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INTEGRATED SCIENCE MARKING SCHEME

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INTEGRATED SCIENCE MARKING SCHEME

PAPER 2

TEST OF PRACTICALS 40MARKS

QUESTION 1a

i. Female reproductive system. This system consists of various organs such as the vagina, uterus, fallopian tube, ovary, etc which makes it possible for females to reproduce/procreate.

Naming -----1mark, explanation 2marks-----3marks

ii. I – Fallopian tube

II – Ovary

III – Uterus

IV – Cervix

V – Vagina----- ½ mark each, 2 ½ marks, correct spelling to score

iii. I – It is the place where fertilization takes place/ it carries matured eggs from the ovary to the uterus.

II – It produces female gamete (sex cells) also called eggs/ova.

III – It is the place where implantation and development of embryo takes place.

IV – It serves as a link between the womb and the vagina.

V – It receives sperms during sexual intercourse/ it is the organ through a baby is born.

½ marks each, 2 ½ mark -----correct to score

iv. Part I fallopian tube -----1 mark, correct spellings to score

v. Part III uterus (womb) -----1 marks, correct spelling to score

QUESTION 1(b)

(i) I – Tape measure

II – Stop watch

III - Thermometer

IV – Top pan balance/balance

V – Measuring cylinder-----**2 ½ marks, ½ mark each correct spellings to score**

ii. I – For measuring the length of objects

II – For measuring of time

III – For checking the temperature of substances/bodies

IV – For checking masses of substances

V – For measuring volume of liquids-----**5marks 1 mark each, correct to score**

iii. Volume of liquid = 160cm^3 -----2 ½ marks

QUESTION 1(c)

(i) P1 =1, P2= 5.4, P3 =7, P4 =12.6 -----**2marks, ½ marks each, correct to score**

(ii) pH ; P1 and P2 are acids. Acids have pH less than 7. Hydrochloric acid, sulphuric acid, etc
2marks, 1 mark for indications and 1 mark for example

(iii) Ph; P3 and P4 indicate bases. A base has ph greater 7. Sodium hydroxide, ammonia,etc
2marks, 1 mark for indications and 1 mark for example

(iv) The liquid in (i) will make red litmus paper remain the same and make blue litmus paper red.
The liquid in (iii) will turn red litmus paper blue and make blue litmus paper remain the same.-----**4marks, 2marks each**

QUESTION 1d

(i) A-----Knack sack sprayer
B-----Watering Can-----2marks, 1mark each

ii. N – tank

P – hose

Q – trigger /regulator

R – spray gun

S – nozzles

T – rose

U – tank -----3 ½ marks, ½ mark each

iii. A---for applying chemicals like fertilizers, pesticides to crops

B---for irrigation and watering nursery beds-----2marks, 1mark each

iv. Q ---the trigger or regulator starts and stops the spraying processes-----1 ½ marks

v. Both of the devices can be used for spraying chemicals to crops as well as watering crops-----
2marks

Both of the devices have tank to hold water

PART 2 [60 MARKS]

2. (a) i. Respiration is the process whereby organism obtained energy from food with or without oxygen.-----1mark

ii. -----2marks, 1 mark each

<i>Anaerobic respiration</i>	<i>Aerobic respiration</i>
No oxygen is required	Oxygen is required
Less energy is produced	A lot of energy is produced
Alcohol, carbon dioxide or lactic acid are produced as by products	Carbon dioxide and water are produced as by products
Occurs in cytoplasm	Occurs in mitochondrion

(b)(i). Potential energy is possessed by stationary object whiles kinetic energy is possessed by a moving object.-----2marks, no contrast award zero

(ii) Mass of body = 100kg Velocity = $8ms^{-1}$

$$\text{Kinetic energy} = \frac{1}{2}mv^2$$

$$= \frac{1}{2} \times 100 \times 8$$

$$= 400 \text{ J} \text{-----2marks, without calculations award zero}$$

(c) (i) Electronic configuration is the arrangement of electrons around the shells of an atom.-----2marks

(ii) -----2mark, mark each

<i>Protons</i>	<i>Electrons</i>
Positively charged	Negatively charged
Located in the nucleus	Located outside the nucleus in shells
It is fixed and stationary	It is not fixed and it is mobile
Its mass is not negligible	It has a negligible mass

(d) 1. It is absorbed by plants for photosynthesis.

2. It dissolves mineral salts, which are used by plants for growth.

3. It cools plants through the process of transpiration.

4. It is used by plants to transport food substances.

5. Absorbed soil water maintains the turgidity of plants.-----any 4, 4 marks 1mark each

3. a (i)

α) Ecosystem consists of different living things and their natural dwelling places/ It is a combination of a community and its environment.-----1mark

β) Adaptation refers to the ability of living organisms to successfully live in its habitat or environment due to the development of special body features. -----1mark

μ) Habitat is a place where an organism lives successfully.-----1mark

(ii) 1. It possesses a streamlined body to enhance its movement in water

2. It has gills for exchange of gases (respiration)

3. It has eyes for viewing object

4. It possesses scales which protect its body from mechanical injury

5. It has gill cover which protect its gills

6. etc-----3marks, 1 mark each

b. 1. Periscope is used to look for objects behind obstacles

2. Submarines use periscope to search for oncoming warship

3. Drivers of double-decker buses also use periscope to view the upper deck.

4. They are used to observe from armoured tanks, objects that are above the armoured plate.

5. Short spectators at a football match use periscope to view the match over the heads of the tall spectators.-----any 4, 2marks ½ mark each

c. (i) Hard water does not lather easily with soap but soft water lathers easily with soap.-----2 marks

(ii) 1. Hard water has a pleasant taste

2. it prevents heart disease

3. it is good for the formation of strong bones and teeth

4. It does not cause lead poisoning -----any 2, 2marks

d. (i) Fertilizer application is the practice of supplying nutrient to crops for their continues growth as the soil losses nutrients.-----1mark

(ii) 1. Ring method

2. Broadcast method

3. Drilling method

4. Spraying

5. side dressing etc. -----any 4 for 2marks, ½ mark each

4. a.1. it provides carbon dioxide to plants for photosynthesis

2. It helps animals to get food
3. It helps in energy balance
4. It reduces sun's energy on earth
5. It helps in decay of organic matter-----any 4 for 4 marks

b. (i) Soil structure refers to the way soil binds or clumps together. It is the arrangement of individual particles into aggregate creating pore spaces of different sizes.----1mark

(ii) Soil texture refers to the relative proportion of sand, silt and clay in a given soil.-----1mark

(iii) Soil porosity refers to the size, number and arrangement of pores in the soil.-----1mark

(iv) Soil capillarity refers to the height to which water rises in a soil.-----1mark

c. (i) A compound is a substance formed from the chemical combination of two or more elements-1mark

(ii) -----3marks

Mixtures	Compounds
No new substance is formed	A new substance is formed
The constituent can be separated by physical means	Constituent can only be separated by chemical means
The proportions of constituents can vary	The proportions of constituents is fixed
No energy is gained or lost	Energy is usually gained or lost
Their formation is not followed by heat changes	Their formation is followed by heat changes
Has similar properties to those of the constituent substances	Has different properties from those of the constituent substances

d. (i) Frictional force is defined as the force which opposes the relative or sliding motion between two surfaces in contact.-----1mark

(ii) 1. Sharpening of tools such as cutlasses, knives and axes.

2. Nail and wood are held together by friction.

3. Friction between lorry tyres and a road allows vehicles to stop moving when brakes are applied.

4. Friction is applied when walking.

5. With friction, machine parts are able to move against each other when the machine is in operation. -----any 3 points 3 marks 1 mark each

5. a. (i) Transpiration is the by process which plants loose water during dry seasons whiles photosynthesis is a process which involves plants producing their own food with the help of sunlight, water and carbon dioxide.-----2marks

(ii) 1. Help plants to manufacture their own food.

2. It helps to reduce the amount of carbon dioxide in the atmosphere.
3. Oxygen is given off as a by-product which animals breathe in for cellular respiration
4. Photosynthesis makes it possible for herbivores to live by feeding on green plants.-----

3marks

b. (i) A force is defined as that which tends to change a body's state of rest or state of uniform motion in a straight line/ pull or push

(ii) 1. It can cause a body to move from rest.

2. It can bring a body to rest.
3. It can change the direction of a moving body or a body at rest.
4. It can change the speed of a moving body.
5. It can change the shape of a body.-----any 3 points, 1 ½ marks, ½ mark each

c. (i) The following ions dissolve in water to make it a hard water;

- a. Magnesium ion (Mg^{2+})
- b. Calcium ion (Ca^{2+})
- c. iron ion (Fe^{2+})-----any 2 for 1 mark

(ii) 1. By boiling

3. Addition of washing soda

2. By distilling

4. Deionization or ion-exchange method-----any 3, 1 ½ marks

d. (i) Cultural practice is any activity that is carried out after planting or sowing crops on the field up to the time of harvesting.-----1mark

(ii) 1. Weeding

5. fertilizer application

2. mulching

6. pests control-----any 4 points, 2 marks

3. watering

4. Shading

6. a (i)

a) Biennial crops are crop plants, which complete their life cycle in two seasons. Examples are carrot, cabbage and beetroot.-----1 mark

b) Perennial crops are crop plants which continue to grow from season to season or year after year. Examples are oil palm, cocoa, coffee and cashew.-----1mark

(ii) any two each ½ mark each, 2 marks

Biennial crops	Perennial crops
Carrot	Oil palm

Cabbage	Cocoa
Beetroot	Coffee
	cashew
	Coconut

b. (i) Roughage is indigestible fibrous material. One example is cellulose.-----2marks

(ii) 1. Helps in the movement of food through the gut.

2. Prevents constipation

3. Reduces the risk involved in bowel cancer.-----any 2 points, 3marks

c. (i) Pure science is the study of nature through enquire and experimentations whiles applied science is the study and application of two or more pure sciences.-----2marks

(ii)

1. Problem identification

2. Making hypothesis

3. Analyzing results

4. Making conclusions -----any 3, ½ mark, 1 ½ marks

d. (i) 1. atoms

2. molecules

3. ions-----3 points ½ mark , 1 ½ marks

(ii). Every atom contains sub atomic particles which are the protons, neutrons and electrons. Protons are positively charged, neutrons are neutral and electrons are negatively charged but the number of protons are always equal to the number of electrons. This makes their charges to balance each other which make every atom electrically neutral.-----2mark

PAPER 1

1. B

2. A

3. C

4. B

5. D

6. B

7. A

8. B

9. B

10. D

11. D

12. C

13. C

14. C

15. C

16. C

17. B

18. C

19. B

20. B

21. B

22. D

23. B

24. B

25. A

26. C

27. A

28. B

29. D

30. A

31. C

32. C

33. C

34. B

35. A

36. C

37. D

38. B

39. A

40. D