

INTEGRATED SCIENCE 1

OBJECTIVE TEST

SOLUTIONS

1. A. canines
2. C. solar eclipse
3. D. sulphur
4. D. removal of soil nutrients by water
5. B. contains large vacuoles
6. D. volume
7. A. brittle
8. A. bunnies
9. D. manufacture their own food
10. C. nuclear energy
11. C. silicon
12. D. shifting farming
13. B. carbon dioxide and water
14. C. I, III and IV only
15. D. smoke
16. A. handpicking
17. A. cellophane
18. D. break the surface tension
19. C. filtration
20. B. culling
21. C. Dysentery and cholera
22. D. increases with depth
23. B. freezing
24. A. Beans
25. D. tick

- 26. D. Transistor
- 27. C. I, II and IV only
- 28. C. determine the types of crop to grow
- 29. D. decolourized
- 30. C. I and III only
- 31. D. water
- 32. A. Bacterium
- 33. B. III only
- 34. B. electric current
- 35. B. carbon
- 36. D. fertilizer application
- 37. C. trachea and alveoli
- 38. C. increase the flow of current in the supply chain
- 39. B. I and II only
- 40. C. planning function

INTEGRATED SCIENCE 2

ESSAY

SOLUTIONS

- 1. (a)
 - (i) Name of each stage
 - I. Egg
 - II. Larva
 - III. Pupa
 - IV. Adult / Imago
 - (ii) How stage **II** obtains oxygen

The larva comes to the surface of the water body to obtain oxygen from the air through a structure called the siphon.

(iii) Methods of controlling **each** of the stages labeled **III** and **IV**

Controlling stage III

- Adding oil to cover the water surface
- Introduction of fish into the water body
- Spraying the water body with pesticides
- Adding kerosene to cover the water surface

Controlling stage IV

- The use of lethal ovitraps
- The use of mosquito spray / insecticide
- The use of mosquito coil
- Clearing mosquito breeding grounds such as choked gutters, stagnant pools of water, etc

(b)

(i) Name of the part labeled

- I.** Beaker
- II.** Evaporating disc
- III.** Candle
- IV.** Inverted funnel
- V.** Tripod stand

(ii) Name the separation method represented by **each** diagram.

- A- Filtration
- B- Evaporation
- C- sublimation

(iii) The set-up used to obtain clear water from muddy water

Set up A

(iv) The set-up used to obtain salt from salt solution?

Set-up B

(c)

(i) Identification of the instruments labeled **I, II, III, IV** and **V**

- I.** Tape measure

- II.** stop clock
- III.** Thermometer
- IV.** Weighing scale/ Top pan balance
- V.** Measuring cylinder

(ii) State **one** use of **each** of the instruments labeled **I, II, III** and **IV**

- I.** to measure length of materials
- II.** to measure time
- III.** to measure temperature
- IV.** to measure the mass of materials
- V.** to measure the volumes of liquid substances

(iii) Read and record the volume of the liquid in the instrument labeled **V**

Volume of liquid = 160 cm³

(d)

(i) Name **each** of the parts labeled **I, II, III** and **IV**

- I.** - Gullet
- II.** - Gizzard
- III.** - Liver
- IV.** - Crop

(ii) State **one** function **each** of the parts labeled **II** and **IV**

- I.** - used to grind food
- II.** - used to store food temporarily

(iii) Name **two** farm animals that possess this type of digestive system.

Turkey, fowl, duck, ostrich, geese, guinea fowl.

(iv) Mention **two** diseases which affect this class of farm animals.

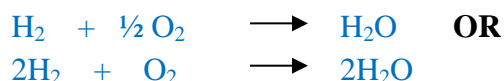
Coccidiosis, fowl typhoid, fowl pox, newcastle disease, pneumonia.

PART II
[60 marks]

2. (a) (i) Name the **two** elements that combine to form water.

Hydrogen and oxygen

- (ii) Write a balanced chemical equation to show how the water is formed from the named elements



- (b) State **two** ways of maintaining a balance in an ecosystem.

- Stopping indiscriminate felling of trees
- By enforcing environmental protection laws; United Nation resolutions on release of poisonous gases should be adhered to.
- Activities of mining industries should be strictly monitored.
- Poaching of animals for their parts should be stopped

- (c) (i) What is a *fertile soil*?

Soil that has the ability to supply the required nutrients needed for plant growth

- (ii) State **two** factors that cause loss of soil fertility.

- Soil erosion,
- leaching,
- excessive irrigation,
- over cropping,
- surface compacting.

- (d) Classify the following items as *magnetic* or *non-magnetic* substance: wood, steel blade, rubber and glass jar.

<i>Magnetic substance</i>	-	steel blade
<i>Non-magnetic substance</i>	-	wood, rubber and glass jar.

3. (a) (i) What is *germination of seed*?

The process by which a viable seed grows/develops into a seedling.

(ii) State **two** conditions necessary for the germination of seed.

- Presence of air
- Presence of water
- Viable seed
- Optimum temperature

(b) State **four** methods used in identifying farm animals

Tagging, tattooing, branding, tonging, ear notching

(c) Explain why it is easier to cut a piece of yam with a sharp knife than with a blunt knife

The cutting edge of a sharp knife has very small surface area so requires smaller force to yield the pressure needed to cut the yam - making cutting easy, but the cutting edge of a blunt knife has a relatively larger surface area so it needs a larger force to yield the pressure needed to cut the yam.

(d) State **three** differences between a *metal* and a *non-metal*.

Metals	Non-metals
Have high melting point	Have low melting point
Are lustrous	Are not lustrous
Are malleable	Are not malleable
Have high density	Have low density
Are ductile	Are brittle
Are good conductors of heat and electric current	Are poor conductors of heat and electric current

4. (a) (i) What is *debeaking*?

The process by which about half the beak of a bird is removed

or

The process of removing the upper part of the beak of a bird

(ii) Give **two** reasons why debeaking in poultry birds is important.

- To prevent wasting of food
- To prevent egg eating
- To prevent vent pecking
- To prevent injuring other birds

(b) (i) A steel needle carefully placed on the surface of water floats. What type of force made the steel needle to float?

Surface tension

(ii) Name **three** substances that could be added to the water to make the steel needle to sink.

Oil, detergent, grease, kerosene, soap

(c) (i) Explain why gold is preferred to iron in the making of jewellery.

It does not react with substances like water and oxygen.

It does not rust

It is very malleable

(ii) State **one** way of preventing rusting.

- Applying oil to the surface of the metal
- Galvanizing the metal
- Keeping the metal inside a desiccator
- Alloying the metal

(d) (i) State **two** elements of climate

Temperature,
rainfall,
relative humidity,
light intensity,
wind speed,
wind direction,
atmospheric pressure

(ii) Name the equipment used to measure **each** of the elements stated in (i) above.

ELEMENT

EQUIPMENT

Temperature

Thermometer

rainfall,

rain gauge

relative humidity,

hygrometer

light intensity,

photometer

wind speed,

wind vane

wind direction,

anemometer

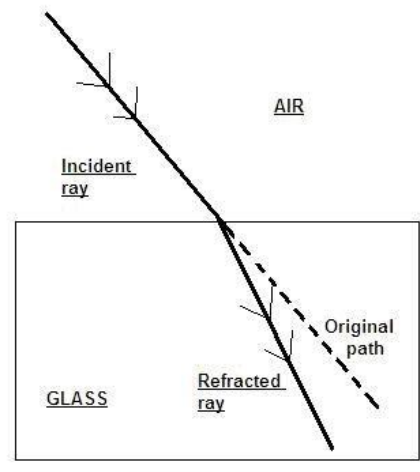
atmospheric pressure

barometer

5. (a) (i) What is *refraction of light*?

The bending of light rays as it travels from an optically less dense medium to an optically more dense medium

(ii) Sketch a diagram to show the path of a light ray when it travels from air to glass.



(b) Explain why it is difficult to separate iron and sulphur mixture after strong heating.

This is because after strong heating, the iron and sulphur react to form iron (II) sulphide which cannot be separated by physical means

(c) (i) Give **two** example of digestive enzymes produced in humans.

Salivary amylase,
pepsin,
renin,
lipase,
trypsin,
pancreatic amylase,
maltase

(ii) For **each** of the enzymes given in (i), name the part of the human body where the enzyme is produced.

ENZYME

Salivary amylase

pepsin,

rennin

lipase

trypsin

pancreatic amylase

PART WHERE ENZYME IS PRODUCED

Mouth

stomach

stomach

pancreas

pancreas

pancreas

maltase

small intestine

- (d) List **four** methods of applying fertilizers to crops.
Drilling, broadcasting, side dressing , top dressing, ringing,

6. (a) Consider the substance listed below:
carbon dioxide, gold, bronze, iron, oxygen and ink

From the list, select the substance that:

- (i) supports burning - oxygen
(ii) is used as jewellery; - gold
(iii) is used for making statues - bronze

- (b) (i) Name **two** diseases associated with the circulatory system of humans.
Arteriosclerosis, coronary thrombosis, heart cancer, leukimea, high blood pressure, piles, varicose vein

- (ii) State **one** way of preventing **each** of the diseases named in (i)

Arteriosclerosis-

- regular exercising of the body
- avoid smoking
- low fat intake

Piles-

- intake a lot of water
- eat a lot of vegetables and fruits

High blood pressure-

- regular exercising of the body
- low salt intake
- low fat intake

Varicose vein- surgical removal of vein

- (c) Give two examples of **each** of:

- (i) **major** plant nutrients;
Nitrogen, phosphorus, sulphur, potassium, calcium, magnesium.

- (ii) **minor** plant nutrients.
Chlorine, iron, fluoride, manganese, molybdenum

- (d) (i) State **two** properties of a good thermometric liquid.
- Remains a liquid within a wide temperature range
 - It must not wet glass
 - Expands uniformly with a rise in temperature
 - It must not vaporize easily
- (ii) Give **two** examples of a good thermometric liquid.
Mercury and alcohol

END OF ESSAY TEST

