HPAS EXAM 2013
SCIENCE Q&A

IMPORTANT FACTS :

Old-written material, which cannot be read easily, can be read by — Infra Red rays

Which is used in beauty parlours for hair setting? Sulphur

Paper is manufactured by —

Wood, Calcium, hydrogen sulphate and resin

Which is a non-metal that remains liquid in room temperature ? Bromine

Which is in liquid form at room temperature ? Francium

The combustible material at the tip of a safety match stick is — Antimony sulphide

Which is used as a material for making protective windows in space probes ? Diamond

Which material are used to prepare blue-black ink ? Gallic acid,Tannic acid, Ferrous sulphate

The type of glass used in making prisms and lenses is — Flint glass

Which synthetic fibre is known as artificial silk ?

Rayon

Deep blue colour is imparted to glass by the presence of — Cobalt oxide

Which metal forms an amalgum with other metals ? Mercury

Which is used in making smoke bombs ? Phosphorus

Which variety of glass is heat resistant ?

Pyrex glass

Meson particles are found in — Cosmic rays

Which type of fire extinguisher is used for petroleum fire ? Powder type

From which mineral is radium obtained — Pitchblende

The metal used in storage batteries —

Lead

Permanent hardness of water can be removed by adding — Washing Soda

Permanent hardness of water, due to sulphates of the metal, can be destroyed by the use of — Zeolites

Washing soda is the common name of — Sodium Carbonate

Chemical formula of Water glass is — Na_2SiO_3

Which alloys is used for making magnets ?
Alnico
Which is used as lubricant ? Graphite
The colour of Emerald is — Deep Green
Rust is —
A mixture of Fe_2O_3, $3H_2O$ and FeO
Liquefied Petroleum gas (LPG) consists of mainly — Methane, Butane and Propane
The metal that is present in Photo Films is — Silver
Soda water contains — Carbon dioxide
Which is used as a filter in rubber tyres?
Carbon Black
Potassium Permanganate is used for purifying drinking water, because — It is an oxidising agent
The ratio of pure gold in 18 carat gold is — 75%

Cow milk is a rich source of — Vitamin B1
The inert gas which is substituted for nitrogen in the air, used by deep sea drivers for breathing is — Helium
Brass gets discoloured in air due to the presence of which gas in air — Hydrogen Sulphide
Quartz crystals normally used in quartz clocks etc. is chemically — Silicon dioxide
Bell Metal is an alloy of — Tin and Copper
The property of a substance to absorb moisture from the air on exposure is called — Deliquescene
The main constituents of Pearl are — Calcium Carbonate, Magnesium Carbonate
Which element is obtained from sea weeds ? Iodine
Which is used for removing air bubbles from glass during its manufacture ? Arsenic oxide
What are soaps ?
Sodium or potassium salts of heavier fatty acids
Which is used in making artificial sweetener saccharine ? Toluene
The metallic constituents of hard water are —

The high temperature superconductors are — Ceramic oxides
The ingredients of Gun metal are — Copper, Tin
The gas usually causing explosions in coal mines is — Methane
What is increasing order of the wave lengths of the following colours — Violet, Indigo, Yellow, Orange
Which is used as a coolant in nuclear reactors ? Liquid sodium
The isotope of Uranium capable of sustaining chain reaction is — U 235
The element found in the surface of the Moon is — Titanium
The element present in the largest amount in rocks and minerals is — Silicon
An alloy used in making heating elements for electric heating devices is — Nichrome
German Silver is an alloy of — Zinc, Copper & Nickel

Air is a/an — Mixture
Balloons are filled with — Helium
The charcoal used to decolourise raw sugar is — Wood charcoal
The most abundant metal in the earth's crust is —
Aluminium
The gas used to extinguish fire is —Carbon dioxide
In which activities Silicon Carbide is used ? Cutting very hard substances
The element common to all acids is — Hydrogen
Gobar gas contains mainly — Methane
Tetraethyl lead is used as — Petrol additive
What is laughing gas ? Nitrous oxide
Which form of phosphorus is used in safety metals? Red Phosphorus
Stainless steel is an alloy of — Iron, Chromium and Nickel
Bromine is — A red liquid.
Water has maximum density at —
–4°C
The chemial name of Uria is —
Carbamide

Which substance is a bad conductor of electricity but a good conductor of heat? Mica

Carborandum is — Silicon Carbide

The filament of electric bulb is made of — Tungsten

Bleaching powder is made from — Lime and Chlorine

The two elements that are frequently used for making transistors are — Silicon and Germenium

The gas usually filled in electric bulb is — Nitrogen

Heavy water is — Deuterium oxide

The gases used in different types of welding would include — Oxygen & acetylene

Potassium nitrate is used in — Glass

In which type of rocks are metals like Gold and Copper mostly found ? Old igneous

The purest form of iron is — Wrought iron

Which is basis of the modern periodic table ? Atomic number

Brass is an alloy of —

Zinc and Copper

The element required for Solar energy conversion —Silicon

Monazite is an ore of — Thorium

The presence of which salt in water causes corrosion in steam boilers ? Magnesium Chloride

Water is a good solvent of ionic salts because — It has a high dipole moment

The average salinity of sea water is —

3.5%

Diamond is harder than graphite because of — Difference of crystaline structures

A super conductor is characterised by — Zero permeability

An element that does not occur in nature but can be produced artificially is — Plutonium

Cotton fibers are made of — cellulose

Nuclear fission is caused by the impact of — Neutron

Long distance photography is facilitated by — Infra Red rays

In an atomic explosion enormous energy is released which is due to the — Conversion of mass into energy

Radioactive disintegration of Uranium ultimately results in formation of — Lead

Atom bomb is made on the basis of — Nuclear fission

Which of the following is used as a moderator in nuclear reactor ? Graphite

Isotopes are separated by — Distillation

Who suggested that the most of the mass of atom is located in nucleus ? Rutherfor An atom of an element with mass number 23 and atomic number 11 will have —

11 protons, 12 neutrons and 11 electrons

The location and energy of an electron in an atom can be specified by — Quantum numbers

The recent atomic weight scale is based on —

6C12

The neutral atom's two isotopes differ in the number of —

Neutrons

Optical fibres are mainly used in — Communication

The first synthetic fibre made by man was — Nylon

Rayon is chemically — Cellulose

In vulcanization, natural rubber is heated with — Sulphur

Which is/ are the important raw materials in cement industry ? Limestone & Clay

Which of the following is the petroleum wax ? Paraffin wax

Which of the following fibres is generally preferred for making gauze and lint ? Rayon

Rubber is coagulated from latex by adding — Acetic acid

Which roofs provide better protection against fire ? Asbestos sheet

The material used for bleaching paper pulp is — Sodium Hypochlorite

Soap is a mixture of sodium or potassium salts of— Monocarboxylic acid

1. The major ingredient of leather is — Collagen

2. Glass is made from the mixture of — Sand and silicates
3. Epoxy resins is used as — Adhesives
4. Polythene is industrially prepared by the polymerization of — Ethylene

5. A mixture of water and alcohol can be separated by — Distillation
6. A substance which changes readily into vapour without heating is called —

Volatile
7. In which following processes light energy is converted into chemical energy ?
Photosynthesis
8. Cooking oil can be converted into vegetables ghee by the process of — Hydrogenation
9. Photosynthesis is — An endothermic process
10. Which of the following substances exhibit the property of sublimation ?
Camphor

11. Combustion is the process in which — Heat and Light is produced
12. The chemical used as a fixer in photography is —

Sodium thiosulphate
13. A mixture of iron filings and sand can be separated by — Magnetic Separation
14. In which of the following process, Vanadium Pentoxide is used as a catalyst ?
Contact process
15. The rate of chemical reaction does not depend on — Pressure
16. Which of the following metals can displace hydrogen from dilute acids ?
Zinc

17. Reaction of alcohol, with carboxylic acid is known as — Esterification

18. Saponification involves the hydrolysis of fats and oils by — Caustic acid

19. Which of the following gases is obtained by the reaction of water with Calcium Carbide ? Methane
20. The gas liberated during the reaction of copper with dilute nitric acid is — NO

21. Which of following substances undergoes chemical change on heating ? Lead Nitrate

22. Water is neither acidic nor alkaline because —

it can dissociate into equal number of hydrogen ions

23. PVC is obtained by the polymerisation of — Vinyl Chloride
24. Which of the following metals can displace zinc from a solution of zinc sulphate ? Magnetism

25. Water gas is prepared by passing — Steam over white hot coke

1. Which of the following metals react with nitrogen to form nitride ? Magnesium
2. One micron is equal to —
1/1000th of mm

3. Hydrometer is an instrument —
For measuring the specific gravity of liquids
4. Which thermometer is used to indicate the lowest temperature ? Alcohol thermometer

5. A chronometer measures — Time

6. One fathom is equal to — 6 feet

7. What is the unit for measuring the pitch or frequency of sound ? Decible

8. The fastest acting enzyme in the biological kingdom is —
carbonic anhydrase

9. German biochemist, Emil Fischer —
compared the fit between enzyme substrate to lock and key

10. Enzymes generally have —
different pH but same temperature optima
11. Coenzyme is —
often a vitamin

13. Enzymes are absent in —
viruses

14. The enzymes sucrase acts on —
sucrose only

15. Vitamins are —
organic substances that cannot be generally synthesized by animals

16. Richest source of vitamin B1 (thiamine) is —

whole bread meal

17. One of these vitamins is called erythrocyte maturation factor — B12

22. Sterility in some animals is caused due to deficiency of —
vitamin E

23. At the boiling temperature an enzyme becomes —

denatured

24. Starch hydrolysing enzyme is —
amylase

25. The enzyme used for the formation of RNA on DNA is — RNA polymerase

1. The term ‘enzyme’ was coined by — Kunhe

2. Which set of conditions represents easiest way to liquify gas ? Low temperature, high pressure

3. Artificial rain is caused by spraying small pellets of which of the following over clouds ? NaOH

4. Galvanisation is deposition of — Zinc of iron

5. Equal volumes of different gases at any definite temperature and pressure have —
equal no. of molecules

6. Milk is an example of —
emulsion

7. Which of the following modes of expressing concentration is independent of temperature —Molality

8. If temperature is kept constant during the reaction the process is called —

Isothermal

9. Cholera is caused by —
vibrio cholerae

10. Why do colloidal substance do not deposited below ? Specific gravity is less

11. Lightening cause rainfall because — It activate H_2O molecule

12. Nitrification means —

Convert the atmospheric nitrogen to effective nitrogen compound.

13. Cell membrane is —
semipermeable
14. Cholesterol is one kind of — Saturated fatty acid
15. Ethyl-alcohol is mixed completely with water. How ethyl alcohol is separated from the mixture ?

partial-distillation

16. White vitriol is — $ZnSO_4, 7H_2O$
17. C.T. Scanning uses —
Ultrasound waves
18. Chemically 'speropolenin' is a / an —
co-polymer of carotinoid and fatty acid
19. A mixture of salt and sand can be separated by — Dry distillation

20. Saponification involves the hydrolysis of fats and oils by —
washing soda
21. Photo-synthesis is a/ an —
a neutral process

22. Photoelectric effect was discovered by — Einstein

1. The penetrating power is maximum in —
a-rays

3. An atom bomb is based on the principle of — Chain reaction in the form of fission
4. A plant cell differs from an animal cell in the absence of —
centrioles

5. A Vitamin, the absence of which leads to sterility in both males and females is — Vitamin E or tocopherol
6. Anaemia is caused in man due to the deficiency of —
folic acid

7. Antibiotics are drugs used for the cure of — Bacterial diseases
8. Blood does not coagulate inside the body due to the presence of —
heparin
9. Blood pressure is dependent on —
systolic force cardiac output peripheral resistance
10. Which of the following substances undergoes chemical change on heating ?
Lead nitrate
11. Vulcanisation is a —
Process of hardening of rubber by heating it with sulphur.

12. Water gas is prepared by passing —
steam over white-hot coke

13. Which of the following gases is obtained by the reaction of water with calcium carbide — Acetylene

14. Cooking oil can be converted into vegetable ghee by the process of —

hydrogenation

15. The contact process is involved in the manufacture of — Sulphuric acid
16. Polythene is industrially prepared by the polymerisation of —

ethylene

17. Combustion is a process by which —

heat and light both are produced
18. PVC is obtained by the polymerisation of —
vinyl chloride

19. The process by which an organic compound breaks down into simpler compounds on heating to high temperature is known as —
Pyrolysis

20. The hydrogenation of the vegetables oils takes place in the presence of finely divided —nickel

21. In which of the following processes light energy is converted into chemical energy ? Photosynthesis
22. Rusting of iron involves —
oxidation
23. LPG contains —
Butane and Propane
24. The hormone which stimulates milk production in mammal is known as —
prolactin

25. Antidiuretic hormone (ADH) —
causes the muscular walls of the arterioles to contract that simulates the reabsorption of water from the kidney tubules.