Solution: 41

(a) Diffusion.

(b) The smell of food being cooked reaches the other room by the diffusion of gases released into the air during the cooking of food.

Solution: 42

(a) Diffusion in gases shows that their particles move very quickly in all directions and the rate of diffusion of a gas depends on its density. Light gases diffuse faster than heavy gases.

(b) Gases like carbon dioxide and oxygen present in the atmosphere diffuse into water (of ponds, lakes etc) and dissolves in it.

Solution: 43

The smell of hot sizzling food reaches us quickly as compared to cold food because the rate of diffusion of hot gases (released by hot sizzling food) into air is faster than that of cold gases released by cold food.

Solution: 44

The smell of food being cooked reaches us even from a considerable distance is because of the process of diffusion.

Solution: 45

The smell of perfume spreads due to the diffusion of perfume vapours into the air.

Solution: 46

The spreading of blue colour of copper sulphate into water, on its own, is due to the diffusion of copper sulphate particles into water.

Solution: 47

The force of attraction between the particles of honey is much more than the force of attraction between the particles of water.

Solution: 48

(a) Air is used to inflate tyres because when we blow air into a tyre the air particles push the tyre walls from inside and exerts pressure on them.

(b) Steel is used to make railway lines because steel is a rigid object having a definite shape and definite volume.

Solution: 49

Diffusion occurs more quickly in gases than in a liquid because the particles in gases move very quickly in all directions whereas the particles in liquids move slowly as compared to the gas particles.

Lakhmir Singh Chemistry Class 9 Solution:s Page No: 20

Solution: 50

(a) The spreading out and mixing of a substance due to the motion of its particles is called diffusion. For example: Smell of food being cooked in the kitchen reaches us even from a considerable distance.

(b) Gases diffuse very fast because the particles in gases move very quickly in all directions.

(c) Carbon dioxide and Oxygen gas dissolve in water by diffusion. This process is important as these gases are essential for the survival of aquatic plants and animals. The aquatic plants use the dissolved carbon dioxide for preparing food by photosynthesis and aquatic animals use the dissolved oxygen in water for breathing.

Solution: 51

(b) (i) Wood is a rigid object which has a tendency to maintain its shape when subjected to outside force.

(ii) It has a definite shape and definite volume.
Solution: 52
(a) Because of high energy and negligible forces of attraction, the particles of a gas move with high speed in all directions. Thus, the pressure exerted by a gas is due to the constant collisions of the fast moving gas particles against the walls of the container.
(b) The particles of a gas have high kinetic energy and negligible forces of attraction amongst them. Due to this, the particles of a gas are constantly moving with high speeds in all the directions and the gas completely fills the vessel in which it is kept.
(c) Gases can be compressed easily because its particles are far apart and there are large spaces between them (which can be reduced by compression).
Solution: 53
(a) Anything which occupies space and has mass is called matter.
Examples: Air, water, sugar, iron.
(b) The characteristics of matter are:
(i) The particles of matter are very, very small.
(ii) The particles of matter have spaces between them.
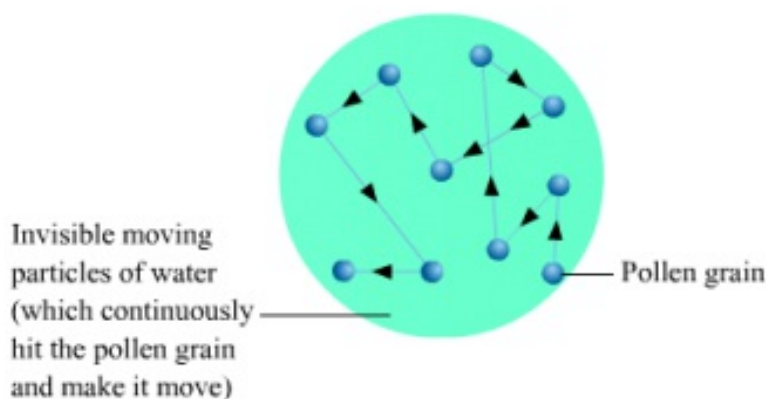(iii) The particles of matter are constantly moving.
(iv) The particles of matter attract each other.
Solution: 54
(a) The zig-zag movement of small particles suspended in a liquid (or gas) is called Brownian motion. Brownian motion increases on increasing the temperature.
Lakhmir SIngh Class 9 Chemistry Image 54
(b) These dust particles move in a haphazard way because they are constantly hit by the fast moving particles of air.

Invisible moving particles of water (which continuously hit the pollen grain and make it move) — Pollen grain

********** END *********