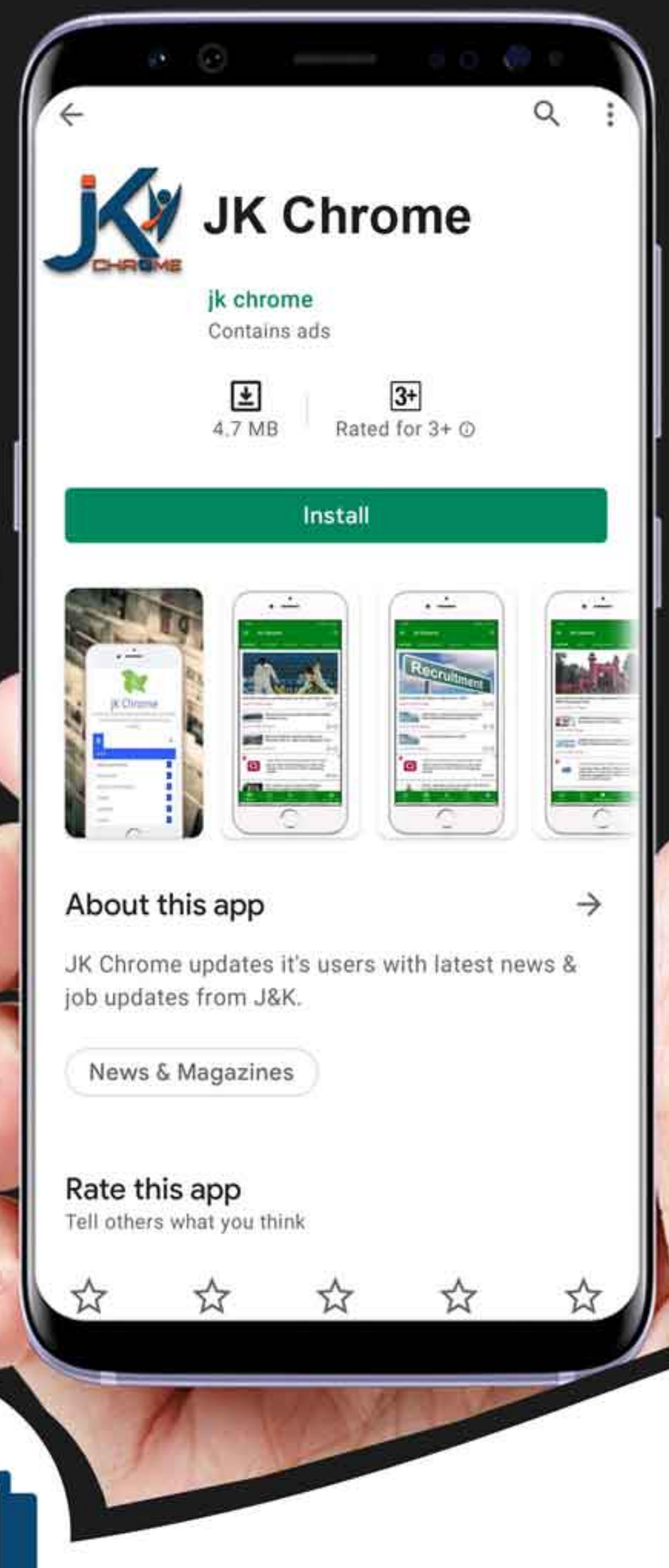
JK Chrome

JK Chrome | Employment Portal



Rated No.1 Job Application of India

Sarkari Naukri
Private Jobs
Employment News
Study Material
Notifications

JOBS

NOTIFICATIONS

G.K

STUDY MATERIAL

GET IT ON Google play

JK Chrome
jk chrome
Contains ads

Click here to DOWNLOAD

www.jkchrome.com | Email : contact@jkchrome.com

Acids, Bases & Salts

Acid :

An acid is a substance which

(i) is sour in taste

(ii) turns blue litmus paper into red

(iii) contains replaceable hydrogen

(iv) gives hydrogen ion (H+) in aqueous solution (Arrhenius theorem)

(v) can donote a proton (Bronsted & Lowry concept)

(vi) can accept electron (Lewis theorem)

Uses of acid :

1. As food :

(a) Citric acid — Lemons or oranges (Citrus fruits)

(b) Lactic acid — sour milk

(c) Butyric acid — Rancid butter

(d) Tarteric acid — Grapes

(e) Acetic acid — Vinegar

(f) Maleic acid — Apples

(g) Carbonic acid— Soda water aerated drinks

(h) Stearic acid — Fats

(i) Oxalic and — Tomato, wood sorrel.

2. Hydrochloric acid (HCl) is used in digestion

3. Nitric acid (HNO3) is used in the purification of gold & silver.

4. Conc. H_2SO_4 and HNO_3 is used to wash iron for its galvanization.

5. Oxalic acid is used to remove rust spot.

6. Boric acid is a constituent of eye wash.

7. Formic acid is present in red ants.

8. Uric acid is present in urine of mammals

Basicity of an acid : The number of removable hydrogen ions from an acid is called basicity of that acid.

Mono basic acid (one removable H^+ ion) — HCl, HNO_3

Dibasic acid (two removable H^+ ion) — H_2SO_4, H_2CO_3, H_3PO_3,

Tribasic acid (three removable H^+ ion) — H_3PO_4

Acidic strength (i) $HF < HCl < HBr < HI$

(ii) $CH_3COOH < H_2SO_4 < HNO_3 < HCl$

Uses of HCl :

(i) HCl present in gastric juices are responsible for the digestion.

(ii) Used as bathroom cleaner.

(iii) As a pickling agent before galvanization.

(iv) In the tanning of leather.

(v) In the dying and textile industry.

(vi) In the manufacture of gelatine from bones.

Uses of HNO_3

(i) In the manufacture of fertilizers like ammonium nitrate.

(ii) In the manufacture of explosives like TNT (Trinitro toluene), TNB (Trinitro benzene), Picric acid (Trinitro phenol) etc.

(iii) Nitro Glycerine (Dynamite)

(iv) Found in rain water (first shower)

(v) It forms nitrates in the soil.

(vi) In the manufacture of rayon.

(vii) In the manufacture of dyes & drugs.

Uses Of Sulphuric acid (H2SO4)

(i) In lead storage battery.

(ii) In the manufacture of HCl.

(iii) In the manufacture of Alum.

(iv) In the manufacture of fertilizers, drugs, detergents & explosives. Use of Boric acids : As an antiseptic.

Uses of Phosphoric acid :

(i) Its calcium salt makes our bones.

(ii) It forms phosphatic fertilizers.

(iii) PO4 –3 is involved in providing energy for chemical reactions in our body.

Uses of Ascorbic acid : Source of Vitamin C

Uses of Citric acid : Flavouring agent & food preservative.

Uses of Acetic acid : Flavouring agent & food preservative.

Uses of Tartaric acid : (i) Souring agent for pickles (ii) A component of baking powder (sodium bicarbonate + tartaric acid)

Bases :

A. Base is a substance which

(i) bitter in taste

(ii) turns red litmus paper into blue

(iii) gives hydroxyl ions (OH–) in aqueous solution.

(iv) can accept proton (Bronsted & lowry concept)

(v) can donate electrons (Lewis theory)

1. Oxides & hydroxides of metals are bases

2. Water soluble bases are called alkali e.g. NaOH, KOH, etc.

3. All alkalies are bases but all bases are not alkalies because all bases are not soluble in water.

Acidity of a base : The number of removable hydroxyl (OH–) ions from a base is called acidity of a base.

Acidity of NaOH = 1

Acidity of KOH = 1

Acidity of Ca(OH)2 = 2

The pH scale : pH of a solution is the negative logarithm of the concentration of hydrogen ions in mole per litre.

pH = – log[H+]

If pH < 7 then solution is acidic

If pH > 7 then solution is basic

If pH = 7 then solution is neutral

Salt : When an acid reacts with a base, salt and water are formed.

Acid + Base → Salt + Water

HCl + NaOH → NaCl + H2O

Uses of some important salts :

1. Sodium Chloride : As a flavouring agent in food. In saline water for a patient of dehydration (0.9% NaCl), In the manufacture of HCl etc.

2. Sodium iodate : Iodised salt to prevent Goitre disease.

3. Sodium Carbonate : As washing soda, manufacturing of glass etc.

4. Sodium Benzoate : As a food preservative for pickles.

5. Potassium nitrate : As a fertilizer giving both K & N to the solid, In gun powder (C + S + KNO3), In match sticks etc.

6. Calcium Chloride : Dehydrating agent used for removing moisture from gases.

7. Calcium carbonate (lime stone) : In the construction of building, In the cement industry., In the extraction of metals etc.

8. Calcium sulphate : (i) Plaster of Paris ($2\ CaSO_4 \cdot H_2O$) – For moulds & statues, in the cement industry in the form of Gypsum ($CaSO_4 \cdot 2H_2O$).

9. Calcium Phosphate : As a fertilizer (Superphosphate of lime)

10. Bleaching powder : (i) As a disinfectant (ii) As a bleaching agent (removing colours)

11. Alum (Potassium aluminium sulphate) : (i) In the purification of water, (ii) In the dyeing industry (iii) As antiseptic after shave.