1.Ammonia can be obtained by adding water to :

(a) Ammonium chloride
(b) Ammonium nitrite
(c) Magnesium nitride
(d) Magnesium nitrate

2. Ammonia is soluble in water because :

(a) A polar molecule
(b) An acid
(c) A base
(d) A simple covalent compound

3. Nitrogen gas can be obtained by heating :

(a) Ammonium nitrate
(b) Ammonium nitrite
(c) Magnesium nitride
(d) Ammonium chloride

4.The temperature at which catalytic oxidation of ammonia is carried out :

(a) 200□C
(b) 800□C
(c) 1000□C
(d) 500□C

4. With excess of chlorine, NH_3 forms :

(a) NH_4Cl
(b) NCl_3
(c) NOCl
(d) N_2Cl

5. Write balanced chemcial equation for the following :

1. Reaction of hydrogen chloride with ammonia.
2. The preparation of ammonia from ammonium chloride andcalcium hydroxide..
3. Chlorine reacts with excess of ammonia.
4. Action of heat on ammonium nitrate.
5. Burning of ammonia in oxygen.
6. Catalytic oxidation of ammonia.
7. Action of heat on ammonium chloride
8. Dilute nitric acid and copper.
9. Ammonia with lead oxide.
10. Ammonia with copper oxide.
11. Ammonia with excess chlorine.
12. Action of water in magnesium nitride.
13. Burning of ammonia in oxygen.
14. Catalytic oxidationof ammmonia.
15. Aluminium nitride and water..
16. Concentrated nitric acid and copper.
17. Action of heat on ammonium nitrate.
18. Nitrogen monoxide and oxygen.

Q1. MCQ

1. sulphuric acid is also known as____
   a. Oil of wintergreen
   b. Oil of vitriol
   c. Oily liquid
   d. Smoky liquid

2. Industrial method for preparation of sulphuric acid is known as___
   a. Haber's process
   b. Catalytic process
   c. Contact process
   d. Contactless process

3. The salts of sulphuric acid are called:

A. Carbonates B.Chlorides
C.Sulphates D. Nitrates

4. Sulphuric acid dehydrates glucose into:

A. Carbon dioxide B. Carbonic acid
C. Carbon D. Carbon monoxide

5. _____ metallic sulphides in the air produce SO_2.

A. Evaporating B. Roasting
C. Freezing D. Drying

6. Sulphuric acid is a :

A. Strong dibasic acid B.Weak dibasic acid
C.Strong monobasic acid D.Weak monobasic acid

7. When Sulphuric acid is poured over Zinc, which of the following gas is formed?

A.Sulphur Dioxide B.Hydrogen
C.Oxygen D.Zinc dioxide

8. Sulphuric acid is obtained by the _____ process.

A.chloralkali B.contact
C.Haber's D.electrolytic

9. The chemical formula of Oleum is:

A.H2SO2 B.H2SO7
C.H2S2O7 D.H2S2O4

10. Dilute sulphuric acid reacts with bases to form:

A.metallic sulphates B.salt and water
C.hydrogen and water D.carbon dioxide and methane

11. What is the boiling point of sulphuric acid?

A.183oC B.418oC
C.100oC D.338oC

12. Pyrosulphuric acid is chemical name of_____
    a. Green vitriol
    b. Oil of vitriol
    c. Gypsum
    d. Oleum

13. S+ H_2SO_4 —----> SO_2 + H_2O this shows ___ property of sulphuric acid
    a. Non volatile nature
    b. Oxidising agent
    c. Dehydrating agent
    d. None of above

14. When dil sulphuric acid reacts with iron sulfide, gas evolved is___
    a. Hydrogen sulphide
    b. Sulphur dioxide
    c. Sulphur trioxide
    d. Vapour of sulphuric acid

15. Dil sulphuric acid with toduce a white precipitate when added to
    a. Copper nitrate
    b. Zinc nitrate
    c. Lead nitrate
    d. Sodium nitrate
16. Corrosive action of sulphuric acid on skin is due to____
    a. Exothermic nature
    b. Volatile nature
    c. Dehydrating nature
    d. Oxidising nature

17. Catalyst used in contact process is____
    a. Ferric oxide
    b. Platinum
    c. Chromium. Oxide
    d. Vanadium pentoxide

18. When sulphuric acid is added to formic acid____ gas is formed
    a. Carbon dioxide
    b. Carbon monoxide
    c. Sulfur dioxide
    d. Carbon

19. ____ is used to remove Arsenic oxide impurities
    a. Ferrous hydroxide
    b. Ferric chloride
    c. Ferric hydroxide
    d. Ferric oxide
20. Temperature used in contact tower is about____ degree celsius
    a. 900-1200
    b. 300-900
    c. 450-500
    d. >500

Q2. Answer the following
    1. Write balanced chemical of action of sulphuric acid on 1. Sodium hydroxide 2. Zinc sulphide
    2. Distinguish between these two reactions,
       a. Action of dil sulphuric acid on lead nitrate
       b. Action of dil HCl on lead nitrate

3. Write reactions of C,S,P with conc sulphuric acid
4. Name the gas released when formic acid reacts with sulphuric acid
5. Dehydrating property of sulphuric acid on ethanol, glucose,hydrated salts
6. A: typical acidic property
   B: non volatile acid
   C: Oxidising agent
   D: Dehydrating agent
   A,B,C,D are properties of sulphuric acid , select which property applies on the following
   a.Prep of HCl gas
   b.Prep of copper sulphate from copper oxide
   c.Action of conc.sulphuric acid on sulphur
7. State any two conditions for conversion of SO2 to SO_3
8. Write the reaction of conc sulphuric acid with potassium nitrate.

1. A metal which reacts with dil HCl to liberate hydrogen.
   (a) Zn (b) Cu
   (c) Ag (d) Pb
2. An acid which is not a monobasic acid.
   (a) HNO_3 (b) HCOOH
   (c) H_2SO_4 (d) HCl
3. Hydrogen chloride gas being highly soluble in water is dried by :
   (a) Anhydrous calcium chloride (b) Phosphorous penta oxide
   (c) Quick lime (d) Concentrated sulphuric acid
4. The gases which react chemically to form a solid :
   (a) $H_{2(g)}$ and $Cl_2(g)$ (b) $NH_3(g)$ and $HCl_{(g)}$
   (c) $CO_{2(g)}$ and $SO_{2(g)}$ (d) $NO_{2(g)}$ and $CO_{2(g)}$
5. Constant boiling mixtures are known as :
   (a) Constant compounds (b) Woulfe's compound
   (c) Distillators (d) Azeotropes
6. Aqua regia is a mixture of :
   (a) Dilute hydrochloric acid and concentrated nitric acid
   (b) Concentrated hydrochloric acid and dilute nitric acid
   (c) Concentrated hydrochloric acid [1 part] and concentrated nitric acid [3 parts]
   (d) Concentrated hydrochloric acid [3 parts] and concentrated nitric acid [1 part]
7. The aim of the fountain experiment is to prove that :
   (a) HCl turns blue litmus red (b) HCl is denser than air
   (c) HCl is highly soluble in water (d) HCl fumes in moist air
8. 8SJUF CBMBODFE FRVBUJPOT GPS UIF SFBDUJPO PG EJMVUF IZESPDIMPSJD BDJE XJUI FBDI PG UIF GPMMPX JOH

1. Iron
2. Sodium hydrogen carbonate
3. Iron(II) sulphide
4. Sodium sulphite
5. Calcium carbonate
6. Calcium bicarbonate
7. Zinc metal
8. Sodium hydroxide
9. Ammonium hydroxide
10. Magnesium metal
11. Sodium hydrogen sulphide.
12. Magnesium sulphite.
13. Manganese dioxide.
14. Lead nitrate solution

9. How is HCl dissoved in water, explain about the mechanism

Nitric Acid

Q1. Mcq

1. Nitric acid was known as ___
   a) Aqua citris b) Aqua Fortis
   c) Nitric acid d) Nitrous acid
2. Boiling point of nitric acid is___.
   a) 57°C b) 60°C
   c) 80°C d) 86°C
3. Potassium nitrate on reaction with Sulphuric acid gives____
   a) K_2SO_4 b) KSO_4
   c) $KHSO_4$ d) $NaHSO_4$
4. Nitric acid is___.
   a) Monobasic acid b) Dibasic acid
   c) Tribasic acid d) All of the above

5 . Commercial production of nitric acid is done by
a) Chamber process b) Ostwald process
c) Solvay process d) Haber 's process

6. Nitric acid turns methyl orange __
a) yellow b) Colourless
c) Pink d) Purple

7. The vapours of nitric acid are condensed to___
a) Light yellow liquid b) Light pink liquid
c) Light blue liquid d) Non of the above

8. Nitric acid is strong
a) Reducing agent b) Oxidising agent
c) Both d) Non of the above

9. During catalytic oxidation of Ammonia catalyst used is ___.
a) Iron b) Platinum c) Silver d) Carbon

10. ___ is acid resistant which helps in dissolving nitrogen dioxide uniformly in water.

a) Brass b) Quartz
c) Iron d) All of these

11. Carbon on reaction with Nitric acid gives_____.

a) CO_2 b) SO_2
c) CO d) H_2SO_4

12. Zinc on reaction with Nitric acid gives

a) Zinc chloride b) Zinc Bromide
c) Zinc oxide d) Zinc nitrate

13.Brown ring test is carried out when nitirc acid is added to

a) Iron sulphate b) Sodium sulphate
c) Potassium sulphate d) Potassium chloride

14. When metals like Mg,Mn react with very dil nitric acid it forms____
   a. Nitrate only
   b. Metal nitrate, water
   c. Metal nitrate , hydrogen gas
   d. Metal oxide

15. Aqua Regia is mixture of ___ and ___ in the ratio 3:1
   a. HNO_3,HCl
   b. HCl, HNO_3
   c. HBr, HNO_3
   d. HCl,H_2O

16. Conc Nitric acid react with toluene to form____
   a. Nitro oxide
   b. Tri Nitro Toluene
   c. DDT
   d. tertiary nitrate

17. Ammonium nitrate decomposes on heating to give____
   a. Nitric oxide,water
   b. Nitrous oxide,water
   c. Nitrogen dioxide
   d. Other

18. ___ metal nitrate decomposes on heating forms metal oxide and oxygen
   a. Heavy metal nitrate
   b. Alkali metal nitrate
   c. Mercuric nitrate
   d. Ammonium nitrate

19. During brown ring test ,the brown ring formed is of ____
    a. Ferrous sulphate
    b. Nitroso iron
    c. Nitroso Iron Sulphate
    d. Nitric oxide

20. Metals like Fe,Al react with nitric acid to form a layer of protective oxide which prevents the further oxidation, this property is termed as____
    a. Oxidising property
    b. Passivity
    c. Activity
    d. None
    e.

Q2. Answer the following in detail

1. Complete following reactions
    a. S+ conc HNO_3
    b. Cu + dil HNO_3

2. State the type of salt formed when - the reactants are heated at suitable temp for the preparation of NITRIC ACID

3. From the list of following salts- magnesium chloride, silver chloride, sodium hydrogen sulfate, lead nitrate, potassium nitrate, zinc carbonate
State the salt which evolves brown coloured gas.

4. Give balanced chemical equations for following
    a. Reaction of Cu with dil HNO_3
    b. Reaction of Fe with conc HNO_3
    c. Reaction of S with conc HNO_3
    d. CaCO with dil HNO3
    e. HCl + HNO3 in ratio 3:1