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545/1

**CHEMISTRY**

**PAPER1**

APRIL 2018

1HOUR 30MIN

IBUN MASOOD HIGH SCHOOL

KIBIRI BUSABALA ROAD

**CHEMISTRY**

**PAPER 1**

1HOUR 30MINUTES

**INSTRUCTIONS TO CANDIDATES:**

* This paper consists of 50 objective – typed questions
* Answer all questions.
* You are required to write the correct answer, A, B, C or D in the box provided on the right- hand side of each question.
* Do not use pencil

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| **FOR EXAMINERS’ USE ONLY** |
|  |

1. Which of the following salts can be prepared by direct synthesis?

A. Sodium Chloride B. Sodium Sulphate

C. Sodium Carbonate D. Sodium nitrate

2. Permanent hard water can be softened by

A. Boiling the water B. Adding calcium hydroxide

C. Adding aqueous ammonia D. Adding sodium carbonate

3. An anhydrous salt **R** has a relative formula mass of 158 and form a hydrated salt with formulaR.n H2O. 79g of **R** combined with 45of water. What is the value of n? (H=1, O=16)

1. 2 B. 3 C. 5 D.10

4. Which one of the following is an oxidizing agent?

A. CO B. H2S C. CL2 D. NH3

5. Ammonia is obtained from hydrogen and Nitrogen according to the equation.

N2 (g) + 3H2 (g) 2 NH3(g)

The volume of Ammonia produced when 25 litres of nitrogen reacts with excess

Hydrogen at s.t.p is

(1 mole of gas occupies 22.4 L at s.t.p)

A. 12.5l B. 25.0l C. 50.0l D. 75.0l

6. Which of the following is a soluble base?

A. Copper (ii) oxide B. Carbondioxide

C. Sodium oxide D. Iron (ii) oxide

7. Calculate the relative molecular mass of gas T if 8.4 dm3 of the gas has a mass of

0.93g (1mole 0f a gas occupies 22.4 dm3 at s.t.p)

A. B. C. D.

8. The full symbols of atoms of elements R, T, X, Y and Z are,, ,

respectively.Which of this is an isotopy of Y?

1. R B. T C. X D. Z

9. Ethane burns in oxygen according to the equation below.

2C2H6 (g) + XO2 (g) YCO2 (g) + 6H2O (g)

What are the values of X and Y?

A. X=2, Y=2 B. X=7, Y=6 C. X=7, Y=4 D. X=4, Y=6

10. Most metals reacts with dilute mineral acids to form

A. Hydrogen only.B. The salt of the metal and water.

C. The salt of the metal only. D. The salt of the metal and hydrogen gas.

11. Which one of the following hydro carbon will produce the least heat energy per

mole on complete combustion?

A. CH3CH2CH2CH3.B. CH3CH2CH3 .C. CH3CH3 D.CH4.

12. A dilute solution of potassium bromide is electrolysed using carbon electrode. The

product at the positive electrode is.

A. Hydrogen. B. Bromine. C. Oxygen. D. Potassium.

13. The substance that will dissolve in water with absorption of heat is

A. Sulphuric acid B. Ammonia

C.Hydrogen chloride D. Potassium hydroxide

14. During the manufacture of sulphuric acid by the contact process, sulphurdioxide

combines with oxygen to form sulphurtrioxide according to the following equation

2S02(g) + O2(g) 2SO3(g) +H ≡ 192 KJMol-1

Which of the following conditions would favor maximum yield of sulphurtrioxide?

A. Low temperature and low pressure B. High temperature and low pressure

C. Low temperature and high pressure D. High temperature and high pressure

15 When 2.3g of ethanol was completely burnt in oxygen, the heat evolved raised the

temperature of 100g of water by 30oc. The molar heat of combustion of ethanol in

joules is. (The molar mass of ethanol = 46 and the specific heat capacity of water = 4.2J g-1 k-1)

A.B. C. D.   
  
16. The gas that changes the colour of potassium dichromate from orange to green is

A. Carbondioxide B. Hydrogen chloride

C. Sulpurdioxide D. Hydrogen sulphide

17. The element which is added to natural rubber during vulcanization is.

A. Silicon B. Iodine C. Phosphorus D. Sulphur

18. Which one of the following contains the same number of moles of hydrogen ions as the number of moles of sodium ions in 50cm3 of a 0.2M Na2SO4?

(H=1, Cl=35.5)

A. 1.83g of HCl B. 0.73g of HCl

C. 100cm3 of a 0.2M H2SO4 D. 100 cm3 of a 2M HCl

19. Hydrogen peroxide decomposes according to the following equation.

2H2O2(aq) 2H2O(l) + O2(g)

Which one of the following graphs represents how the concentration of the reactant varies with time during the reaction?

Concnof reactant

Time

Time

Concnof reactant

B

A

Time

Concnof reactant

D

Time

Concnof reactant

C

20. Which of the following will react with concentrated nitric acid to form a yellow solution?

A. Cl-(aq) B. Fe2+(aq) C. Br –(aq) D. Cu 2+(aq)

21. The atomic number of elements P, Q, R and T are 19, 17, 14, and 6 respectively.

The pair of elements that can react to form an ionic compound is

1. Q and T B. R and Q C. Q and P D. R and T

22. Which of the following substances is an element?

A. Ice B. Sand C.Graphite D. Polyethene

23. The reaction in which ethane forms solid whose molecular mass is more than 10,000 is called

1. Polymerisation B. HydrogenationC. Vulcanisation D. Cracking

24. The compound which does not cause hardness of water is

A. Calcium hydrogen carbonate B. Calcium Sulphate

C. Sodium Carbonate D. Magnesium Sulphate

25. The gas that can diffuse at the same rate as oxygen at room temperature is(H=1, C=12, N=14, S=32, O=16; one mole of a gas occupies 24.0dm3 at room

temperature)

1. SO2 B. NH3 C. CO2 D. NO

26. Which one of the following cations when treated with aqueous sodium hydroxide

willgive a precipitate that does not dissolve in excess alkali?

1. Al3+ B. Pb2+ C. Zn2+ D. Fe3+

27. 20cm3of 0.1M sodium carbonate reacted completely with 10cm3 of dilute hydro

chloricacid. The molarity of the acid is

1. 0.1M B. 0.2M C. 0.4M D. 0.8M

28. Which of the following is an alloy of lead?

A. Brass B. Bronze C. Duralumin D. Solder

29. Which of the following can burn in air to form a compound with nitrogen?

A. Copper B. Zinc C. Iron D. Magnesium

30. The Carbonate which does not decompose when heated strongly is

A. Zinc Carbonate B. Potassium Carbonate

C. Calcium Carbonate D. Magnesium Carbonate

31. When sodium hydroxide solution was added to an aqueous solution of salt X,

a white precipitate insoluble in excess alkali was formed. X contained.

1. Lead (ii) ionsB. Zinc ionsC. Magnesium ionsD. Aluminium ions

32. The percentage by mass of phosphorus in Calcium Phosphate, Ca3(PO4)2is

(O =16, P =31, Ca=40)

1. 8.0 B. 17.0 C. 10.0 D. 19.4

33. The concentration in grammes perlitre of a 0.05M Sodium Carbonate solution is

(Na=23, O=16, C=12)

1. 0.05 x 83 B. C. 0.05x106 D.

34. Which one of the following reagents can be used to distinguish between Zn2+(aq)

and Al3+ (aq)?

A. Lead (ii) nitrate solution B. Calcium Chloride

C. Aqueous Ammonia D. Aqueous Sodium hydroxide

35. The metal which can be extracted from its ore by electrolysis is

A. Magnesium B. Iron C. Zinc D.Copper

36. The nitrate that decomposes when heated strongly to form a metal is

A. KNO3 B. Ca(NO3)2 C. Zn(NO3)2 D. AgNO3

37. The reaction of metals J, M and L with water under different conditions are

described below

J. reacts with steam when the metal is strongly heated

M. reacts with water at room temperature

L. reacts with steam when the metal is red-hot

The order of reactivity of the metals, starting with the least reactive is

1. M,J andL B. L, J and M C. M,Land J D. J, L and M.

38. The solid that shows an increase in mass when heated strongly is

A. Sulphur B. Sodium Carbonate

C. Calcium carbonate D. Magnesium

39.Which one of the following potassium salts will dissolve in water to give a solution

that turns red litmus paper to blue

1. K2CO3 B. KCL C. KNO3 D.K2SO4

40. Acidified Lead (ii) nitrate solution was added to an aqueous solution of X,a white

Precipitate was formed. The likely anions in X are

1. Carbonate and Sulphate ions B. Chloride and Carbonate ions

C. Carbonate and Sulphite D.Chloride and Sulphate

**Each of the questions 41 to 45 consists of an assertion (statement) on the left hand side and a reason on the right hand side. Select**

1. If both the assertion and reason are true statements and the reason is a correct explanation of the assertion
2. If both the assertion and the reason are true statements but the reasonis not a

correct explanation of the assertion

1. If the assertion is true but the reason is not a correct statement
2. If the assertion is not correct but the reason is a correct statement

**INSTRUCTIONS SUMMARISED**

**Assertion Reason**

1. True True (reason is a correct explanation)
2. True True (reason is not a correct explanation)
3. True Incorrect
4. Incorrect Correct

41. When aqueous potassium Lead (ii) Iodide

Iodine is added to a solution**because** is soluble in water

of lead (ii) nitrate, a yellow precipitate

is observed.

42. 25.0 cm3 of a solution containingSulphuric acid reacts with

4.0g of Sodium hydroxide in a litre of**because** Sodium hydroxide in the

solution will require exactly 12.50cm3mole ratio of 1:2

of 0.1M Sulphuric acid for complete

reaction

43 A solution of hydrogen chloride Methylbenzene does not

in methylbenzene does not conduct **because** conduct electricity

electricity

44. Copper (ii) hydroxide dissolves

in excess aqueous ammonia to form **because**  copper (ii) ions form a

adeep blue solution complexion with ammonia

45. Coke is used to extract

iron from its ore **because** coke is an oxidizing agent

**In each of the questions 46 to 50, one or more of the answers given may be**

**correct.Read each question carefully and then indicate the answer according**

**to the following.**

1. If 1, 2 and 3 only one correct B. If 1and 3 only one correct
2. If 2 and 4 only one correct D. If 4 only is correct.

46. Which of the following substance(s) can be used to test for water of chrystallisation?

1. Copper (II) sulphate 2. Potassium dichromate

3. Cobalt (II) chloride 4. Potassium permanganate

47. Which of the following is / are true about diamond and graphite

1. They have the same mass number 2. They are isotopes

3. They are allotropes 4. They show similar physical properties

48. Which of the following properties is/are shown by hydrochloric acid?The acid reacts with

1. Copper to form hydrogen 2. Zinc to form hydrogen

3. Sodium hydroxide to give an acid salt

4. Calcium carbonate to form carbondioxide

49. Which of the following properties make carbondioxide useful in fire extinguishers?

1. It is denser than air 2. It is lighter than air

3. It is non- flammable 4. It is an inert gas

50. Which of the compound(s) has/have a multiple bonds

1. C4 H10 2. C2 H2 3. C2 H6 4. C2 H4