Gas in liquid	1. Camphor in air
B. Liquid in gas	2. Bronze
C. Liquid in solid	3. Water in air
D. Solid in solid	4. Oxygen in water
	5. Amalgam

The correct answer is

A. 5 4 3 2

B. 1 2 3 4

C. 2 4 1 3

D. 4 3 5 2

Answer: A

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42. Molar ionic conductivities of a bivalent electrolyte are 57 and 73. The molar conductivity of the solution will be

A. $130 Scm^2 mol^{-1}$

B. $65 Scm^2 mol^{-1}$

C. $260 Scm^2 mol^{-1}$

D. $187 Scm^2 mol^{-1}$

Answer: C

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43. The forces operating between the adsorbate and the adsorbent in physical adsorption are

A. Van der Waals forces

B. Chemical forces

C. Covalent forces

D. All the three

Answer: A

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44. Horn silver is

A. Carbonate mineral

B. Chloride mineral

C. Sulphate mineral

D. Phosphate mineral

Answer: B

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45. Stainless steel does not rust because

A. Chromium and nickel combine with iron

B. Chromium forms an oxide layer and protects iron form rusting

C. Nickel present in it does not rust.

D. Iron forms a hard chemical compound with chromium present in it

Answer: B

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46. A polymer which is commonly used as a packaging material is

A. Polythene

B. Polypropylene

C. PVC

D. Bakelite

Answer: D

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47. Which compound/set of compounds is used in the manufacture of Nylon-6,6?

A. $HOOC(CH_2)_4COOH + H_2N(CH)_6NH_2$

B. $CH_3 = CH - C(CH_3) = CH_2$

C. $CH_2 = CH_2$

D. $HOOCCOOH + HOCH_2 - CH_2OH$

Answer: D

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48. The pH value of a solution in which a polar amino acid does not migrate under the influence of electric field is called

A. Isoelectronic point

B. Iso-electric point

C. Neutralisation point

D. None

Answer: B

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49. The substances which affect the central nervous system and induce sleep are called

A. Antipyretics

B. Tranquilizers

C. Analgesics

D. Antibiotics

Answer: A

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50. Which is detected by carbylamine test?

A. H_2NCONH_2

B. CH_3CONH_2

C. $C_5H_5NH_2$

D. All of these

Answer: B

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51. Acid catalyzed hydration of alkenes except ethane leads to the formation of

A. Primary alcohol

B. Secondary or tertiary alcohol

C. Mixture of primary and secondary alcohols

D. Mixture of secondary and tertiary alcohols

Answer: D

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52. 2, 2-dichloro propane treated with aq.KOH gives an unstable product. It is

A. CH_3COCH_3

B. $CH_3CH(OH)CH_3$

C. $CH_3C(OH)_2CH_3$

D. $CH_3CH(OH)CH_2CHO$

Answer: B

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53. The process that does not yield an amine is

A. Action of ammonia on RX

B. Reduction of aldoxime with Na/alcohol

C. Acid hydrolysis of alkyl cyanide

D. Reduction of amide with LiA/H_4

Answer: D

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54. Which one of the following compounds would undergo nitration with greatest ease?

A. Benzene

B. Phenol

C. Nitrobenzene

D. Benzoic acid

Answer: B

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55. In the chemical reaction,

$CH_3CH_2NH_2 + CHCl_3 + 3KOH \rightarrow (A) + (B) + 3H_2O$

the compounds (A) and (B) are respectively

A. C_2H_5NC and $3KCI$

B. C_2H_5CN and $3KCI$

C. $CH_3CH_2CONH_2$ and $3KCI$

D. C_2H_5NC and K_2CO_3

Answer: B

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56. X' grams of calcium carbonate was completely burnt in air. The weight of the solid residue formed is 28 g. What is the value of "X'(in grams)?

A. 50

B. 150

C. 300

D. 200

Answer: D

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57. 10 grams of $CaCO_3$ is completely decomposed to x and CaO. 'x' is passed into an aqueous solution containing 0.1mole of sodium carbonate. What is the number of moles of sodium bicarbonate formed? (mol. wts: $CaCO_3 = 100, NaCO_3 = 106, NaHCO_3 = 84$)

A. 0.2

B. 10

C. 0.3

D. 5

Answer: A

58. 50 grams of calcium carbonate was completely burnt in air. What is the weight (in grams) of the residue? Atomic weights of Ca, C and O are 40,12 and 16 respectively)

A. 2.8

B. 28

C. 22

D. 4.4

Answer: B

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