



## **CHEMISTRY**

## BOOKS - S DINESH & CO CHEMISTRY (HINGLISH)

## PRINCIPLES RELATED TO PRACTICAL CHEMISTRY



**1.** During Lassaigne's test, nitrogen present in the organic compound is converted into

A. Sodium nitride

B. sodium azide

C. sodium cyanide

D. none of these

**Answer: C** 



2.	Presen	ce d	of	nitro	ogen	in	wl	hich	of	the
fol	lowing	com	ιροι	und	cann	ot l	be	dete	cted	l by
Lassaigne's test?										

- A. Aniline
- B. hydrizine
- C. Urea
- D. nitrobenzene

#### **Answer: B**



**3.** In Lassaigne's test, if the organic compound contains both N and S and it is fused with excess sodium metal, the sodium fusion extract will contain

A. NaCNS

B. NaCN

 $\mathsf{C}.\,Na_2S$ 

D. Both (b) and (C)

#### **Answer: A**



**4.** In Lassaigne's test for the detection of nitrogen, the blue colouration is due to the formation of

A. 
$$K_4igl[Fe(CN)_6igr]$$

$$\operatorname{B.}Fe_{3}\big[Fe(CN)_{6}\big]_{2}$$

$$\mathsf{C.}\,Fe_4ig[Fe(CN)_6ig]_3$$

D. 
$$Fe(CN)_2$$

#### **Answer: C**



**5.** In Lassaigne's test, a blood red colouration with  $Fe^{3+}$  ions indicates the presence of

A. nitrogen

B. sulphur

C. both nitrogen and sulphur

D. both nitrogen and halogen

**Answer: C** 



**6.** The formula of the compound which gives violet colour in Lassaigne's test for sulphur with sodium nitroprusside is

A. 
$$Na_{4}ig[Fe(CN)_{5}NOSig]$$

B. 
$$Na_{3}ig[Fe(CN)_{5}NOSig]$$

C. 
$$Na_2ig[Fe(CN)_5Sig]$$

D. 
$$Na_{4}ig[Fe(CN)_{4}Sig]$$

#### **Answer: A**



7. The Lassaigne's extract is boiled with dil.

 $HNO_3$  before testing for halogens because

A. silver halides are soluble in  $HNO_3$ 

 $\operatorname{B.}{\it Na}_2S$  and  $\operatorname{NaCN}$  are decomposed by

 $HNO_3$ 

C.  $Ag_2S$  is soluble in  $HNO_3$ 

D. AgCN is soluble in  $HNO_3$ 

#### **Answer: B**

**8.** In Lassaigne's test, the organic compound is fused with sodium metal so as to

A. burn the compound

B. form a sodium derivative

C. convert N,S or halogen into soluble ionic

compound

D. None of the above

Answer: C

**9.** Which of the following compound will give blood red colour while doing the Lassaigne's test for N?

$$\mathsf{A.}\left(NH_{2}\right)_{2}C=O$$

$$\mathsf{B.}\,H_2N(C_6H_4)SO_3H$$

$$\mathsf{C.}\ C_6H_5SO_2H$$

D. 
$$CHCl_3$$

#### Answer:

**10.** The function of boiling the sodium extract with concentrated nitric acid before testing halogen is

A. to make solution clear

B. to destroy  $CN^{\,-}$  and  $S^{2\,-}$  ion

C. to make the solution acidic

D. to bring common ion effect.

**Answer:** 



**11.** Lassaigne's test is used in the qualitative analysis to detect

A. nitrogen

B. sulphur

C. chloride

D. All of these

Answer: D



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**12.** In Lassaigne's test for N, S and halogens, organic compound is

A. fused with sodium

B. dissolved with soadmide

C. extracted with sodamide

D. fused with calcium.

**Answer:** 



**13.** In sodium fusion test of organic compounds, the nitrogen of an organic compound is converted to

A. Sodamide

B. sodium cyanide

C. sodium nitrite

D. sodium nitrate

#### **Answer:**



**14.** Organic compound is fused with sodium piece in Lassaigne's test in order to

A. increase the ionisation of compound

B. increases the volume of compound

C. increases the reactivity of compound

D. converted the covalent compound to a mixture of electrovalent compounds.

**Answer: A** 

15. Lassaigne's test for the detection of nitrogen fails in

A.  $H_2N$ .  $CONHNH_2$ . HCl

B.  $H_2NNH_2$ . HCl

C.  $H_2NCONH_2$ 

D.  $C_6H_5NHNH_2HCl$ 

## **Answer:**



**16.** In Lassaigne's test for nitrogen the blue colour is due to the formation of

A. ferric ferrocyanide

B. potassium ferrocyanide

C. sodium ferrocyanide

D. sodium cyanide

#### **Answer:**



17. Sodium extract of an organic compound gives blood red colour with  $FeCl_3$ . It contains

A. N

B. S

C. N and S

D. S and Cl

#### **Answer:**



**18.** In Lassaigne's test when both N and S are present, blood red colour is due to the formation of

A. ferric sulphocyanide

B. ferric cyanide

C. ferric ferrocyanide

D. none

**Answer: A** 



**19.** If N and S both are present in an organic compound, during Lassaigne's test both changes to

- A.  $Na_2S$  and NaSCN
- **B. NaSCN**
- C.  $Na_2SO_3$  and NaCN
- D.  $Na_2S$  and NaCNO.

#### **Answer:**



**20.** The compound that does not give a blue colour in Lassaigne's test is

- A. Aniline
- B. glycine
- C. hydrazine
- D. urea

#### **Answer:**



**21.**  $C_6H_5OH$  and  $C_2H_5OH$  can be distinguished by

A. sodium metal test

B.  $NaHCO_3$  test

C. litmus test

D. none of these

## **Answer:**



## 22. Methyl salicylate has a smell of

- A. apples
- B. bitter almonds
- C. bananas
- D. none of these

#### **Answer:**



23. Which of the following compounds does not interfere in the testing of alcoholic group by sodium metal test?

A. ethoxyethane

B. phenol

C. acetone

D. acetic acid

#### **Answer:**



# **24.** Which of the following phenolic compound does not respond to phthalein test?

- A. o-Cresol
- B. m-Cresol
- C. p-Cresol
- D.  $\beta$ -Naphthol.

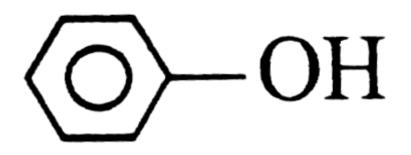
#### **Answer:**



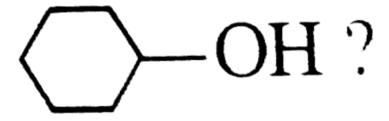
25. Which of the following test can be used to

distinguish

between



and



?

- A.  $Br_2$  water test
- B. sodium metal test
- C.  $NaHCO_3$  test

D. Both (b) and (C)

#### **Answer:**



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**26.** Which of the following test is given both by aldehydes and ketones?

A. 2,4-DNP test

B. Schiff's reagent test

C. Tollens reagent test

D. All the three

#### **Answer:**



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**27.** Assertion: Aromatic aldehydes can be distinguished from aliphatic aldehydes by fehling's solution

Reason : Fehing's solution is an alkaline solution of  $CuSO_4$  containing Rochelle salt.

A. Schiff's reagent test

- B. Fehling's solution test
- C. 2,4-DNP test
- D. None of these



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**28.** Ethanol and methanol can be differentiated by

A. sodium metal test

- B. litmus test
- C.  $NaHCO_3$  test
- D. iodoform test



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**29.** Phenol and acetic acid can be differentiated by

A. litmus test

- B.  $NaHCO_3$  test
- C. Both (A) and (B)
- D. None of these



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**30.** Acetic acid and formic acid can be differentiated by

A. litmus test

- B.  $NaHCO_3$  test
- C. Tollen's reagent test
- D. iodoform test



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**31.** Benzaldehyde and acetaldehyde can be differentiated by

A. 2,4-DNP test

- B. Tollen's reagent test
- C. Fehling solution test
- D. Schiff's reagent test



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## 32. Mohr's salt is

- A.  $MnSO_4$ .  $FeSO_4.24H_2O$
- B.  $MgSO_4$ .  $(NH_4)_2SO_4$ . $6H_2O$

C.  $FeSO_4$ .  $(NH_4)_2SO_4$ . $6H_2O$ 

D.  $FeSO_4$ .  $Al_2(SO_4)_3.24H_2O$ 

#### **Answer:**



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## **33.** Potash alum is

A.  $K_2SO_4$ .  $Al_2(SO_4)_3.24H_2O$ 

B.  $K_2SO_4$ .  $Al_2(SO_4)_3$ .  $18H_2O$ 

C.  $(NH_4)_2SO_4$ .  $K_2SO_4$ .  $24H_2O$ 

D. None of these

#### **Answer:**



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**34.** Presence of  $Fe^{3+}$  ions in  $FeSO_4$  can be checked with

A. Blue litmus paper

B. red litmus paper

C. KCNS solution

D. None of these

#### **Answer:**



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**35.** A few drops of conc.  $H_2SO_4$  is added to the solution of  $FeSO_4$  in water to

A. Convert  $Fe^{3+}$  ions (if any) into  $Fe^{2+}$  ions

B. prevent salt hydrolysis

C. Both (A) and (B)

D. None of these

## **Answer:**



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**36.** Coupling of benzene diazonium chloride and aniline is carried out at pH

**A.** 7

B.10 - 14

$$C.4 - 5$$

$$D.6 - 8$$

## **Answer:**



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**37.** Completion of diazotisation can be checked with

A. starch paper

B. starch -KI paper

C. litmus paper

D.  $K_2Cr_2O_7$  paper.

## **Answer:**



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**38.** The colour of the dye obtained by coupling benzene diazonium chloride with aniline is

A. red

B. orange

C. yellow

D. none of these

## **Answer:**



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**39.** The most suitable indicator for the titration of HCOOH against NaOH is

A. methyl orange

B. phenolphthalein

- C. thymol phthalein
- D. Both (b) and (C)

## **Answer:**



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**40.** The most suitable indicator for the titration of HBr against KOH is

- A. phenolphthalein
- B. methyl orange

C. bromothymol blue

D. all are correct

## **Answer:**



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**41.** The most suitable indicator for the titration of  $NH_4OH$  against  $HNO_3$  is

A. phenolphthalein

B. methyl red

C. thymol phthalein

D. none of these

## **Answer:**



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**42.** If  $pK_{\rm In}$  of an indicator is 10.5, the pH transition range for which it is most suitable is

A.8.5 - 10.5

B. 10.5 - 12.5

C. 10.0 - 11.0

D.9.5 - 11.5

## **Answer:**



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**43.** The most suitable indicator for the titration of  $Ba(OH)_2$  against HI is

A. phenolphthalein

B. methyl orange

C. Both (A) and (B)

D. none of these

## **Answer:**



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**44.** In  $KMnO_4$  titrations the indicator used is

A. phenolphthalein

B. methyl orange

C. Both (A) and (B)

D. none of these

## **Answer:**



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**45.** The salt used for performing bead test in qualitative inorganic analysis is

A.  $K_2SO_4$ .  $Al_2SO_4$ .24 $H_2O$ 

B.  $FeSO_4$ .  $(NH_4)_2SO_4$ .6 $H_2O$ 

C.  $Na(NH_4)HPO_4.4H_2O$ 

D.  $CaSO_4.2H_2O$ 

## **Answer:**



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**46.** Which of the following cation can be detected by charcoal block test (cobalt nitrate test)?

A.  $Zn^{2+}$ 

B.  $Na^+$ 

C. 
$$NH_{\scriptscriptstyle A}^{\;+}$$

D. 
$$Ni^{2+}$$

## **Answer:**



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**47.** A white salt turns yellow on heating but becomes white on cooling. It may be a salt of

A. Fe

B. Pb

C. Al

D. Zn

## **Answer:**



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**48.** When borax is heated in a platinum loop, the transparent bead formed contains

A.  $Na_2B_4O_7$ 

B. Sodium metaborate + $B_2O_3$ 

C. Water

D. CaO

## **Answer:**



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**49.** A brick red colour is imparted by a

A. Ca salt

B. Sr salt

C. Na salt

D. Co salt

## **Answer:**



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**50.** A salt on reaction with dil.  $H_2SO_4$  gives a reddish brown gas. The salt is

A.  $KNO_2$ 

 $\mathsf{B.}\,ZnBr_2$ 

C.  $NaNO_3$ 

D.  $ZnCO_3$ 

## **Answer:**



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**51.** A dark green bead in the borax bead test indicates the presence of

A.  $Cr^{3+}$ 

B.  $Mn^{2+}$ 

C.  $Co^{2+}$ 

D.  $Ni^{2+}$ 

## **Answer:**



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## **52.** Which is the hottest part of the flame?

- A. Blue zone
- B. zone of partial combustion
- C. zone of complete combustion
- D. zone of no combustion

#### **Answer:**



**53.** In the microcosmic bead test test  $Cu^{2+}$  imparts which colour to the flame

- A. green
- B. yellow
- C. blue
- D. violet.

## **Answer:**



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## 54. Flame test is not given by

A. 
$$Ba^{2+}$$
 ions

B. 
$$Ba^{2+}$$
 ions

C. 
$$Ca^{2+}$$
 ions

D. 
$$Na^+$$
 ions

**55.** A blue coloured residue obtained in cobalt nitrate charcoal cavity test is due to

A. 
$$Zn^{2+}$$

B. 
$$Mg^{2\,+}$$

$$\mathsf{C.}\,Sn^{2\,+}$$

D. 
$$Al^{3+}$$

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**56.** When a salt is heated with dil.  $H_2SO_4$  and  $KMnO_4$  solution, the pink colour of  $KMnO_4$  is discharged, the mixture contains

A. sulphite

B. corbonate

C. nitrate

D. bicarbonate

57. A reddish brown residue in the charcoal cavity test is given by

A. 
$$Pb^{2\,+}$$

B. 
$$Bi^{3+}$$

C. 
$$Cd^{2+}$$

D. 
$$Zn^{2+}$$

## **Answer:**



**58.** A test tube containing a nitrate and another containing a bromide and  $MnO_2$  are treated with conc.  $H_2SO_4$ . The brown fumes evolved are passed through water. The water will be coloured by

A. the nitrate

B. the bromide

C. both

D. none of the two

## **Answer:**



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**59.** Heating of oxalic acid with conc.  $H_2SO_4$  gives

A. CO

B.  $CO_2$ 

 $\mathsf{C}.\mathit{CO} + \mathit{CO}_2$ 

D. none

# Answer:



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## **60.** Bromine vapours turn starch iodine paper

A. Violet

B. Blue

C. Yellow

D. Red.

**61.** Solution of a salt in dilute  $H_2SO_4$  produces deep blue colour with starch iodine solution. The salt contains

A.  $Br^-$ 

 $\mathsf{B.}\,I^{\,-}$ 

 $\mathsf{C.}\,NO_3^-$ 

D.  $NO_2$ 

**62.** An inorganic salt when heated evolves a coloured gas which bleaches moist litmus paper. The evolved gas is

A.  $NO_2$ 

B.  $Cl_2$ 

C.  $Br_2$ 

D.  $I_2$ 

**63.** Acidified  $K_2Cr_2O_7$  turns green by

A.  $SO_2$ 

B. CO

C.  $SiO_2$ 

D. HCl

**Answer:** 



## **64.** $H_2S$ and $SO_2$ can be distinguished by

A. Litmus paper

B. Lime water

 $\mathsf{C.}\,Pb(CH_3COO)_2$ 

D. HCl

#### **Answer:**



## 65. Nitrates of all metals are

- A. unstable
- B. coloured
- C. insoluble in water
- D. soluble in water

#### **Answer:**



**66.** NaCl, NaBr and NaI mixture on heating with conc.  $H_2SO_4$  gives gases respectively.

- A. HCl, $Br_2,\,I_2$
- B. HCl,HBr,HI
- C.  $Cl_2, Br_2, I_2$
- D. None

#### **Answer:**



**67.** A colourless salt gives violet colour in bunsen flame, it may be

- A.  $Na_2CO_3$
- B.  $Na_2CrO_4$
- $\mathsf{C}.\,K_2CO_3$
- D.  $BaCO_3$

### **Answer:**



**68.** When concentrated  $H_2SO_4$  is added to dry

 $KNO_3$  and heated, brown fumes evolve. These

fumes are

- A.  $SO_2$
- B.  $SO_3$
- $\mathsf{C}.\,NH_3$
- D.  $NO_2$

## **Answer:**



69.	Which	does	not	give	borax	bead	test?
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A. Pb

B. Cu

C. Cr

D. Fe

## **Answer:**



**70.** Of the following nitrates that one gives nitrous oxide by thermal decomposition is

A. 
$$Pb(NO_3)_2$$

B. 
$$AgNO_3$$

$$\mathsf{C}.\,KNO_2$$

D. 
$$NH_4NO_3$$

#### **Answer:**



71. The salt which is not decomposed by dil.

 $H_2SO_4$  and conc.  $H_2SO_4$ , will contain

A. Sulphite ion

B. chloride ion

C. nitrate ion

D. sulphate ion

### **Answer:**



**72.** Which one of the following cation will give a blue coloured ash when a piece of filter paper dipped in a solution containing its salt and  $Co(NO_3)_2$  is burned?

A. 
$$Cu^{2+}$$

B. 
$$Mg^{2+}$$

C. 
$$Al^{3+}$$

D. 
$$Zn^{2+}$$

#### **Answer:**



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**73.** Which of the following does not evolve  $CO_2$  on treatment with dilute hydrochloric acid?

A. Bismuth carbonate

B. lead carbonate

C. calcium carbonate

D. basic lead carbonate

Answer:

**74.** Fumes of hydrochloric acid obtained by heating a dry salt in a test tube indicates the presence of

A. an alkali metal chloride

B.  $Hg_2Cl_2$ 

C. A hydrated chloride such as

 $ZnCl_2$ .  $H_2O$ 

D. An alkaline earth metal chloride.



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**75.** A salt solution is acidified with dil. HCl and  $BaCl_2$  solution is added. A white ppt. is formed. The salt contains

A.  $Cl^-$ 

B.  $Br^-$ 

 $\mathsf{C}.\,NO_3^-$ 

D.  $SO_4^{2\,-}$ 



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**76.** Production of a green edged flame on igniting the vapours evolved by heating a given inorganic salt with few mL of ethyl alcohol and conc.  $H_2SO_4$  indicates the presence of a

A. Tartarate

B. oxalate

C. acetate

D. borate

#### **Answer:**



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**77.** Nitrate is confirmed by ring test. The brown colour of the ring test is due to the formation of

A. Ferrous nitrite

B.  $FeSO_4$ . NO

C.  $FeSO_4$ .  $NO_2$ 

D. Ferrous nitrate

## **Answer:**



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78. On heating a mixture of potassium dichromate and sodium chloride with concentrated sulpuric acid in a dry test tube, the compound formed is

- A. chormiun chloride
- B. chromyl chloride
- C. chloric dioxide
- D. chromic acid



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**79.** Formation of purple colour on the addition of sodium nitroprusside to sodium carbonate extract indicates the presence of

A. 
$$PO_4^{3\,-}$$

B. 
$$SO_3^{2\,-}$$

C. 
$$S^{2-}$$

D. 
$$S_2O_3^{2\,-}$$



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**80.** A salt solution is treated with chloroform drops. Then it is shaken with chlorine water.

Chloroform layer becomes violet, solution contains.

A. 
$$NO_3^-$$
 ion

$$\mathrm{B.}\,NO_2^- \; \mathrm{ion}$$

C. 
$$Br^-$$
 ion

D. 
$$I^-$$
 ion

## Answer:



**81.** The carbonate of which of the cation is insoluble in water

A. 
$$Na^+$$

B. 
$$K^+$$

C. 
$$NH_4^{\,+}$$

D. 
$$Ca^{2+}$$

#### **Answer:**



82. When  $CS_2$  layer containing both  $Br_2$  and  $I_2$  is shaken with excess of  $Cl_2$  water, the violet colour due to  $I_2$  disappears and orange colour due to  $Br_2$  appears. The disappearance of violet colour is due to the formation of

- A.  $I_3^-$
- B.  $HIO_3$
- C. I Cl
- D.  $I^{\,-}$

Answer:

**83.** To a solution of a salt,  $MgSO_4$  solution is added and white ppt. appears only on heating.

The acid radical in the salt is

A. 
$$CO_3^{2-}$$

$$\mathsf{B.}\,HCO_3^-$$

$$\mathsf{C.}\,SO_3^{2\,-}$$

D. 
$$C_2O_4^{2\,-}$$

**Answer:** 

**84.**  $BaCl_2$  solution gives a white ppt. with a solution of a slat, which dissolves in dil. HCl with the evolution of a colourless, pungent smelling gas. The radical in the salt is

A. 
$$SO_4^{2-}$$

$$\mathsf{B.}\,HSO_4^-$$

C. 
$$SO_3^{2-}$$

D. 
$$CO_3^{2-}$$



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**85.** For the test of halides, the soda extract is acidfied with

A. Dil  $H_2SO_4$ 

B. Dil.  $HNO_3$ 

C. Dil. HCl

D. none of the three



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**86.** Sulphide ions react with  $Na_2\big[Fe(NO)(CN)_5\big]$  to form purple coloured compound  $Na_4\big[Fe(CN)_5(NOS)\big]$  in the reaction, the oxidation state of iron changes from

A. 
$$+2 \text{ to } +3$$

B. 
$$+3 \text{ to } +2$$

$$C. + 2 to +4$$

D. does not change.

## **Answer:**



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**87.** In a mixture having nitrite and nitrate, nitrite can be destroyed by heating with

A.  $Na_2CO_3$ 

B. Urea

C. Oxalic acid

D. NaCl

## **Answer:**



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**88.** In a combination of  $NO_3^-, Br^-$  and  $I^-$  present in a mixture,  $Br^-$  and  $I^-$  interfere in the ring test for  $NO_3^-$ . These are removed by adding a solution of

A.  $AgNO_3$ 

B.  $Ag_2SO_4$ 

 $\mathsf{C.}\,Ag_2CO_3$ 

D. None of these

## **Answer:**



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89. An aqueous solution of salt gives white precipitate with  $AgNO_3$  solution as well as with dil.  $H_2SO_4$ . It may be

A.  $Pb(NO_3)_2$ 

B.  $Ba(NO_3)_2$ 

C.  $BaCl_2$ 

D.  $CuCl_2$ 

# Answer:



**90.** Which of the following solution gives precipitate with  $Pb(NO_2)_2$  but not with  $Ba(NO_3)_2$ ?

- A. Sodium chloride
- B. sodium sulphate
- C. sodium nitrate
- D. sodium hydrogen phosphate



**91.** Chromyl chloride vapours are dissolved in water and acetic acid and lead acetate solution is added, then

- A. The solution will remain colourless
- B. the solution will become dark green
- C. A yellow solution will be obtained
- D. A yellow ppt. will be obtained



**92.** Which one among the following pairs of ions cannot be separated by  $H_2S$  in dilute hydrochloric acid?

A.  $Bi^{3+}, Sn^{4+}$ 

 $\mathsf{B}.\,Al^{3\,+}\,,Hg^{2\,+}$ 

C.  $Zn^{2+}$  ,  $Cu^{2+}$ 

D.  $Ni^{2+}$  ,  $Cu^{2+}$ 

## Answer:



93. Sometimes yellow turbidity appears while passing  $H_2S$  gas even in the absence of II group radicals. This is because

A. Sulphur is present in the mixture as impurity

B. IV group radicals are precipitated as sulphides

C. of the oxidation of  $H_2S$  gas by some acid radical

D. III group radicals are precipitated as hydroxide.

## **Answer:**



**94.** The ion that cannot be precipitated by both HCl and  $H_2S$  is

A. 
$$Pb^{2\,+}$$

B. 
$$Cu^{2+}$$

C. 
$$Ag^+$$

D. 
$$Sn^{2+}$$

#### **Answer:**



# 95. Mark the compound which turns black with

## $NH_4OH$

- A. lead chloride
- B. mercurous chloride
- C. mercuric chloride
- D. silver chloride

#### **Answer:**



**96.** Which of the following radicals does not

belong to group I?

- A.  $Ag^+$
- B.  $Pb^{2+}$
- C.  $Hg_2^{2\,+}$
- D.  $Hg^{2+}$

## **Answer:**



# 97. Mg is not precipitated in group V because

- A.  $MgCO_3$  is soluble in water
- B.  $MgCO_3$  is soluble in  $NH_4Cl$
- C.  $MgCO_3$  is soluble in  $NH_4OH$
- D. None

#### **Answer:**



**98.** On passing  $H_2S$  into saturated solution of

 $BaCl_2$ , white ppt. obtained is of

A. hydrogen chloride

B. formation of a complex

C. barium chloride

D. barium sulphide.

#### **Answer:**



**99.** Concentrated nitric acid is added before proceeding to test for group III members. This is to

- A. oxidise any remaining  $H_2S$
- B. Convert ferrous ions to ferric ions
- C. form nitrates which gives grannular

precipitate

D. increases ionisation of ammonium

hydroxide

## Answer:

100. To a solution of a substance, gradual addition of ammonium hydroxide results in a brown ppt. which does not dissolve in excess of  $NH_4OH$ . However, when HCl is added to the original solution, a white ppt. is formed. The solution contained

A. Lead salt

B. silver salt

C. mercurous salt

D. copper salt

## **Answer:**



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**101.** To avoid the precipitation of hydroxides of  $Ni^{2+}, Co^{2+}, Mn^{2+}$  along with those of the third group cations, the solutions should be

A. heated with few drops of conc.  $HNO_3$ 

B. heated with excess of ammonium chloride

C. concentrated to small volume

D. none of these

## **Answer:**



102. Silver, mercury (ous) and lead are grouped together in the scheme of qualitative analysis because they form

- A. soluble nitrates
- B. carbonates which dissolve in dilute nitric

acid

- C. insoluble chlorides
- D. All of above

## **Answer:**



103. In the fourth group,  $Mn(OH)_2$  on heating with  $PbO_2$  and conc.  $HNO_3$  gives pink colour due to the formation of

- A.  $KMnO_4$
- B.  $K_2MnO_4$
- C.  $Pb(MnO_4)_2$
- D.  $PbMnO_4$

#### **Answer:**



**104.** An inorganic salt solution on treatment with HCl gives a white ppt. Which of the following metal ions is possible?

A. 
$$Hg_2^{2\,+}$$

B. 
$$Hg^{2+}$$

C. 
$$Zn^{2+}$$

D. 
$$Cd^{2+}$$

## **Answer:**



105.  $H_2S$  in the presence of HCl precipitate group II but not group IV because

A. HCl activates  $H_2S$ 

B. HCl incraeses the concentration of  $Cl^-$ 

C. HCl decreases the concentration of  $S^{2\,-}$  ions

D. HCl lowers the solubility of  $H_2S$  in the solution

106. Distinguishing reagent between silver and lead salts is

A.  $H_2S$  gas

B. Dil. HCl solution

C.  $NH_4Cl(Solid) + NH_4OH$  solution

D.  $NH_4Cl(\mathrm{solid}) + (NH_4)_2CO_3$  solution

### **Answer:**



**107.** Which of the following pairs of ions would be expected to form precipitate when dilute solutions are mixed?

A. 
$$Na^+,SO_4^{2-}$$

B. 
$$NH_4^{\,+}\,,\,CO_3^{2\,-}$$

C. 
$$Na^+, S^{2-}$$

D. 
$$Fe^{3+}$$
 ,  $OH^{-}$ 



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108. A metal chloride solution on mixing with  $K_2CrO_4$  solution gives a yellow precipitate, insoluble in acetic acid. The metal may be

A. Mercury

B. Zinc

C. silver

D. Lead

109. A black sulphide is formed by the action of

 $H_2S$  on

A. Cupric chloride

B. Cadmium chloride

C. Zinc chloride

D. Sodium chloride.

**Answer:** 



110.  $H_2S$  will precipitate the sulphide of all the metals from the solution of chlorides of Cu, Zn and Cd if

- A. The solution is aqueous
- B. the solution is acidic
- C. the solution is dilute acidic
- D. none of the above solution is present

# **View Text Solution**

111. When  $H_2S$  is passed through an ammoniacal salt solution X, a white precipitate is obtained. Then X can be a

A. cobalt salt

B. nickel salt

C. maganese salt

D. zinc salt

**112.** Lead has been placed in the group I and II because

A. it shows the valency of one and two

B. it forms insoluble  $PbCl_2$ 

C. it forms lead sulphide

D. it is partially soluble in water

**Answer:** 



**113.** Potassium ferrocyanide is used in the detection of

A. 
$$Cu^{2+}$$
 ions

B. 
$$Fe^{3+}$$
 ions

C. both

D. none

### **Answer:**



114. Which of the following is insoluble in dil.

 $HNO_2$  but soluble in aqua regia?

- A. HgS
- B. PbS
- C.  $Bi_2S_3$
- D. CuS

### **Answer:**



**115.** Which of the following precipitates  $K^+$  from its solution?

- A. Sodium ferrocyanide
- B. sodium cobaltinitrite
- C. sodium argento cyanide
- D. sodium bircabonate

#### **Answer:**



**116.**  $NH_4CNS$  can be used to test one or more out of  $Fe^{3+}$  ,  $Co^{2+}$  ,  $Cu^{2+}e$ 

A. 
$$Fe^{3+}$$
 only

B. 
$$Co^{2+}$$
,  $Cu^{2+}$ 

$$\mathsf{C.}\, Fe^{3\,+},\, Cu^{2\,+}$$

D. All

### **Answer:**



**117.**  $K_4igl[Fe(CN)_6igr]$  can be used to detect one

or more out of

$$Fe^{2+}, Fe^{3+}, Zn^{2+}, Cu^{2+}, Cd^{2+}$$

A. 
$$Fe^{2+}$$
 ,  $Fe^{3+}$ 

$${\rm B.}\, Fe^{3\,+}\,,\, Zn^{2\,+}\,,\, Cu^{2\,+}$$

C. All but 
$$Fe^{3+}$$

D. All but 
$$Fe^{2+}$$

### **Answer:**



118. For dissolution of an ionic solid in water

$$\Delta_{
m sol} H^{\,(\,\,\Theta\,)}\,=\,$$

A. 
$$\Delta_{
m lattice} H^{\,\Theta} + \Delta_f H^{\,\Theta}$$

B. 
$$\Delta_f H^{\,\Theta} \, + \Delta_{hyd} H^{\,\Theta}$$

C. 
$$\Delta_a H^{\,\Theta} + \Delta_f H^{\,\Theta}$$

D. none of these

### **Answer:**



**119.** For dissolution of a solid in a liquid,  $\Delta S$  is generally

$$A. + ve$$

$$B. + ve$$

D. Both (A) and (B)

# Answer:



**120.** If enthalpy of neutralisation of dil HCl and NaOH(aq) is x then enthalpy of neutralisation of dil. HI and  $Ba(OH)_2$  (aq) is

A. 
$$x/2$$

D. slightly less than x in magnitude

### **Answer:**



**121.** Which of the following can be enthalpy of neutralisation of a weak acid and a strong base?

$$\mathsf{A.} - 57.1kJ$$

 $\mathsf{B.}\,58.1kJ$ 

C. - 56.1kJ

D. 114.2kJ

### **Answer:**



**122.** Suspended impurities from a colloidal solution of gum in water can be removed by

- A. filtration
- B. dialysis
- C. electrodialysis
- D. ultrafiltration

### **Answer:**



**123.** Excess  $H^+$  and  $Cl^+$  ions from a colloidal solution of  $Fe(OH)_3$  can be removed by

- A. filtration
- B. dialysis
- C. sublimation
- D. chromatography

# **Answer:**



**124.** Which of the following sols cannot be prepared by boiling the dispersed phase with dispersion medium (water)?

- A. Egg albumin sol in water
- B. Gum sol in water
- C. Starch sol in water
- D. none of these

### **Answer:**



**125.** Which of the following sols can only be prepared by boiling the dispersed phase with dispersion medium?

- A. Egg albumin sol in water
- B. Gum sol in water
- $\mathsf{C}.\,Fe(OH)_3$  sol in water
- D. Starch sol in water

### **Answer:**



**126.** Which of the following sol will be destabilised with ionic impurities - if present?

- A. Gum sol in water
- B. Starch sol in water
- C. Egg albumin sol in water
- D.  $Fe(OH)_3$  sol in water

### **Answer:**



**127.** Which of the following sol will not be destablised with ionic impurities - if present?

- A.  $Fe(OH)_3$  sol in water
- B. Gold sol in water
- C. Silver sol in water
- D. Starch sol in water

### **Answer:**



# 128. lodine can react with

A. 
$$Na_2S_2O_3(aq)$$

- B. Starch
- C. Both (A) and (B)
- D.  $H_2O_2$

### **Answer:**



# 129. Iodine does not react with

A. 
$$H_2O_2$$

B. 
$$Na_2S_2O_3$$
 (aq)

C. Starch

D. all the three

### **Answer:**



**130.** Iodine reacts with  $Na_2S_2O_3$  (aq) to give products which are

A. pale yellow coloured

B. dark blue coloured

C. violet coloured

D. colourless.

#### **Answer:**



# 1. Brown ring is made for

A. 
$$NO_3^-$$

B. 
$$Cl^-$$

C. 
$$I^{\,-}$$

D. 
$$Br^-$$

### **Answer:**



2. In the precipitation of the iron group in qualitative analysis, ammonium chloride is added before adding ammonium hydroxide is

A. Decrease ceoncentration of  $OH^{\,-}$  ions

B. Prevent interference by phosphate ions

C. increases concentration of  $Cl^-\,\,$  ions

D. increases in the concentration of  $NH_4^+$  ions.

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**3.** A salt is heated with dilute  $H_2SO_4$  and then with conc.  $H_2SO_4$ . No reaction takes place. It may be

A. Nitrate

B. Sulphide

C. Oxalate

D. sulphate

**4.** When bismuth chloride is poured into a large volume of water then white precipitate produced is

A. 
$$Bi(OH)_3$$

B. 
$$Bi_2O_3$$

$$\mathsf{C}.\,BiOCl$$

D. 
$$Bi_2OCl_3$$

- **5.** The brown ring test for nitrate employs
  - A. Barium chloride
  - B. Ferrous sulphates
  - C. Nitric acid
  - D. none of the above

### **Answer:**



**6.** A precipitate of ......would be obtained on adding HCl to a solution of  $Sb_2S_3$  in yellow ammonium sulphide.

A. 
$$Sb_2S_3$$

B. 
$$Sb_2S_5$$

$$\mathsf{C}.\,SbS$$

D. 
$$SbS_2$$

#### **Answer:**



**7.** The alkaline earth metal that imparts apple green colour to the bunsen flame when introduced in it in the form of its chloride is

- A. Barium
- B. Strontium
- C. Calcium
- D. Magnesium

### **Answer:**



**8.** A yellow precipitate obtained in II group of the qualitative analysis was soluble in aqueous NaOH and insoluble in dil.  $HNO_3$ . This shows the presence of

A. Tin

B. Antimony

C. Arsenic

D. Cadmium

**9.** Ferric ion forms a prussian blue coloured ppt. due to

A. 
$$K_4igl[Fe(CN)_6igr]$$

B. 
$$Fe_4igl[Fe(CN)_6igr]_3$$

$$\mathsf{C}.\,KMnO_4$$

$$\operatorname{D.} Fe(OH)_3$$

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10. Which one of the following can be used in place of  $NH_4Cl$  for the identification of the third group radicals?

A.  $NH_4NO_3$ 

 $\mathsf{B.}\left(NH_{4}\right)_{2}SO_{4}$ 

 $\mathsf{C.}\,(NH_4)_2CO_3$ 

D. NaCl

**11.** In qualitative analysis  $NH_4Cl$  is added before  $NH_4OH$ 

A. The dissociation of  $NH_4OH$  increases

B. The concentration of  $OH^{\,-}$  increases

C. The concentration of both  $OH^{\,-}$  and

 $NH_4^{\,+}$  increases

D. The concentration of  $OH^-$  decreases

12. A green mass is formed in the charcoal cavity test when a colourless salt (X) is fused with cobalt nitrate. X contains

A. 
$$Al^{3+}$$

B. 
$$Cu^{2+}$$

$$\mathsf{C.}\,Ba^{2\,+}$$

D. 
$$Zn^{2+}$$

**13.** The presence of magnisium is confirmed in the qualitative analysis of the formation of a white crystalline ppt. which is due to

A. 
$$Mg(HCO_3)_2$$

B. 
$$MgNH_4PO_4$$

$$\mathsf{C}.\,MgNH_4(HCO_3)_3$$

D. 
$$MgCO_3$$

**14.** In India at the occasion of marriages, the fire works are used, which of the following gives green flame?

A. Ba

B. K

C. Be

D. Na

**15.** Nitrate is confirmed by ring test. The brown colour of the ring is due to the formation of

A. Ferrous nitrite

B.  $FeSO_4$ . NO

C.  $FeSO_4$ .  $NO_2$ 

D. Ferrous nitrate



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**16.**  $Fe(OH)_3$  can be separated from  $Al(OH)_3$ 

by the addition of

A. Dil.HCl

B. NaCl solution

C. NaOH solution

D.  $NH_4Cl$ +NHOH

**Answer:** 



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17. A light greenish coloured salt was soluble in water. On passing  $H_2S$  into the solution, a black ppt. was obtained which dissolved readily in HCl. The metal ion present is

A. 
$$Co^{2+}$$

B. 
$$Fe^{2+}$$

C. 
$$Ni^{2+}$$

D. 
$$Mn^{2+}$$

18. Colour of cobalt chloride solution is

A. Pink

B. Black

C. Colourless

D. Green

**Answer:** 



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**19.** If NaOH is added to an aqueous solution of zinc ions a white precipitate appears and on adding excess of NaOH, the precipitate dissolves. In this solution, zinc exists in the

- A. Cationic part
- B. Anionic part
- C. Both in the cationic and anionic parts
- D. there is no zinc ion in the solution

**20.** Group reagent for the precipitation of group II basic radicals for the qualitative analysis is

A. Dil. HCl+
$$H_2S$$

$$\mathsf{B.}\,NH_4OH + H_2S$$

C. only 
$$H_2S$$

D. none of these

**21.** In the fifth group,  $(NH_4)_2CO_3$  is added to precipitate out the carbonates, we do not add  $Na_2CO_3$  because

- A.  $CaCO_3$  is soluble in  $Na_2CO_3$
- B.  $Na_2CO_3$  increases the solubility of fifth group carbonates
- C.  $MgCO_3$  will be precipitated out in fifth group

D. none of these

#### **Answer:**



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**22.** Concentrated sodium hydroxide can separate a mixture of

A.  $Al^{3\,+}$  and  $Cr^{3\,+}$ 

B.  $Cr^{3\,+}$  and  $Fe^{3\,+}$ 

C.  $Al^{3+}$  and  $Zn^{2+}$ 

D. 
$$Zn^{2\,+}$$
 and  $Pb^{2\,+}$ 

# **Answer:**



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**23.** A metal sulphide which is soluble in water and white in colour is

A. CuS

B.  $Na_2S$ 

C. PbS

D. ZnS

## **Answer:**



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**24.** In the chromyl chloride test the reagent used is

A.  $K_2CrO_4$ 

B.  $CrO_3$ 

 $\mathsf{C.}\ K_2 C r_2 O_7$ 

D. 
$$(NH_4)_2Cr_2O_7$$

## **Answer:**



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**25.** Addition of a solution of oxalate to an aqueous solution of mixture of  $Ba^{2\,+}$  ,  $Sr^{2\,+}$  and  $Ca^{2\,+}$  will precipitate

A.  $Ca^{2+}$ 

B.  $Ca^{2+}$  and  $Sr^{2+}$ 

C.  $Ba^{2\,+}$  and  $Sr^{3\,+}$ 

D. All the above

## **Answer:**



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**26.** Which of the following cations is detected by the flame test?

A.  $NH_4^{\,+}$ 

 $\mathsf{B.}\,K^{\,+}$ 

C. 
$$Mg^{2\,+}$$

D. 
$$AI^{(3+)}$$

## **Answer:**



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**27.** A salt which on hearing with conc.  $H_2SO_4$  gives violet vapours is

A. sulphate

B. bromide

C. iodide

D. nitrate

## **Answer:**



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# **28.** Which does not give borax bead test?

A.  $Cr^{3\,+}$ 

B.  $Cu^{2+}$ 

 $\mathsf{C}.\,Mn^{2\,+}$ 

D.  $Pb^{2\,+}$ 

#### **Answer:**



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**29.** The reagent silver sulphate solution is used to separate

A. Nitrate and bromide

B. nitrate and chlorate

C. Bromide and iodide

D. Nitrate and nitrate

#### **Answer:**



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**30.** In qualitative inorganic analysis, phosphate, if present, is to be eliminated in the appropriate group in order to detect the radical

A.  $Pb^{2\,+}$ 

B.  $As^{3+}$ 

C.  $Ca^{2+}$ 

D.  $Cd^{2+}$ 

#### **Answer:**



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**31.** Which of the following radicals will not be precipitated by passing  $H_2S$  in concentrated acid solution?

- A. Copper
- B. Antimony
- C. Arsenic
- D. Cadmium

# Answer:



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**32.** Which one among the following pairs of ions cannot be separated by  $H_2S$  in dilute hydrochloric acid?

A.  $Bi^{3+}$  ,  $Sn^{4+}$ 

B.  $Al^{3+}$ ,  $Hg^{2+}$ 

C.  $Zn^{2+}$  ,  $Cu^{2+}$ 

D.  $Ni^{2+}$ ,  $Cu^{2+}$ 

# **Answer:**



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33. Which one of the following metals will give blue ash when its salt is heated with  $Na_2O_3$ solid and  $Co(NO_3)_2$  on a charcoal piece?

- A. Cu
- B. Mg
- C. Al
- D. Zn

#### **Answer:**



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**34.** Yellow ammonium sulphide solution is a suitable reagent for the separation of

- A. HgS and PbS
- B. PbS and  $Bi_2S_3$
- C.  $Bi_2S_3$  and CuS
- D. CdS and  $As_2S_3$

# **Answer:**



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**35.** In Nessler's reagent, the active ion is

A.  $Hg^+$ 

B.  $Hg^{2+}$ 

C.  $\left[HgI\right]^{2}$ 

D.  $\left[HgI_4
ight]^2$  -

#### **Answer:**



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**36.** Which of the following forms a hydroxide highly soluble in water?

A.  $Ni^{2+}$ 

B.  $K^+$ 

C.  $Zn^{2+}$ 

D.  $Al^{3+}$ 

#### **Answer:**



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**37.** A metal salt solution gives a yellow precipitate with silver nitrate. The precipitate dissolves in dilute nitric acid as well as in ammonium hydroxide. The solution contains

A. bromide

B. iodide

C. phosphate

D. chromate

# **Answer:**



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38. A metal salt solution forms a yellow precipitate with potassium chromate in acetic acid, a white precipitate with dilute  $H_2SO_4$ 

but gives no precipitate with sodium chloride or iodide, it is

- A. Lead carbonate
- B. Basic lead carbonate
- C. Barium carbonate
- D. strontium carbonate

#### **Answer:**



**39.** Which is soluble in  $NH_4OH$ ?

A.  $PbCl_2$ 

B. AgCl

 $\mathsf{C}.\,PbSO_4$ 

D.  $CaCO_3$ 

#### **Answer:**



40. Which of the following combines with

Fe(II) ions to form a brown complex?

- A.  $N_2O$
- B. NO
- $\mathsf{C}.\,N_2O_3$
- D.  $N_2O_4$

#### **Answer:**



<b>41.</b> Which gives violet colour with borax?
A. Fe
B. Ni
C. Co
D. Mn
Answer:
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**42.** When conc.  $H_2SO_4$  is added to dry  $KNO_3$ 

brown fumes evolve. These fumes are of

- A.  $SO_2$
- B.  $SO_3$
- $\mathsf{C}.\,NO$
- D.  $NO_2$

#### **Answer:**



43. Nessler's reagent is used to detect

A. 
$$CrO_4^{2\,-}$$

B. 
$$PO_4^{3\,-}$$

$$\mathsf{C.}\,MnO_4^-$$

D. 
$$NH_4^+$$

#### Answer:



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44. The compound insoluble in acetic acid is

A. Calcium oxide
B. calcium dioxide
C. calcium oxalate
D. calcium hydroxide
Answer:
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45. Prussian blue is formed when

A. Ferrous sulphates reacts with  $FeCl_3$ 

B. Ferric sulphate reacts with

$$K_4ig[Fe(CN)_6ig]$$

C. Ferrous ammonium sulphate reacts with

$$FeCl_3$$

D. Ammonium sulphates reacts with  $FeCl_3$ 

# **Answer:**



**46.** What product is formed by mixing the solution of  $K_4\big[Fe(CN)_6\big]$  with the solution of  $FeCl_2$ ?

A. Ferro ferricyanide

B. Ferric ferrocyanide

C. Ferriferricyanide

D. none.

#### **Answer:**



- 47. A blue colouration is not obtained when
  - A. Ammonium hydroxide dissolves in copper sulphate
  - B. copper sulphate solution reacts with  $K_4igl[Fe(CN)_6igr]$
  - C. Ferric chloride reacts with sodium ferrocyanide
  - D. Anhydrous white  $CuSO_4$  is dissolved in water

#### **Answer:**



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**48.** Which of the following will not give positive chromyl chloride test?

- A. Copper chloride,  $CuCl_2$
- B. mercuric chloride ,  $HgCl_2$
- C. Zinc chloride,  $ZnCl_2$
- D. Anilinium chloride  $C_6H_5NH_3Cl$

#### **Answer:**



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# 49. AgCl dissolves in ammonia solution giving

A. 
$$Ag^+, NH_4^{\,+}$$
 and  $Cl^-$ 

B. 
$$\left[Ag(NH_3)
ight]^+$$
 and  $Cl^-$ 

C. 
$$\left[Ag(NH_3)_2
ight]^{2+}$$
 and  $Cl^-$ 

D. 
$$\left[Ag(NH_3)_2
ight]^2$$
 and Cl^(-)`

#### **Answer:**

## 50. Nitrate of all metals are

A. coloured

B. unstable

C. soluble in water

D. insoluble in water.

#### **Answer:**



**51.** When excess of  $SnCl_2$  is added to a solution of  $HgCl_2$ , a white precipitate turning grey is obtained. The grey colour is due to the formation of

A.  $Hg_2Cl_2$ 

B.  $SnCl_4$ 

 $\mathsf{C}.\,Sn$ 

D. Hg

**Answer:** 

**52.** A white crystalline substance dissolves in water. On passing  $H_2S$  in this solution, a black ppt. is obtained. The black ppt. dissolves completely in hot  $HNO_3$ . On adding few drops of conc.  $H_2SO_4$ , a white ppt. is obtained. The ppt. is that of

A.  $BaSO_4$ 

B.  $SrSO_4$ 

 $\mathsf{C}.\,PbSO_4$ 

D.  $CdSO_4$ 

### **Answer:**



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**53.** Of the following sulphides which one is insoluble in dil. Acids but soluble in alkalies

A. PbS

B. CdS

C. FeS

D.  $Sb_2S_3$ 

#### **Answer:**



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**54.** When chlorine water is added to an aqueous solution of potassium halide in the presence of chloroform, a violet colour is obtained on adding more of chlorine water, the violet colour disappears, and a colourless

solution is obtained. This test confirms the presence of the following in aqueous solution

- A. Iodide
- B. Bromide
- C. Chloride
- D. lodide and bromide

## **Answer:**



**55.** When excess of dilute  $NH_4OH$  is added to an aqueous solution of copper sulphate, an intense blue colour is obtained. This is due to the presence of

A. 
$$CuSO_4$$

B. 
$$Cu(OH)_2$$

C. 
$$\left[Cu(NH_3)_{\scriptscriptstyle A}\right]^{2+}$$

D. 
$$(NH_4)_2SO_4$$

#### **Answer:**



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# **56.** Composition of brown ring is

A. 
$$FeSO_4$$
.  $NO_2$ 

B. 
$$FeSO_4$$
.  $N_2O$ 

$$\mathsf{C}.\,Fe(NO_3)_2$$

D. 
$$FeSO_4$$
.  $NO$ 

#### **Answer:**



<b>57.</b> Chloride of which element is coloured?
A. Ag
B. Hg
C. Zn
D. Co.
Answer:
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58. The composition of golden spangles is

A.  $PbCrO_4$ 

B.  $PbI_2$ 

 $\mathsf{C.}\, As_2S_3$ 

D.  $BaCrO_4$ 

## **Answer:**



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**59.** Chromyl chloride test is performed for the confirmation of the presence of the following in a mixture

A. sulphate

B. chromium

C. chloride

D. chromium and chloride

# **Answer:**



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60. An aqueous solution of colourless metal sulphate M gives a white precipitate with  $NH_4OH$ . This was soluble in excess of  $NH_4OH$ . On passing  $H_2S$  through this solution a white ppt. is formed. The metal M in the salt is

- A. Ca
- B. Ba
- C. Al
- D. Zn

**Answer:** 



**61.** Which of the following will not produce a precipitate with  $AgNO_3$  solution?

- A.  $F^{\,-}$
- B.  $Br^-$
- $\mathsf{C}.\,CO_3^{2\,-}$
- D.  $PO_4^{3-}$

#### **Answer:**



# **62.** The aqueous solution of the following salts

will be coloured

A. 
$$Zn(NO_3)_2$$

B.  $LiNO_3$ 

C.  $CrCl_3$ 

D. potash alum

#### **Answer:**



**63.** When  $AgNO_3$  is strongly heated, the products formed are

A. NO and  $NO_2$ 

B.  $NO_2$  and  $O_2$ 

C.  $NO_2$  and  $N_2O$ 

D.  $NO_2$  and  $O_2$ 

## **Answer:**



64. Which of the nitrates on strong heating

leaves the metal as the residue?

- A.  $AgNO_3$
- B.  $Pb(NO_3)_2$
- $\mathsf{C}.\,Cu(NO_3)_2$
- D.  $Al(NO_3)_3$

#### **Answer:**



65. Which will give borax bead test with blue

bead?

A. 
$$Cr^{3\,+}$$

B. 
$$Co^{3+}$$

C. 
$$Ni^{2+}$$

D. 
$$Cd^{2+}$$

### **Answer:**



66. Microcosmic salt is

A.  $Na_2HPO_4.2H_2O$ 

B.  $Na(NH_4)HPO_4.4H_2O$ 

C.  $(NH_4)_2HPO_4.2H_2O$ 

D. none of the above

#### **Answer:**



# **67.** The ion which is not precipitated by $H_2S$ in the presence of HCl is

A. 
$$Cu^{2+}$$

B. 
$$Ag^+$$

$$\mathsf{C.}\,Pb^{2\,+}$$

D. 
$$Al^{3+}$$

#### **Answer:**



**68.** Which of the following salt would give  $SO_2$  with hot and dil.  $H_2SO_4$  and also decolourise  $Br_2$  water?

- A.  $Na_2SO_3$
- B.  $NaHSO_4$
- C.  $Na_2SO_4$
- D.  $Na_2S$

## Answer:



**69.** A salt which gives  $CO_2$  with hot  $H_2SO_4$  and also decolourizes acidified  $KMnO_4$  on warming is

A. 
$$HCO_{3-}$$

B. 
$$CO_3^{2-}$$

C. Oxalate

D. Acetate

#### **Answer:**



**70.** Which of the following precipitates does not dissolve even in large exceeds of  $NH_4OH$ ?

- A. AgCl
- B. AgBr
- C. AgI
- D. None of these

#### **Answer:**



# **71.** The reagent $NH_4Cl$ and aqueous $NH_3$ will precipitate

A. 
$$Ca^{2+}$$

B. 
$$Al^{3+}$$

C. 
$$Mg^{2+}$$

D. 
$$Zn^{2+}$$

#### **Answer:**



**72.**  $Cu^{2+}$  ions will be reduced to  $Cu^{+}$  ions by

the addition of an aqueous solution of

- A. KF
- B. KCl
- C. KI
- D. KOH

Answer:



# 73. AgCl is soluble in

A. aqua regia

 $\operatorname{B.}H_2SO_4$ 

C. HCl

D.  $NH_4OH$ 

## **Answer:**



74. A substance on treatment with dil.  $H_2SO_4$  liberates a colourless gas which produces (i) tubidity will baryta water and (ii) turns acidified dichromate solution green. The reaction indicates the presence of

A. 
$$C_2O_3^{2\,-}$$

B. 
$$S^{2-}$$

C. 
$$SO_3^{2-}$$

$$\mathrm{D.}\,NO_2^-$$

## **Answer:**

# **75.** In which of the following solvents, AgBr will have the highest solubility?

A.  $10^{-3}$  M NaBr

B.  $10^{-3}$  M  $NH_4OH$ 

C. pure water

 $\mathrm{D.}\,10^{-3}\,\mathrm{M}\,\mathrm{HBr}$ 

#### **Answer:**

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**76.** When copper nitrate is strongly heated, it is converted into

A. Cu metal

B. Cupric oxide

C. Cuprous oxide

D. Copper nitrate

**Answer:** 



**77.** The salt insoluble in cold water but soluble in boiling water is

- A.  $CaCl_2$
- B.  $BaCl_2$
- C.  $SrCl_2$
- D.  $PbCl_2$

#### **Answer:**



78. On the addition of a solution containing  $CrO_{\scriptscriptstyle A}^{2-}$  ions to the solution of  $Ba^{2+}, Sr^{2+}$ and  $Ca^{2+}$  ions, the ppt obtained first will be of

A.  $CaCrO_4$ 

B.  $SrCrO_4$ 

 $\mathsf{C}.\ BaCrO_{A}$ 

D. A mixture of all the three

### **Answer:**



79. A pale green crystalline metal salt of M dissolves freely in water. It gives a brown precipitate on addition of aqueous NaOH. The metal salt solution also gtives a black precipitate on bubbling  $H_2S$  in aqueous medium. An aqueous solution of the metal salt decolourizes the pink colour of the premanganate solution. The metal in the metal salt solution is

A. copper

- B. Aluminium
- C. Lead
- D. Iron

#### **Answer:**



- **80.** Turn bull's blue is a compound
  - A. Ferricyanide
  - B. Ferrous ferricyanide

C. Ferrous cyanide

D. Ferriferrocyanide

#### **Answer:**



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**81.** Sodium borate on reaction with conc.  $H_2SO_4$  and  $C_2H_5OH$  gives a compound A which burns with a green edged flame. The compound A is

A. 
$$H_2B_4O_7$$

B. 
$$(C_2H_5)_2B_4O_7$$

$$\mathsf{C}.\,H_3BO_3$$

D. 
$$(C_2H_5)_3BO_3$$

### **Answer:**



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**82.** On addition of aqueous NaOH to a salt solution, a white gelatinous precipitate is

formed, which dissolves in excess of alkali. The salt solution contains

- A. Chromous ions
- B. Aluminium ions
- C. Barium ions
- D. Iron ions.

# **Answer:**



<b>83.</b> Browr	ı ring	test is	s used	to	detect
------------------	--------	---------	--------	----	--------

- A. Iodide
- B. Nitrate
- C. Iron
- D. Bromide

#### **Answer:**



# 84. Metal halide insoluble in water is

- A. AgI
- B.  $CaCl_2$
- C. KBr
- D. AgF

#### **Answer:**

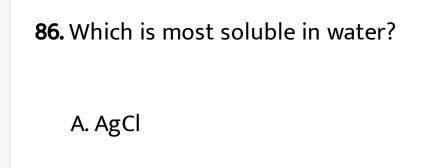


**85.** When  $K_2Cr_2O_7$  crystals are heated with conc. HCl, the gas evolved is

- A.  $O_2$
- B.  $Cl_2$
- C.  $CrO_2Cl_2$
- D. HCl

#### **Answer:**





- B. AgBr
- C. AgI
- D. AgF

### **Answer:**



**87.** On passing  $H_2S$  gas in II group sometimes the solution turns milky. It indicates the presence of

- A. Oxidising agent
- B. acidic salt
- C. Thiosulphate
- D. Reducing agent

#### **Answer:**



**88.** Dimethyl glyoxime in a suitable solvent was refluxed for 10 minutes with pure pieces of nickel sheet, it will result in

- A. Red ppt.
- B. Blue ppt.
- C. Yellow ppt.
- D. no ppt.

### **Answer:**



89. A mixture of chlorides of copper, cadmium, chromium, iron and aluminium was dissolved in water acidified with HCl and hydrogen sulphide gas was passed for sufficient time. It was filtered, boiled and a few drops of nitric acid were added while boiling. To this solution ammonium chloride and sodium hydroxide were added and filtered. The filtrate shall give test for

A. sodium and iron

B. sodium and aluminium

C. aluminium and iron

D. sodium, iron, cadmium and aluminium

#### **Answer:**



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**90.** A metal is burnt in air and the ash on moistening smells of ammonia. The metal is

A. Na

B. Fe

C. Mg

D. Al

## **Answer:**



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**91.** Which of the following pairs is not distinguished by passing  $H_2S$ ?

A. Hg,Pb

B. Cd,Pb

C. As,Cd

D. Zn,Mn

### **Answer:**



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**92.** In qualitative analysis  $NH_4Cl$  is added before  $NH_4OH$ 

A. To decreases  $OH^{\,-}$  concentration

B. To increases  $OH^{\,-}$  concentration

C. for making HCl

D. Statement is wrong.

### **Answer:**



**Watch Video Solution** 

**93.** Which compound does not dissolve in hot dil.  $HNO_3$ ?

A. HgS

B. PbS

C. CuS

D. CdS

### **Answer:**



**Watch Video Solution** 

**94.** An aqueous solution  $FeSO_4$ .  $Al_2(SO_4)_3$  and chrome alumn is heated with excess of  $Na_2O_2$  and filtered. The materials obtained are

- A. A coloureless filtrate and a green residue
- B. A yellow filtrate and a green residue
- C. A yellow filtrate and a brown residue
- D. a green filtrate and a brown residue.

# **Answer:**



**Watch Video Solution** 

**95.** A salt on treatment with dil. HCl gives a pungent smelling gas and a yellow precipitate.

The salt gives green flame when tested. The

solution gives a yellow ppt. with potassium chromate. The salt is

- A.  $NiSO_4$
- B.  $BaS_2O_3$
- $\mathsf{C.}\,PbS_2O_3$
- D.  $CuSO_4$

# Answer:



**96.** Which of the following compound on reaction with NaOH and  $Na_2O_2$  gives yellow colour?

A. 
$$Cr(OH)_3$$

B. 
$$Zn(OH)_2$$

C. 
$$Al(OH)_3$$

D. none of these

#### **Answer:**



**97.** Which of the following cannot give iodometric titration?

A. 
$$Fe^{3+}$$

B. 
$$Cu^{2+}$$

$$\mathsf{C.}\,Pb^{2\,+}$$

D. 
$$Ag^+$$

#### **Answer:**



**98.**  $CrO_3$  dissolves in aqueous NaOH to give

A. 
$$Cr_2O_7^{2\,-}$$

B. 
$$CrO_4^{2\,-}$$

C. 
$$Cr(OH)_3$$

D. 
$$Cr(OH)_2$$

### **Answer:**



**99.** The only cations present in a slightly acidic solution are  $Fe^{3+}$ ,  $Zn^{2+}$  and  $Cu^{2+}$ . The regent that when added in excess to this solution would identify and separate  $Fe^{3+}$  in one step is

A. 2M HCl

B. 6M  $NH_3$ 

C. 6 M NaOH

D.  $H_2S$  gas

# Answer:

100. When  $HNO_3$  is dropped into the palm and washed with water, it turns yellow. It shows the presence of

A.  $NO_2$ 

B.  $N_2O$ 

C. NO

D.  $N_2O_3$ 

## Answer:



**101.** Which one of the following is not efflorescent

A. Hydrated  $Na_2CO_3$ 

B. hydrated  $CuSO_4$ 

C. NaOH

D. All of these

Answer:



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# **102.** $K_2[HgI_4]$ detects ion/group

A.  $NH_2$ 

B.NO

 $\mathsf{C.}\,NH_4^{\,+}$ 

D.  $Cl^-$ 

#### **Answer:**



**103.** Which of the following does not react with AgCl?

- A.  $Na_2CO_3$
- B.  $NaNO_3$
- C.  $NH_4OH$
- D.  $Na_2S_2O_3$

#### **Answer:**



**104.** Which one of the following does not produce metallic sulphide with  $H_2S$ ?

A.  $ZnCl_2$ 

B.  $CdCl_2$ 

C.  $COCl_2$ 

D.  $CuCl_2$ 

# Answer:



**105.** By passing  $H_2S$  gas in acidified  $KMnO_4$ ,

we get

- A.  $K_2S$
- B. S
- $\mathsf{C}.\,K_2SO_3$
- D.  $MnO_4$

#### **Answer:**



**106.** Which metal salt gives a violet coloured

bead in the borax bead test?

- A.  $Fe^{2+}$
- B.  $Ni^{2+}$
- C.  $Co^{2+}$
- D.  $Mn^{2+}$

**Answer:** 



**107.** Which of the following gives a precipitate

with  $Pb(NO_3)_2$  but not with  $Ba(NO_3)_2$  ?

- A. Sodium chloride
- B. sodium acetate
- C. sodium nitrate
- D. sodium hydrogen phosphate

#### **Answer:**



**108.** Whoi of the following is soluble in yellow ammonium sulphide?

- A. CuS
- B. CdS
- C. SnS
- D. PbS

# Answer:



**109.** Which of the following statement is correct?

A.  $Fe^{2\,+}$  gives brown colour with ammionium thiocyanate

B.  $Fe^{2+}$  gives blue ppt. with potassium ferricyanide

C.  $Fe^{3+}$  gives brown colour with potassium ferrocyanide

D.  $Fe^{3\,+}$  gives red colour with potassium ferrocyanide

### **Answer:**



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110. A chloride dissolves appreciably in cold water. When placed on platinum wire in Bunsen flame, no distinctive colour is noticed, the cation would be

A. 
$$Mg^{2\,+}$$

B. 
$$BO_4^{2\,-}$$

$$\mathsf{C.}\,Pb^{2\,+}$$

D. 
$$Ca^{2+}$$

# **Answer:**



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111. A white sodium salt dissolves in water to give a solution which is neutral to litmus.

When silver nitrate solution is added to the

solution, a white ppt. is obtained which does  ${\rm not\ dissolves\ in\ dil.}\ HNO_3\ .\ {\rm The\ anion\ is}$ 

A. 
$$CO_3^{2\,-}$$

B.  $Cl^-$ 

 $\mathsf{C.}\,SO_4^{2\,-}$ 

D.  $S^{2\,-}$ 

# **Answer:**



112. A mixture of two salts is not water soluble but dissolves completely in dil. HCl to form a colourless solution. The mixture could be

- A.  $AgNO_3$  and KBr
- B.  $BaCO_3$  and ZnS
- C.  $FeCl_3$  and  $CaCO_3$
- D.  $Mn(NO_3)_2$  and  $MgSO_4$

#### **Answer:**



113. Three separate samples of a solution of a single salt gave these results. One formed a white ppt. with excess ammonia solution, one formed a white ppt. with dil. NaCl solution and one formed a black ppt. with  $H_2S$ . The salt could be

A.  $AgNO_3$ 

B.  $Pb(NO_3)_2$ 

C.  $Hg(NO_3)_2$ 

D.  $MnSO_4$ 



# **Watch Video Solution**

**114.** Action of caustic soda on  $Al(OH)_3$  gives a compound having formula

A.  $Na_3AlO_3$ 

B.  $NaAlO_2$ 

 $\mathsf{C.}\,Na_2Al(OH)_4$ 

D.  $Al_2(OH)_4$ 



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115. When a substance a reacts with water, it produces a combustible gas B and a solution of substance C in water. When another substances D reacts with this solution of C. It also produce gas B on reaction with dilute sulphuric acid at room temperature. A imparts a deep golden yellow colour to the

smokless flame of bunsen flame A,B , C and D are respectively

A.  $Na, H_2, NaOH, Zn$ 

 $B. K, H_2, KOH, Al$ 

 $\mathsf{C.}\ Ca, H_2, Ca(OH)_2, Sn$ 

D.  $CaC_2$ ,  $C_2H_2$ ,  $Ca(OH)_2$ , Fe

## **Answer:**



**116.** One litre flask is full of brown bromine fumes. The intensity of brown colour of vapour will not decreases appreciably on adding to the flask some

- A. Pieces of marble
- B. Animal charcoal powder
- $\mathsf{C}.\,CCl_4$
- D.  $CS_2$

#### **Answer:**



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**117.** Which one of the following ionic species will impart colour to an aqueous solution?

A. 
$$Te^{4+}$$

B. 
$$Cu^+$$

C. 
$$Zn^{2+}$$

D. 
$$Cr^{3+}$$

#### **Answer:**



## 118. Which is not dissolved in dil. HCl?

- A. ZnS
- B. MnS
- $\mathsf{C}.\,BaSO_3$
- D.  $BaSO_4$

#### **Answer:**



**119.** The brown ring test for  $NO_3^-$  is due to the formation of the complex ion with formula

A. 
$$igl[Fe(H_2O)_6igr]^{2+}$$

B. 
$$Feigl[NO(CN)_5igr]^{2-}$$

C. 
$$\left[Fe(H_2O)_5NO\right]^{2+}$$

D. 
$$[Fe(H_2O)(NO_3)]^{2+}$$

#### **Answer:**



120. In Nessler's reagent, the ion present is

A. 
$$\left[HgI\right]^{2}$$

B. 
$$\left[HgI_4
ight]^{2}$$

C. 
$$Hg^+$$

D. 
$$Hg^{2+}$$

## **Answer:**



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**121.** When  $I_2$  is passed through KCl,KF and KBr

- A.  $Cl_2$  and  $Br_2$  are evolved
- B.  $Cl_2$  is evolved
- C.  $Cl_2, F_2$  and  $Br_2$  are evolved
- D. None of these



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122. Mercurous ion is represent as

A.  $Hg_2^{2+}$ 

B. 
$$Hg^{2+}$$

C. 
$$Hg + Hg^{2+}$$

D. 
$$3Hg^{2+}$$

## **Answer: B**



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**123.** In the borax test of  $Co^{2\,+}$  , the blue colour of bead is due to the formation of

A.  $B_2O_3$ 

B.  $Co_3B_2$ 

C.  $Co(BO_2)_2$ 

D. CoO

## Answer: B::C::D



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**124.** AgCl is soluble in  $NH_4OH$  solution. The solubility is due to the formation of

A. AgOH

B. 
$$Ag_2O$$

C. 
$$\left[Ag(NH_3)_2
ight]^+$$

D. 
$$NH_4Cl$$
+NHOH

## **Answer: A::C**



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**125.** Correct formula of the complex formed in the brown ring test for nitrates is

A.  $FeSO_4NO$ 

B. 
$$\left[Fe(H_2O)_5NO\right]^{2+}$$

C. 
$$\left[Fe(H_2O)_5NO
ight]^+$$

D. 
$$igl[Fe(H_2O)_5NOigr]^{3\,+}$$

## Answer: B::D



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**126.** Which of the following gives blood red colour with KCNS?

A.  $Cu^{2\,+}$ 

B.  $Fe^{3+}$  ions

C.  $Al^{3+}$ 

D.  $Zn^{2+}$ 

## **Answer:**



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127. Which of the following sulphates is insoluble in water?

A.  $CuSO_A$ 

B.  $CdSO_4$ 

 $\mathsf{C}.\,PbSO_4$ 

D.  $Bi_2(SO_4)_3$ 

#### **Answer:**



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**128.** Which of the following is not precipitated as sulphide by passing  $H_2S$  is the presence of conc. HCl ?

- A. Copper
- B. Arsenic
- C. Cadmium
- D. Lead



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**129.** The metal ion which is precipitated when

 $H_2S$  is passed with HCl is

A. 
$$Zn^{2\,+}$$

B. 
$$Ni^{2\,+}$$

C. 
$$Cd^{2+}$$

D. 
$$Mn^{2+}$$



**Watch Video Solution** 

**130.** The gas that turns lime water milky is

A.  $CO_2$ 

- $B. SO_2$
- C. Both of these
- D. None of these



**Watch Video Solution** 

**131.** Which of the following is not a preliminary

test used to detect ions?

A. Borax bead test

- B. Flame test
- C. Brown ring test
- D. Permanganate test



**Watch Video Solution** 

**132.** Which of the following metal sulphides

has maximum solubility in water?

A. 
$$HgS$$
  $K_{sp}=10^{-54}$ 

B. 
$$CdS$$
  $K_{sp}=10^{-30}$ 

$$\mathsf{C.}\, FeS \hspace{0.5cm} K_{sp} = 10^{-20}$$

D. 
$$ZnS$$
  $K_{sp}=10^{-22}$ 



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**133.** The phenomenon in which white transparent crystal change into white powder is called

- A. Deliquescence
- B. Efflorescence
- C. Allotropy
- D. Sublimation



**Watch Video Solution** 

**134.** The compound formed in the borax bead test of  $Cu^{2\,+}$  ion in oxidising flame is

A. Cu

B.  $CuBO_3$ 

 $\mathsf{C}.\,Cu(BO_2)_2$ 

D. None of these

### **Answer:**



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**135.** Which of the following does not give  $CO_2$  on heating ?

A.  $ZnCO_3$ 

B.  $CaCO_3$ 

C.  $CuCO_3$ 

D.  $Na_2CO_3$ 

## **Answer:**



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136. When  $H_2S$  gas is passed thorugh the HCl containing aqueous solution of

 $CuCl_2, HgCl_2, BiCl_3$  and  $CoCl_2$ , it does not precipitated out

- A. CuS
- B. HgS
- C.  $Bi_2S_3$
- D. CoS

## Answer:



## 137. Mark the correct statement

- A. I group basic radicals precipitates as chlorides
- B. IV group basic radicals precipitated as sulphides
- C. V groups basic radicals precipitates as carbonates
- D. All the above statements are correct

#### **Answer:**

**138.** Potassium chromate solution is added to an aqueous solution of a metal chlrodie. The precipitate thus obtained are insoluble in acetic acid. These are subjected to flame test, the colour of the flame is

A. Lilac

B. Apple green

C. Crimson red

D. Golden yellow

## **Answer:**



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**139.** In borax bead test which compound is formed?

- A. Orthoborate
- B. Metaborate
- C. Double oxide

D. Tetraborate

#### **Answer:**



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140. Consider the following observation:

ItbRgt  $M^{n+} + HCl 
ightarrow$  white precipitate

 $\stackrel{\Delta}{\longrightarrow}$  water soluble.

The metal ion  $M^{n+}$  will be

A.  $Hg^{2+}$ 

B.  $Ag^+$ 

 $\mathsf{C}.\, Pb^+$ 

D.  $Sn^{2+}$ 

## **Answer:**



**Watch Video Solution** 

**141.** When  $H_2S$  is passed through  $Hg_2^{2\,+}$ , we get

A. HgS

B. 
$$HgS + Hg_2S$$

$$\mathsf{C}.\,HgS+Hg$$

D. 
$$Hg_2S$$



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**142.** How do we differentiate between  $Fe^{3+}$  and  $Cr^{3+}$  in group III ?

A. By adding excess of  $NH_4OH$ 

B. by increasing  $NH_4^{\,+}$  ions concentration

C. by decreaseing  $OH^{\,-}$  ion concentration

D. Both (b) and (C)

#### **Answer:**



**Watch Video Solution** 

**143.** Which compound does not dissolve in hot dilute  $HNO_3$  ?

A. HgS

- B. CuS
- C. PbS
- D. CdS



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**144.** A red solid is insoluble in water. However, it becomes soluble if some KI is added to water. Heating rod solid in a test tube produces violet coloured fumes and droplets

of metal appear on the cooler parts of test tube. The red solid is

A. 
$$(NH_4)_2 Cr_2 O_7$$

B.  $HgI_2$ 

C. HgO

D.  $Pb_3O_4$ 

## Answer:



**145.** Which of the following nitrates will leave

behind a metal on strong heating?

- A. Ferric nitrate
- B. copper nitrate
- C. maganese nitrate
- D. silver nitrate

#### **Answer:**



**146.** Which one of the following statements is correct ?

A. Maganese salt give biolet borax bead test in the reducing flame

B. from a mixed precipitate of AgCl and AgI, ammonia solution dissolves only AgCl

C. Ferric ions give a deep green precipitate

on adding potassium ferrocyanide

solution

D. On boiling a solution having  $K^+, Ca^{2+}$  and  $HCO_3^-$  ions we get a precipitate of  $K_2Ca(CO_3)_2$ 

## **Answer:**



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**147.** In Nessler's reagent for the detection of ammonia the active species is

A.  $Hg_2I_2$ 

B.  $Mg^{2\,+}$ 

 $\mathsf{C}.\,Hg_2I_2$ 

D.  $HgI_4^{2\,-}$ 

## **Answer: B**



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**148.** In qualitative analysis ,in order to detect second group basic radical,  ${\cal H}_2S$  gas is passed in the presence of dil. HCl to

A. Increases the dissociation of  $H_2S$ 

B. Decreases the dissociation of the salt solution

C. decreases the dissociation of  $H_2S$ 

D. increases the dissociation of salt solution

## **Answer:**



**149.** Calomel  $(Hg_2Cl_2)$  on reaction with ammonium hydroxide gives

A. 
$$HgNH_2Cl$$

B. 
$$NH_2-Hg-Hg-Cl$$

$$\mathsf{C}.\,Hg_2O$$

D. HgO

### **Answer:**



**150.** The radical can be confirmed by Borax

bead test is

A. 
$$Mg^{2+}$$

B. 
$$Ca^{2+}$$

C. 
$$Cu^+$$

D. 
$$Cu^{2+}$$

### **Answer:**



151. Which gives (s) yellow precipitate with

$$K_2CrO_4$$
?

- A.  $Ba^{2+}$  ions
- B.  $Cd^{2+}$
- C.  $Ca^{2+}$
- D.  $Sr^{2+}$

## **Answer:**



# **Selected Straight Objective**

**1.** Which of the following is (are) soluble in excess of NaOH?

A.  $Al(OH)_3$ 

B.  $Cr(OH)_3$ 

C.  $Fe(OH)_3$ 

D.  $Zn(OH)_2$ 

## **Answer:**



# 2. KI solution identifies

A. 
$$Hg_2^{2\,+}$$

B. 
$$Pb^{2+}$$

C. 
$$Ag^+$$

D. 
$$Cu^{2+}$$

### **Answer:**



**3.** Diphenylamine reagent gives a deep blue colour with a solution. It contains

A. 
$$Sn^{2+}$$

$$\mathsf{B.}\,NO_2^-$$

$$\mathsf{C}.\,NO_3^-$$

D. 
$$Fe^{3+}$$

#### **Answer:**



**4.** Flame test is not given by

A. 
$$Mg^{2\,+}$$

B. 
$$Ba^{2+}$$

C. 
$$Ca^{2+}$$

D. 
$$Be^{2+}$$

### **Answer:**



_	_			•		•	
5.	Borax	head	test	ıs	not	σιven	hv
<b>J</b> .	DOIGN	bcuu	CCJC	IJ	1100	Siven	$\boldsymbol{\Sigma}$

- A. Copper salts
- B. Aluminium salts
- C. Nickel salts
- D. magnesium salts



**6.** Potassium ferrocyanide is used in the detection of

A. 
$$Fe^{2+}$$
 ion

B. 
$$Fe^{3+}$$
 ions

$$\mathsf{C.}\, Cu^{2\,+}$$
 ion

D. 
$$Cd^{2+}$$
 ion

# **Answer:**



7. Potassium cyanide is used for separating

A. 
$$Co^{2+}$$
 and  $Ni^{2+}$ 

B. 
$$Mn^{2+}$$
 and  $Zn^{2+}$ 

C. 
$$Ba^{2+}$$
 and  $Ca^{2+}$ 

D. 
$$Cu^{2\,+}$$
 and  $Cd^{2\,+}$ 

### **Answer:**



**8.** A solution giving yellow ppt. with ammonium molydate contains

A. 
$$PO_4^{3\,-}$$

B. 
$$As^{3+}$$

C. 
$$Bi^{3\,+}$$

D. 
$$SO_4^{2-}$$

### **Answer:**



<b>9.</b> Which is not decomposed by dil. $H_2SO_4$ ?					
A. Chloride					

- B. carbonate
- C. Nitrate
- D. Acetic acid



**10.** A solution of salt in HCl when diluted with water turns milky. It indicates the presence of

- A. Al
- B. Bi
- C. Sb
- D. Zn

#### **Answer:**



**11.** The reagent  $NH_4Cl$  and aqueous  $NH_3$  will precipitate

A. 
$$Ca^{2+}$$

B. 
$$Al^{3+}$$

C. 
$$Bi^{3+}$$

D. 
$$Mg^{2+}$$

# **Answer: B**



12. Which of the following statement (s) is (are) correct when a mixture of NaCl and  $K_2Cr_2O_7$  is gently warmed with conc.  $H_2SO_4$ ?

A. A deep red vapour is evolved

B. the vapour when passed into NaOH

solution gives a yellow solution of

 $Na_2CrO_4$ 

C. Chlorine gas is evolved

D. Chromyl chloride is formed



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**13.** Which of the following statements (s) is (are) correct with reference to ferrous and ferric ions

- A.  $Fe^{3+}$  gives brown colour with potassium ferricyanide
- B.  $Fe^{3+}$  gives blue precipitate with potassium ferricyanide

C.  $Fe^{3\,+}$  gives red colour with potassium thiocyante

D.  $Fe^{3+}$  gives brown colour with ammonium thiocyanate

# **Answer:**



**14.** The ion that cannot be precipitated by both HCl and  $H_2S$  is

A.  $Pb^{2+}$ 

B.  $Cu^+$ 

C.  $Ag^+$ 

D.  $Sn^{2+}$ 

# **Answer:**



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15. Which one among the following pairs of ions cannot be separated by  $H_2S$  in dilute hydrochloric acid?

A. 
$$Bi^{3\,+}$$
 ,  $Sn^{4\,+}$ 

B. 
$$Al^{3+}$$
 ,  $Hg^{2+}$ 

C. 
$$Zn^{2+}$$
 ,  $Cu^{2+}$ 

D. 
$$Ni^{2\,+}$$
 ,  $Cu^{2\,+}$ 



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**16.** Which of the following compounds is expected to be coloured?

A.  $Ag_2SO_4$ 

B.  $CuF_2$ 

 $\mathsf{C}.\,MgF_2$ 

D. CuCl

## **Answer:**



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**17.** Sodium nitrate decomposes above  $800^{\circ}\,C$  to give

Α	$N_2$
---	-------

$$B.O_2$$

$$\mathsf{C}.\,NO_2$$

# D. $Na_2O$

## **Answer:**



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**18.** On heating ammonium dichromate the gas evolved is

- A. oxygen
- B. ammonia
- C. nitrous oxide
- D. nitrogen



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**19.** A gas X is passed through water to form a saturated solution. The aqueous solution on treatement with silver nitrate give a white

precipitate. The saturated aqueous solution dissolve magnesium ribbon with evolution of a colourless gas 'Y'. Identify X and Y

A. 
$$X=CO_2, Y=Cl_2$$

$$\mathsf{B.}\, X = Cl_2, Y = CO_2$$

$$\mathsf{C}.\,X=Cl_2,Y=H_2$$

$$\mathsf{D}.\,X=H_2,Y=Cl_2$$

#### **Answer:**



20. An aquous solution of a substance give a white precipitate on tretement with dilute hydrochloric acid, which dissolve on heating. When hydrogen sulphide is passed through the hot acidic solution, a black precipitate is observed.the substance is a

- A.  $Hg_2^{2\,+}$  salt
- B.  $Cu^{2\,+}$  salt
- C.  $Ag^+$  salt
- D.  $Pb^{2\,+}$  salt



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**21.** Identify the correct order of solubility of  $Na_2S,\,CuS$  and ZnS in aqueous solution

A. 
$$CuS>ZnS>Na_{2}S$$

B. 
$$ZnS>Na_{2}S>CuS$$

C. 
$$Na_2S>CuS>ZnS$$

D. 
$$Na_2S>ZnS>CuS$$



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**22.**  $[X]+H_2SO_4 o$  [Y] colourless with irritating smell. [Y]  $+K_2Cr_2O_7+H_2SO_4 o$  green solution

[X] and [Y] are

A.  $SO_3^{2-}$  ,  $SO_2$ 

 $B. Cl^-, HCl$ 

 $\mathsf{C.}\,S^{2\,-}\,,H_2S$ 

D. 
$$CO_3^{2-}$$
,  $CO_2$ 



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23. A sodium salt on treatment with  $MgCl_2$  gives white precipitate only on heating. The anion of the sodium salt is :

A.  $HCO_3^-$ 

B.  $CO_3^{2-}$ 

$$\mathsf{C.}\,NO_3^-$$

D. 
$$SO_4^{2-}$$



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**24.** A metal nitrate on reaction with KI gives black precipitate and with excess KI gives orange solution. The metal ion is ,

A.  $Hg^{2+}$ 

B.  $Pb^{2\,+}$ 

C.  $Cu^{2\,+}$ 

D.  $Bi^{3+}$ 

# Answer:



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# **Assertion And Reason**

- **1.** \$ CuS will give  $H_2S$  in dilute acid test.
- ! All sulphide react with dil.  $H_2SO_4$  to give

 $H_2S$ .

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

### **Answer:**



- **2.** \$  $PbCl_2$  will give HCl in conc.  $H_2SO_4$  test.
- ! All chlorides react with conc.  $H_2SO_4$  , on heating to give HCl
  - A. Both A and R are true and R is the correct explanation of A
  - B. Both A and R are true but R is not a
    - correct explanation of A
  - C. A is true but R is false
  - D. A is false but R is true.



- **3.** \$  $ZnCO_3$  will not give any gas when treated with conc.  $H_2SO_4$
- $!CO_3^{2-}$  can only be detected in dil. Acid test
  - A. Both A and R are true and R is the correct explanation of A
  - B. Both A and R are true but R is not a correct explanation of A

- C. A is true but R is false
- D. Both A and are false



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- **4.** \$ CdS is yellow in colour
- $!Cd^{2+}$  salts are yellow in colour.

correct explanation of A

A. Both A and R are true and R is the

B. Both A and R are true but R is not a

correct explanation of A

C. A is true but R is false

D. A is false but R is true.

# **Answer:**



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5. \$ A brown gas which itensifies on adding cuturnings in conc. $H_2SO_4$  test is $NO_2$ 

! Copper reacts with conc. $HNO_3$  to give  $NO_2$ 

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

### **Answer:**



**6.** \$ CuS is blue in colour.

! All  $Cu^{2+}$  salts are blue in colour.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

**Answer:** 

**7.** \$ Acidified  $K_2Cr_2O_7$  is turned green when  $SO_2$  is passed thorugh it.

! In this reaction  $SO_2$  acts as a reducing agent.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

#### **Answer:**



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**8.** \$ White ppt. of AgCl is soluble in  $NH_4OH$ 

! It is due to the formation of soluble complex.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

## **Answer:**



- **9.** \$ All soluble sulphides give white ppt. with  $BaCl_2$  solution.
- ! BaS is insoluble in water

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

### **Answer:**



**10.** \$ A solution of  $BiCl_3$  in conc. HCl when diluted with water gives white ppt.

 $!\,BiCl_3$  is insoluble in dil. HCl

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a

correct explanation of A

C. A is true but R is false

D. A is false but R is true.



## **Watch Video Solution**

- 11. \$ Borax bead test is applicable to coloured salts
- ! In borax bead test, coloured salts are decomposed to give coloured metal metaborates.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

## **Answer:**



12. \$ Phosphates are identified by the yellow precipitate obtained on adding ammonium molybdate solution

! Ammonium phosphomolybdate is a yellow compoud.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

## **Answer:**



13. \$  $Cu^{2+}$  and  $Cd^{2+}$  are separated by first adding KCN solution and then passing  $H_2S$  gas.

! KCN reduces  $Cu^{2+}$  to  $Cu^{+}$  and forms a complex with it.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

- C. A is true but R is false
- D. A is false but R is true.



- **14.** \$ Oxalate gives whtie ppt. with calcium chloride in the presence of HCl
- ! Calcium chloride is insoluble in water.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

### **Answer:**



- **15.** \$ V group basic radicals are precipitated as their carbonates in presence of  $NH_4OH$  !  $NH_4OH$  maintains the pH of the solution basic.
  - A. Both A and R are true and R is the correct explanation of A
  - B. Both A and R are true but R is not a
    - correct explanation of A
  - C. A is true but R is false
  - D. A is false but R is true.



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- **16.** \$ Sb(III) is not precipitated as sulphide when in its alkaline solution  $H_2S$  is passed.
- ! The concentration of  $S^{2+}$  ions in alkaline medium is inadequate for precipitation.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true.

### **Answer:**



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**17.** \$ Addition of  $NH_4OH$  to an aqueous solution of  $BaCl_2$  in the presence of  $NH_4Cl$ 

(excess) precipitates  $Ba(OH)_2$ .

!  $Ba(OH)_2$  is insoluble in water.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a

C. A is true but R is false

correct explanation of A

D. A is false but R is true.

# **Answer:**



# **Ultimate Preparatory Package**

**1.** Colour of  $KMnO_4$  is decolourised without evolution of any gas. The radical present may be

A. 
$$SO_4^{2\,-}$$

$$\mathrm{B.}\,SO_3^{2\,-}$$

C. 
$$Sn^{2+}$$

D. Both (b) and (C)



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**2.** Reddish brown (chocolate) precipitated is formed with

A. 
$$Cu^{2\,+}$$
 and  $igl[Fe(CN)_6igr]^{4\,-}$ 

B. 
$$Fe^{2+}$$
 and  $igl[Fe(CN)_6igr]^{4-}$ 

C. 
$$Pb^{2+}$$
 and  $CrO_4^{2-}$ 

D. 
$$Ba^{2\,+}$$
 and  $CrO_{{\scriptscriptstyle A}}^{2\,-}$ 



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**3.** An aqueous solution  $Hg^{2+}, Hg_2^{2+}, Pb^{2+}$  and  $Cd^{2+}.$  The addition of 6N HCl will precipitate

A.  $Hg_2Cl_2$  only

B.  $PbCl_2$  only

C.  $PbCl_2$  and  $Hg_2Cl_2$ 

D.  $PbCl_2$  and  $HgCl_2$ 



- **4.** Nitric acid is generally not used for the preparation of original solution in analysis of basic radicals because it
  - A. is an oxidising agent
  - B. is reducing agent
  - C. forms insoluble nitrates
  - D. forms soluble nitrates.



- **5.** Sulphuric acid is not for the preparation of original solution in analysing basic radicals because
  - A. it is a reducing agent
  - B. it forms insoluble sulphate
  - C. it forms a soluble complex
  - D. it is viscous in nature



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**6.** Some salts, although contain two different metal elements, give test for only one of them in solution, such salts are

A. normal salts

B. double salts

C. complex salts

D. basic salts



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**7.** The complex compound formed with KCN solution is added to solution containing both  $Cu^{2+}$  and  $Cd^{2+}$  ions are

A. 
$$K_2igl[Cu(CN)_4igr]$$
 and  $K_2igl[Cd(CN)_4igr]$ 

- B.  $K_3igl[Cu(CN)_4igr]$  and  $igl[K_2igl[Cd(CN)_4igr]$
- C.  $K_3igl[Cu(CN)_4igr]$  and  $K_3igl[Cd(CN)_4igr]$
- D.  $K_2igl[Cu(CN)_4igr]$  and  $K_3igl[Cd(CN)_4igr]$



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## **Brain Teasers 23**

**1.** Which of the following nitrates does not give  $NO_2$  on heating ?

A.  $Cu(NO_3)_2$ 

B.  $KNO_3$ 

C.  $Ca(NO_3)_2$ 

D.  $Zn(NO_3)_2$ 

**Answer:** 



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**Brain Teasers 24** 

**1.** Which of the following carbonate does not give  $CO_2$  on heating ?

A.  $CaCO_3$ 

B.  $ZnCO_3$ 

C.  $Na_2CO_3$ 

D.  $CuCO_3$ 

### **Answer:**



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# **Brain Teasers 25**

**1.** Which of the following carbonate cannot be easily detected by dilute acid test?

A.  $ZnCO_3$ 

B.  $Na_2CO_3$ 

 $\mathsf{C}.\,PbCO_3$ 

D.  $FeCO_3$ 

## **Answer:**



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**Brain Teasers 26** 

1. A pink violet salt on heating change to blue.

It may be due to the presence of

- A.  $MnCl_2$
- B.  $CoCl_2$
- C.  $MnSO_4$
- D. none of these

#### **Answer:**



### **Brain Teasers 27**

**1.** White ppt. of  $PbSO_4$  is soluble in

A. Conc. HCl on heating

B. Conc. $HNO_3$ 

 $\mathsf{C.}\,(NH_4)_2CO_3$ 

D.  $CH_3COONH_4$ 

#### **Answer:**



**1.** which of the following will not respond to chromyl chloride test ?

A.  $HgCl_2$ 

B.  $CuCl_2$ 

C.  $ZnCl_2$ 

D.  $NiCl_2$ 

**Answer:** 



## **Brain Teasers 29**

1. The chloride soluble in hot water is

A. AgCl

B.  $PbCl_2$ 

C.  $Hg_2Cl_2$ 

D. none of these

## Answer:

## **Brain Teasers 30**

**1.** A solution of a colourless salt in conc. HCl on dilution with water gives white ppt. it is due to

A. 
$$Ag^+$$

$$\mathsf{B.}\,Pb^{2\,+}$$

C. 
$$Hg^+$$

D. none of these



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## **Brain Teasers 31**

**1.** What is correct about the cations of group V?

A. These cations should be tested in the sequence Ba,Sr,Ca

B. These cations should be tested in the sequence Ca,Sr,Ba

C. These cations should be tested in the sequnce Sr,Ca,Ba

D. These cations can be detected in any sequence

## Answer:



1. A solution of a colourless salt when acidified with dil. HCl , slowly turns milky with a pale yellow tint. When  $AgNO_3$  solution is added to the solution of the salt, white ppt. slowly changing to yellow, orange, brown and finally to black is obtained. the anion present in the salt is

A.  $Br^-$ 

B.  $SO_3^{2-}$ 

C.  $S_2O_3^{2\,-}$ 

D.  $I^{\,-}$ 

# **Answer:**



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# **Brain Teasers 33**

**1.**  $Ni^{2+}$  with dimethylglycoxime reagent in alkaline solution  $(NH_4OH)$  gives

- A. Green ppt
- B. Blue ppt.
- C. white ppt
- D. brilliant red ppt.

### **Answer:**



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**Brain Teasers 34** 

<b>1.</b> $Cu^{2+}$ ions with $NH_4OH$ solution given	ves
---	-----

- A. Blue ppt.
- B. Blue solution
- C. Violet ppt.
- D. None of these

#### **Answer:**



**1.**  $Cu^{2+}$  salts with  $K_4 \lceil Fe(CN)_6 \rceil$  gives

A. Reddish brown ppt.

B. Deep blue solution

C. Blue ppt.

D. None of these

#### **Answer:**



- **1.**  $Cu^{2+}$  salts are
  - A. deep blue in colour
  - B. light blue in colour
  - C. light green in colour
  - D. colourless.

#### **Answer:**



- **1.** CdS is
  - A. white in colour
  - B. yellow in colour
  - C. black in colour
  - D. pink in colour

#### **Answer:**



**1.** HgS is

A. red in colour

B. black in colour

C. Both (A) and (B)

D. none.

#### **Answer:**



- 1. CuS is
  - A. blue in colour
  - B. black in colour
  - C. dirty white in colour
  - D. none of these

#### **Answer:**



1. If a salt solution containing  $Fe^{2+}$  is not treated with a few drops of  $HNO_3$  before starting for group III the ppt. obtained in group III will be

A. redish brown in colour

B. dirty green in colour

C. black

D. white

### **Answer:**



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# **Brain Teasers 41**

1.  $I^-$  can be detected by violet colour in  $CS_2$  layer obtained on adding chlorine water. However, on adding excess of  $Cl_2$  , the violet colour disappears. It is due to

A. the formation of interhalogen

compound Icl

- B. removal of  $I_2$  from  $CS_2$  layer by  $Cl_2$
- C. precipitation of  $I_2$  from solution
- D. none of these

### Answer:



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**Brain Teasers 42** 

1. Green edged flame test for  $BO_3^{3-}$  with alcohol and conc.  $H_2SO_4$  is generally carried out in a china dish. However, the test should be carried out in a test tube if one of the cation present in solution is

A. 
$$Ba^{2+}$$

B. 
$$Cu^{2+}$$

C. 
$$Ca^{2+}$$

D. 
$$Zn^{2+}$$

### **Answer:**

