

INTEGRATED SCIENCE 2

1 (i)

- Bony fish
- Tilapia

(ii)

I – mouth

II – gill cover / operculum

IV – scales

V – lateral line

(iii)

- Fresh water
- river
- lake
- fish pond
- lagoon
- brackish water

(iv)

III – used for

- swimming
- movement
- pitching

IV – used for wide vision / seeing

b (i) Soil Profile

(ii) I – Top soil / humus

II – Sub-soil

III – weathered rock / material

IV – parent rock / unweathered rock / bedrock / rock layer

(iii) (α) I / top soil

(β) I / top soil

(γ) II – Sub-soil

III – weathered rock / material

IV – parent rock / unweathered rock / bedrock / rock layer

(iv)

- ♣ leaching
- ♣ erosion

c. (i)

I – cell

II – key / switch

IV – resistor

V – rheostat / variable resistor / resistance box

(ii) (α) I – chemical energy to electrical energy

(β) IV – electrical energy to heat energy

(iii) State the S.I. units of the quantity measured by each of the parts labelled

(α) III – ampere / amperes / A

(β) V – volt / volts / V

(iv) ♣ It is used to regulate current

♣ It is used to control current

♣ It is used to vary current

d. (i)(α) Hydrochloric acid – It turns blue litmus paper to red

(β) Sodium hydroxide – It turns red litmus paper to blue

(ii) Neutralization reaction

(iii) Salt solution OR Sodium chloride solution

(iv) There would be no change in the colours of the red and blue litmus papers

OR

There would be no effect on both the red and blue litmus papers

OR

Red litmus paper remains red, and blue litmus paper remains blue

(v) Pour the solution into a suitable container and evaporate / allow to dry / heat the solution dryness

2. (a) (i) ♣ A charged atom

♣ A charged group of bonded atoms

♣ An atom that has lost or gained electron(s)

♣ A group of bonded atoms that has lost or gained electron(s)

(ii)

♣ Distillation

♣ Boiling

♣ Adding washing soda / sodium carbonate (Na_2CO_3)

♣ Deionization

♣ Using ion exchange resin

(b) (i)

PEST	PARASITE
Any organism that causes damage to crops or animals	A living organism that lives on the surface or inside the body of another living organism/host and gets its food from it and thereby causes harm to the host

(ii)(α) pest

♣ rats,

♣ bats

♣ houseflies,

- ♣ cockroaches,
- ♣ mice,
- ♣ fleas,
- ♣ etc

(β)

- ♣ worms (tapeworm, hookworm, fluke, roundworm etc),
- ♣ arthropods /insects (tick, louse, flea, etc),
- ♣ protozoa (plasmodium, etc)
- ♣ etc

(c) (i) Work is done when a force moves a body through a given distance in the direction of the force.

OR
Work is the product of force and the distance moved in the direction of the force.

OR
Work = $f \times d$,

where f = force; and d = distance moved in the direction of the force.

(ii)

Work done = force \times distance
= 10×5.2
= 52 joules or 52 J

(d) ♣ hypertension

- ♣ hypotension
- ♣ haemorrhoids (piles)
- ♣ arteriosclerosis
- ♣ etc

3. (a) (i)

A condition that occurs when a person is not obtaining enough food nutrients

OR
A condition that results from eating a diet in which nutrients are either not enough / are too much such that the diet causes health problems

OR
A lack of proper nutrition caused by not eating enough of the right food

OR
A condition which occurs when there is a deficiency of certain vital nutrients in a person's diet

OR
A condition caused by lack of a balanced diet and therefore lacking essential food nutrients.

(ii) (α) scurvy

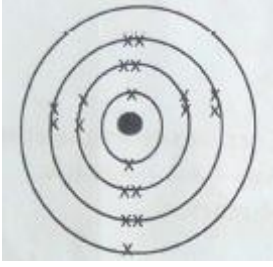
- ♣ bleeding gums
- ♣ weakness
- ♣ bruising
- ♣ fatigue
- ♣ rashes

(β) rickets

- ♣ bow legs
- ♣ poor bone formation

- ♣ delayed growth
- ♣ pain in the spine

(b)



(c) (i)

It is the energy possessed by a body due to its relative position

OR

The energy a body possesses as a result of its position relative to others

(ii)

Kinetic energy = $\frac{1}{2} mv^2$, where m = mass of body; and v = velocity

$$= \frac{1}{2} \times 10 \times 2^2$$

$$= \frac{1}{2} \times 10 \times 2 \times 2$$

$$= 20 \text{ joules or } 20 \text{ J}$$

(d)

(i) macro nutrients;

- ♣ Nitrogen / N
- ♣ Phosphorus / P
- ♣ Potassium / K
- ♣ Calcium / Ca
- ♣ Magnesium / Mg
- ♣ Sodium / Na

(ii) micro nutrients.

- ♣ Copper / Cu
- ♣ Zinc / Zn
- ♣ Molybdenum / Mo
- ♣ Iron / Fe
- ♣ Boron / B
- ♣ Cobalt / Co

4. (a) (i) Hazard is a danger / risk that could result in physical harm to people or damage to property

OR

A source of potential damage / harm / adverse health effect on something or someone

(ii) ♣ wearing protective clothing / boots / goggles

♣ routine maintenance of equipment

♣ closing all taps before leaving the laboratory

♣ switching off all electrical points

♣ mounting hazard signs of dos and don'ts in the laboratory / working area

– etc

(b)

Osmosis

Movement of water molecules only

Requires a semi-permeable membrane

Moves from a dilute solution to concentrated solution

Occurs in liquids only

Diffusion

Movement of any particle / chemical substance

Does not require a semi-permeable membrane

Moves from a concentrated region to a less concentrated region

Occurs in both liquids and gases / fluids

(c) (i)

It is the atmospheric conditions at a place over a short period of time

OR

It is the day to day conditions / changes of the atmosphere / environment

OR

It is the state of the atmosphere / environment describing the day to day temperature, humidity, cloud cover , atmospheric pressure, wind or precipitation activity.

(ii)

Weather	Season
Changes daily / in a few hours	Lasts for about 3 or 4 months
Caused by atmospheric conditions	Caused by the revolution of the earth
Relatively short termed	Relatively long termed
Covers relatively smaller areas	Covers relatively larger area
Does not influence plants or animal habitat	Influences plant or animal habitat
Not influenced by distance from the sun	Influenced by distance from sun
Measurable	Not measurable

(d) (i)

A soil that has sufficient/adequate plant nutrients to support healthy plant growth

OR

A soil that has all major nutrients for plant nutrition and others to support plant growth

OR

A soil that is able to provide all essential plant nutrients in available forms for the healthy growth of plants

(ii)

- ♣ Removal of top soil by erosion
- ♣ Removal of nutrients by crops / depletion / nutrient mining
- ♣ Sand winning / physical degradation of soil / poor soil structure / water logging / compaction, etc
- ♣ Decreased soil bioactivity
- ♣ Soil acidification / salinization / alkalization
- ♣ leaching
- ♣ overcropping
- ♣ overgrazing
- ♣ erosion

- ♣ excessive burning / bush burning / wildfires /
- ♣ Indiscriminate use of agrochemicals / soil pollution
- ♣ inefficient soil management practices
- ♣ etc

5. (a) (i) It is a region / area around a magnet within which the magnetic force can be felt
OR

It is an area around a moving electric charge within which the force of magnetism acts

(ii) ♣ Induction

- ♣ Stroking
- ♣ The use of electricity
- ♣ Hammering / hitting

(b)

When a girl under the age of 20 years conceives / takes seed.

OR

When a female person below 20 years gets pregnant

(c)

(i) calcium chloride; – CaCl_2

(ii) copper (I) oxide; – Cu_2O

(iii) nitrogen (IV) oxide; – NO_2

(iv) ammonia – NH_3

(d) (i)

- ♣ texture
- ♣ structure
- ♣ temperature
- ♣ colour
- ♣ strength / consistence
- ♣ permeability
- ♣ water
- ♣ air
- ♣ porosity
- ♣ drainage
- ♣ capillarity
- ♣ organism

(ii)

♣ It is smooth /

♣ It is slippery / sticky when wet.

It is a region / area around a magnet within which the magnetic force can be felt

OR

It is an area around a moving electric charge within which the force of magnetism acts

6. (a) (i) They are quantities which are combination / multiples / ratios of base / fundamental quantities.

(ii)(α) area – m^2 / square metre

(β) volume. – m^3 / cubic metre

[Note: metre square or metre cube is wrong]

- (b) (i) ♣ sunlight
- ♣ chlorophyll
- ♣ carbon dioxide
- ♣ water

(ii)

Chlorophyll –

- ♣ Absorbs sunlight
- ♣ Traps light

Sunlight –

- ♣ Provides energy /
- ♣ Separates the hydrogen and oxygen atoms of water

Water –

- ♣ Raw material
- ♣ Combines with carbon dioxide to produce food
- ♣ Splits into oxygen, hydrogen ions and electrons to replace the host electrons

Carbon dioxide –

- ♣ Raw material
- ♣ Used in splitting water
- ♣ Reduced to sugar

(c)

(i) soft water;

- ♣ It is water that lathers easily / readily with soap
- ♣ It is water that does not contain Ca or Mg ions / salts
- ♣ It is water that contains negligible quantities of Ca^{2+} or Mg^{2+}

(ii) hard water.

- ♣ It is water that does not lather easily with soap
- ♣ It is water that contains Ca or Mg ions / salts
- ♣ It is water that contains Ca^{2+} or Mg^{2+}

(d)

- (i) some seeds are unable to withstand adverse weather conditions
- (ii) provides favorable growth conditions
- (iii) better protection / care for seedlings
- (iv) enables selection of healthy seedlings
- (v) some seeds need special treatment to enhance germination / better germination
- (vi) eliminates problems of unfavorable soil conditions
- (vii) easy control of weeds
- (viii) reduces field management cost
- (ix) improves crop growth uniformity
- (x) nursed seeds provide higher yield