



CHEMISTRY

BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

STUDY OF COMPOUNDS - NITRIC ACID

Questions

1. What do you see when concentrated nitric acid is added to copper .

 [Watch Video Solution](#)

2. Name the gas in the following:

The gas produced when copper reacts with concentrated nitric acid.

 [Watch Video Solution](#)

3. Choose the correct word from the brackets to complete the sentence .

Sodium nitrate reacts with _____ (concentrated / dilute) sulphuric acid to produce nitric acid . Write equation for the same.

 [Watch Video Solution](#)

4. Write the equation for the following reaction :- Between copper & concentrated nitric acid.

 [Watch Video Solution](#)

5. From the formulae listed below ,choose ,one corresponding to the salt having the given description :-

AgCl, CuCO₃, CuSO₄.5H₂O, KNO₃, NaCl, NaHSO₄, Pb(NO₃)₂, ZnCO₃

This salt gives nitrogen dioxide on heating.

 [Watch Video Solution](#)

6. Give equation for the action of heat on - i] NH_4Cl ii] NH_4NO_3 State whether the reaction is an example of thermal decomposition or thermal dissociation.[Dissociation decomposition]

 [Watch Video Solution](#)

7. What compounds are required for the laboratory preparation of nitric acid.

 [Watch Video Solution](#)

8. State why pure nitric acid takes on a yellowish brown colour when exposed to light.

 [Watch Video Solution](#)

9. Write an equation for the following reaction - Copper and concentrated nitric acid.

 [Watch Video Solution](#)

10. The first step in the manufacture of HNO_3 is the catalytic oxidation of NH_3 . Name the catalyst used.

 [Watch Video Solution](#)

11. Name a solution which gives nitrogen dioxide with copper.

 [Watch Video Solution](#)

12. When nitric acid is prepared by the action of concentrated sulphuric acid on potassium nitrate, what is the special feature of the apparatus used.

 [Watch Video Solution](#)

13. Write the equation for the lab preparation of HNO_3 from potassium nitrate and conc. H_2SO_4 .

 [Watch Video Solution](#)

14. Potassium nitrate is prepared from KOH and nitric acid. State the type of reaction involved.

 [Watch Video Solution](#)

15. State the conc. Acid which will oxidise sulphur directly to H_2SO_4 .
Write the equation for the same.

 [Watch Video Solution](#)

16. X, Y and Z are three crystalline solids which are soluble in water and have a common anion. To help you to identify X, Y and Z, you are provided

with the following experimental observation. Copy and complete the corresponding inference. A reddish - brown gas is obtained when X,Y and Z are separately warmed with concentrated sulphuric acid and copper turnings added to the mixture .The common anion is the _____ ion.

 [Watch Video Solution](#)

17. Write a balanced equation for the reaction of conc HNO_3 when added to copper turnings kept in a beaker .

 [Watch Video Solution](#)

18. Write a balanced equation for the reaction of - sulphur and hot concentrated nitric acid.

 [Watch Video Solution](#)

19. Dilute nitric acid is generally considered a typical acid except for its reaction with metals. In what way dilute nitric acid is different from other acids, when it reacts with metals.

 [Watch Video Solution](#)

20. Write the equations for the reaction of dilute nitric acid with copper.

 [Watch Video Solution](#)

21. Account for the yellow colour that appears in concentrated nitric acid when left standing in ordinary glass bottle.

 [Watch Video Solution](#)

22. From the substances - Ammonium sulphate , Lead carbonate ,Chlorine ,Copper nitrate , Ferrous sulphate- State : A compound which releases a

reddish brown gas on reaction with conc . H_2SO_4 & copper turnings.

 [Watch Video Solution](#)

23. State what is observed when nitric acid is kept in a reagent bottle for a long time .

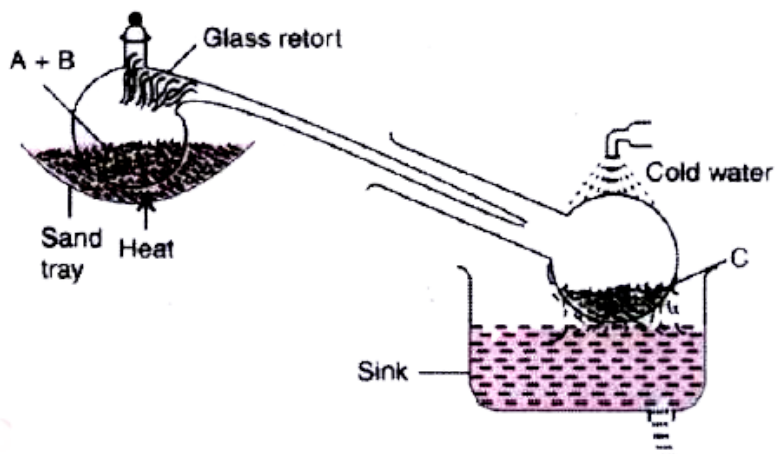
 [Watch Video Solution](#)

24. Explain why only all glass apparatus should be used for the preparation of nitric acid by heating concentrated sulphuric acid and potassium nitrate.

 [Watch Video Solution](#)

25. The figure given below illustrates the apparatus used in the laboratory preparation of nitric acid.

Name A (a liquid), B(a solid) and C(liquid). (Do not give the formulae)



[Watch Video Solution](#)

26. Write an equation to show how nitric acid undergoes decomposition.

[Watch Video Solution](#)

27. Write the equation for the following reaction :- Between copper & concentrated nitric acid.

[Watch Video Solution](#)

28. Identify the following substances :

A dilute acid B which does not normally give hydrogen when reacted with metals but does give a gas when it reacts with copper.

 [Watch Video Solution](#)

29. Copy and complete the following table relating to an important industrial process. Output refers to the product of the process not the intermediate steps.



 [Watch Video Solution](#)

30. What is the property of nitric acid which allows it to react with copper?

 [Watch Video Solution](#)

31. Write the equations for the reaction of dilute nitric acid with copper.

 [Watch Video Solution](#)

32. Name the gas evolved in each case (formula is not acceptable).

The gas produced by the action of dilute nitric acid on copper.

 [Watch Video Solution](#)

33. Match each substance A to E listed below with the appropriate description given below : A] Sulphur B] Silver chloride C Hydrogen chloride D Copper [II] Sulphate E] Graphite . A non - metal which reacts with concentrated nitric acid to form its own acid as one of the product

 [Watch Video Solution](#)

34. Correct the statement - Copper reacts with nitric acid to produce nitrogen dioxide.



[Watch Video Solution](#)

35. Name the compound responsible for the brown ring during the brown ring test of nitrate ion.



[Watch Video Solution](#)

36. A blue crystalline solid 'X' on heating gave a reddish brown gas 'Y' a gas which relights a glowing splint and a residue which is black. Identify X and Y, and write the equation for the action of heat on X.



[Watch Video Solution](#)

37. Choose from the list of substances, as to what matches the description given below:

[Acetylene gas, aqua fortis, coke, brass, barium chloride, bronze, platinum].

A catalyst used in the manufacture of nitric acid by Ostwald's process.



[Watch Video Solution](#)

38. What would you observe in the following ?

Copper is heated with concentrated nitric acid in a hard glass test tube.



[Watch Video Solution](#)

39. Choose the correct answer from the options given below :

The brown ring test is used for detection of :



[Watch Video Solution](#)

40. What is the special feature of the apparatus that is used in the laboratory preparation of nitric acid?



[Watch Video Solution](#)

41. Write balanced chemical equation for the following: Ferric hydroxide reacts with nitric acid.

 [Watch Video Solution](#)

42. Name the gas in the following:

The gas produced when copper reacts with concentrated nitric acid.

 [Watch Video Solution](#)

43. State one observation for the following:

Zinc nitrate crystals are strongly heated.

 [Watch Video Solution](#)

44. Some word/words are missing in the following statement. You are required to rewrite the statement in the correct form using the

appropriate word/words: Magnesium reacts with nitric acid to liberate hydrogen gas.

 [Watch Video Solution](#)

45. Give reason for the following: Iron is rendered passive with fuming nitric acid.

 [Watch Video Solution](#)

46. Give balanced equation for the following reaction :

Dilute nitric acid and Copper carbonate.

 [Watch Video Solution](#)

47. Identify the gas evolved in the following reaction when :

Sulphur is treated with concentrated nitric acid.

 [Watch Video Solution](#)

48. State two relevant observations for each of the following: Lead nitrate crystals are heated in a hard glass test tube.

 [Watch Video Solution](#)

49. Give balanced equation for the following: Oxidation of carbon with concentrated nitric acid.

 [Watch Video Solution](#)

50. Fill in the blank from the choices given within brackets:

Cold, dilute nitric acid reacts with copper to form (Hydrogen, nitrogen dioxide, nitric oxide)

 [Watch Video Solution](#)

51. Give balanced equation for the following:

Laboratory preparation of nitric acid.

 [Watch Video Solution](#)

52. State one appropriate observation for -When crystals of copper nitrate are heated in a test tube .

 [Watch Video Solution](#)

53. Identify the acid which matches the following description.

The acid which is prepared by catalytic oxidation of ammonia.

 [Watch Video Solution](#)

54. Dilute nitric acid is generally considered a typical acid but not so in its reaction with metals. Explain ?



[Watch Video Solution](#)

55. From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

On heating this salt, a brown coloured gas is evolved.



[Watch Video Solution](#)

56. Write balanced chemical equation for the following:

Action of hot and concentrated Nitric acid on copper.



[Watch Video Solution](#)

57. Fill in the blanks using the appropriate words given below:

(Sulphur dioxide, nitrogen dioxide, nitric oxide, sulphuric acid)

Cold, dilute nitric acid reacts with copper to give



[Watch Video Solution](#)

58. Write the balanced chemical equation for - I] Action of cold & dilute nitric acid on copper. (ii) Action of conc nitric acid on sulphur .iii] Laboratory preparation of nitric acid.

 [Watch Video Solution](#)

59. Name the gas that is produced , I } When sulphur is oxidized by concentrated nitric acid .ii] During action of cold & dilute nitric acid on copper.

 [Watch Video Solution](#)

60. What is the type of salt formed when the reactants are heated at a suitable temperature for the preparation of Nitric acid ?

 [Watch Video Solution](#)

61. Give a reason why - For the preparation of nitric acid in the laboratory ,the complete apparatus is made up of glass.

 [Watch Video Solution](#)

62. State one observation for the following Concentrated nitric acid is reacted with - sulphur.

 [Watch Video Solution](#)

63. Complete the following equations : (i) $S + \text{conc. } HNO_3 \rightarrow$

(ii) $Cu + \text{dil. } HNO_3 \rightarrow$

 [Watch Video Solution](#)

64. Identify the substance italicised : The dilute acid which is a oxidizing agent .

 [Watch Video Solution](#)

Additional Questions

1. State how atmospheric nitrogen converts itself to nitric acid .

 [Watch Video Solution](#)

2. Write a balanced equation for the following: Preparation of nitric acid from potassium nitrate.

 [Watch Video Solution](#)

3. In the laboratory preparation of nitric acid from KNO_3 or $NaNO_3$ state

(i) the acid used

(ii) the type of apparatus used

(iii) the precautions to be taken during the preparation

(iv) the method of collection of the acid

(v) the method of identification of the product i.e acid formed.

 [Watch Video Solution](#)

4. Give reasons for the following - pertaining to the above laboratory preparation of nitric acid

(i) concentrated hydrochloric acid is not used as a reactant in the laboratory preparation

the complete apparatus in the laboratory preparation does not contain parts made of rubber or cork. ,

(iii) the reaction temperature is maintained below $200^{\circ}C$

(iv) at high temperatures the sodium sulphate or potassium sulphate formed , forms a crust and sticks to the glass apparatus .

 [Watch Video Solution](#)

5. State the colour of - (i) pure nitric acid

(ii) nitric acid obtained in the laboratory

(iii) nitric acid obtained in the laboratory after passage of air or addition of water to it .

 [Watch Video Solution](#)

6. State which reaction of ammonia forms the first step of Ostwald 's process .

 [Watch Video Solution](#)

7. Convert ammonia to nitric acid by the process giving conditions.

 [Watch Video Solution](#)

8. State how -

(i) a higher ratio of the reactant air
exothermicity of the catalytic reaction

(iii) use of low temp . In the conversion of NO to NO_2 – affects each related step in Ostwald's process.

 [Watch Video Solution](#)

9. State why nitric acid

(i) stains the skin

(ii) cannot be concentrated beyond 68 % by boiling.

 [Watch Video Solution](#)

10. State two conditions which affect the decomposition of nitric acid .

 [Watch Video Solution](#)

11. State the change in colour of pure concentrated nitric acid on initial and prolonged decomposition.

 [Watch Video Solution](#)

12. State the cation responsible for turning moist neutral litmus red on reaction with dil HNO_3 .

 [Watch Video Solution](#)

13. State why nitric acid is a strong oxidising agent and yields varying products such as NO , NO_2 on reaction with metals, non - metals etc.

 [Watch Video Solution](#)

14. Give an equation for reaction of conc HNO_3 with (i) carbon
(ii) copper .

 [Watch Video Solution](#)

15. Convert nitric acid to sulphuric acid using a non - metal .

 [Watch Video Solution](#)

16. State how you would obtain

(i) hydrogen

(ii) nitric oxide

(iii) nascent chlorine - from nitric acid . State the concentration of nitric acid used in each case.

 [Watch Video Solution](#)

17. State why hydrogen is liberated of when zinc reacts with dil .HCl but not with dil . HNO_3 .

 [Watch Video Solution](#)

18. State a reason for the inactivity of iron and aluminium on reaction with fuming HNO_3 .

 [Watch Video Solution](#)

19. State your observation when

(i) nitric acid is added to saw dust

(ii) conc . Nitric acid is heated

a in absence of copper

(b) in presence of copper.

 [Watch Video Solution](#)

20. State how addition of nitric acid to acidified $FeSO_4$ serves as a test for the former.

 [Watch Video Solution](#)

21. Name three chemical products manufactured from nitric acid . Give two general uses of HNO_3 .

 [Watch Video Solution](#)

Unit Test Paper 7 C Nitric Acid

1. Select the letters A,B,C,D or E , which form the gaseous products of the reactions from 1 to 5.

A : nitrogen dioxide only B: Nitric oxide only C : Hydrogen D : Nitrogen dioxide & oxygen E, Nitrogen dioxide & carbon dioxide

Reaction of manganese with cold very dil nitric acid .



[Watch Video Solution](#)

2. Select the letters A,B,C,D or E , which form the gaseous products of the reactions from 1 to 5.

A : nitrogen dioxide only B: Nitric oxide only C : Hydrogen D : Nitrogen dioxide & oxygen E, Nitrogen dioxide & carbon dioxide

Reaction of sulphur with conc . nitric acid.



[Watch Video Solution](#)

3. Select the letters A,B,C,D or E , which form the gaseous products of the reactions from 1 to 5.

A : nitrogen dioxide only B: Nitric oxide only C : Hydrogen D : Nitrogen dioxide & oxygen E, Nitrogen dioxide & carbon dioxide

Reaction of zinc with dil. nitric acid ,

 [Watch Video Solution](#)

4. Select the letters A,B,C,D or E , which form the gaseous products of the reactions from 1 to 5.

A : nitrogen dioxide only B: Nitric oxide only C : Hydrogen D : Nitrogen dioxide & oxygen E, Nitrogen dioxide & carbon dioxide

Reaction of carbon with conc . nitric acid .

 [Watch Video Solution](#)

5. Select the letters A,B,C,D or E , which form the gaseous products of the reactions from 1 to 5.

A : nitrogen dioxide only B: Nitric oxide only C : Hydrogen D : Nitrogen dioxide & oxygen E, Nitrogen dioxide & carbon dioxide

Heat on nitric acid.

 [Watch Video Solution](#)

6. Select the correct word from the list in bracket to complete each statement .

The oxidized product obtained on reaction of H_2S gas with dil . HNO_3 is _____[Sulphur dioxide /Sulphur/sulphuric acid].

 [Watch Video Solution](#)

7. Select the correct word from the list in bracket to complete each statement .

Aqua regia is a mixture of one part of ___ and three parts of ____ [conc. Hydrochloric acid/ conc .nitri acid] in which nitric acid ____ [reduces/ oxidises] hydrochloric acid to chlorine.



[Watch Video Solution](#)

8. Select the correct word from the list in bracket to complete each statement .

Pure conc . Nitric acid of fuming nitric acid renders the metal _____ [zinc /copper/ iron] passive or inactive.

 Watch Video Solution

9. Select the correct word from the list in bracket to complete each statement .

A mineral acid obtained from conc .nitric acid on reaction with a non - metal is _____ [hydorchloric acid/sulphuric acid/carbonic acid].

 Watch Video Solution

10. Select the correct word from the list in bracket to complete each statement .

The reaction of _____[calcium carbonate /calcium oxide/calcium sulphite]with dilute nitric acid is an example of a neutralization reaction.

 [Watch Video Solution](#)

11. Give balanced equations for the following conversion A to E.

Copper \xrightarrow{A} Copper nitrate \xrightarrow{B} Copper oxide \xrightarrow{C} Copper.

 [Watch Video Solution](#)

12. Give balanced equations for the following conversion D to E.

Sulphur \xrightarrow{D} Sulphuric acid \xrightarrow{E} Sulphur dioxide

 [Watch Video Solution](#)

13. Name the oxidised product when Sulphur is reacted with Nitric acid

 [Watch Video Solution](#)

14. Name the oxidised product when the following 1 to 5 react with nitric acid

Zinc [with dil .acid]

 [Watch Video Solution](#)

15. Name the oxidised product when the following 1 to 5 react with nitric acid

Aqueous soln of SO_2 [with dil . Acid]

 [Watch Video Solution](#)

16. Name the oxidised product when the following 1 to 5 react with nitric acid

Acidified iron[II] sulphate [with dil . Acid]

 [Watch Video Solution](#)

17. Name the oxidised product when Carbon reacts with Nitric acid

 [Watch Video Solution](#)

18. Give reasons for the following :

Nitric acid is not manufactured from atmospheric nitrogen.

 [Watch Video Solution](#)

19. Give reasons for the following :

Nitric acid affects the skin if it accidentally falls on it , staining the skin yellow.

 [Watch Video Solution](#)

20. Give reasons for the following :

The yellow colour of nitric acid obtained in the laboratory is removed by bubbling air through it.



[Watch Video Solution](#)

21. Give reasons for the following :

Nitric acid finds application in the purification of gold.



[Watch Video Solution](#)

22. Give reasons for the following :

Nitric acid is a stronger oxidising agent in the conc . State of the acid than in the dilute state .



[Watch Video Solution](#)

23. Answer the following questions pertaining to the brown ring test for nitric acid :



Name the chemical constituent of the brown ring 'Y'.



[Watch Video Solution](#)

24. Answer the following questions pertaining to the brown ring test for nitric acid :



Which of the two solutions - iron [II] sulphate or conc sulphuric acid, do X and Z represent.

 [Watch Video Solution](#)

25. Answer the following questions pertaining to the brown ring test for nitric acid : State why the unstable brown ring decomposes completely on disturbing the test tube .

 [Watch Video Solution](#)

26. Answer the following questions pertaining to the brown ring test for nitric acid :

Give a reason why the brown ring does not settle down at the bottom of the test tube.

 [Watch Video Solution](#)

27. Name the gas evolved when acidified iron [II] sulphate reacts with dilute nitric acid in the brown ring test .

 [Watch Video Solution](#)