GB ASSESSMENT TEST

VIRTUAL MOCK EXAMINATION (5)

INTERGRATED SCIENCE, MAY, 2020.

FINAL MARKING SCHEME

OBJECTIVE TEST

1. A	6.C	11.B	16.C	21.D	26.C	31. B	36.A
2. A	7.C	12.B	17.C	22.B	27.B	32. C	37.A
3. C	8.A	13.D	18.B	23.C	28.D	33. A	38.D
4. B	9.B	14.D	19.C	24.D	29.C	34.B	39.A
5. C	10.B	15.C	20.A	25.B	30.C	35.A	40.D

NB: The theory section (part 1 and 11) is 100 marks; please convert to 60 marks before adding the 40 marks from section A (objective test).

PRACTICAL QUESTIONS [40 MARKS]

1. (a) i. P1= 1. P2=5.4. P3=7. P4=12.6 **[2 marks]**

ii. P1= tetraoxosulphate (VI) acid
P2=Vinegar
P3=Distilled water
P4=Sodium hydroxide **[4 marks]**

iii.

	Red litmus	Blue litmus
P1	Red or no colour change.	Red
P2	Red or no colour change	Red
P3	Red or no colour change	Blue or no colour change
P4	Blue	Blue or no colour change

[4 marks]

(b) i. X- effort
Y- pivot
Z- load [**3 Marks]**

ii. First class lever [**2 Marks]**

iii. – pulley: to lift flag poles and other objects
- Wheel and axle: used for moving heavy loads
-wedge: used to split wood
-screw: used to join things together
- Inclined plane: used to lift heavy objects [**2 Marks]**

iv. A fixed pulley consists of a wheel fixed to a shaft and is used in conjunction with a belt to transfer energy to another fixed pulley. A movable pulley consists of a shell, a movable wheel and a rope. Movable pulleys are also known as block and tackle. [**3 Marks]**

(c) i. A –Lizard B – Fish C – Frog [**3 marks]**

ii. – Habitat of specimen B – Aquatic (water) habitat.
- Habitat of specimen C – Terrestrial habitat/Aquatic [**1x0.5 mark=2 marks]**

iii. –Gills for gaseous exchange
- Eyes for sight
- Fins for movement
- Streamline body for smooth movement in water**.** **[3 marks]**

iv. – Specimen C has a long sticky tongue which it shoots out for catching prey and then swallows it**.** **[2 marks]**

(d) i. α. Guava **[2 marks]**
β. Berry, tomatoes, orange **[1 mark]**

ii. I – Endocarp
II – Seed
III – Epicarp
IV – Mesocarp **[4 x 1mark = 4 marks]** ***Correct spelling to score***

iii. 1. The fruit is succulent
2. The fruit has large, brightly coloured and scented and therefore attract animals.
3. Seeds of the fruit are hard and do not digest. They pass through the discharge of faeces. **[Any 2 x 1.5 marks = 3 marks]**

PART 11

THEORY [60 MARKS]

QUESTION 2 [15 MARKS]

2. (a) i. **Importance of the liver in digestion**

- the liver produces bile which emulsifies fat in the duodenum
- the bile neutralizes the acidic chyme in the duodenum
- the liver breaks down excess amino acid
- the bile creates the right pH for the enzymes in the duodenum to function

[any 4x ½ mark=2 marks]

ii. **Importance of hydrochloric acid in digestion.**

- it creates the optimum pH for the enzymes to act
- it activates pepsinogen
- it kills most bacteria that are mixed with the food
- it stops the action of the salivary amylase

[Any 2 x ½ mark = 1 mark]

(b) i. Filtration is the method used to separate an insoluble solid from a liquid OR it is the method used to separate a mixture of two solid substances whereby one is soluble in water and the other is insoluble **[1 mark]**

ii. -mixture of sand and water, mixture of sand and sugar/salt, etc **[2 marks]**

iii. When seawater is left in the sun to dry it will evaporate leaving a white solid known as salt behind. This process is known as evaporation. **[2 marks]**

(c) i. **presence of cork** – is used as a stopper to reduce heat loss through conduction.

ii. **absence of medium** - The absence of a material medium between the walls reduce the loss of heat due to conduction and convection

iii. **presence of vacuum** – the vacuum between the inner double wall glass container prevents heat loss by convection

iv. **shiny silvered surfaces of the double wall** – the smooth shiny surface reflects back the heat that would have been lost through radiation **[4 marks]**

(d) i.

Clay	**Sand**
Very small air spaces between particles	Larger air spaces between particles
Water does not drain well	Water drains well
The soil remains wet	The soil dries out easily
Water can rise to a high level by capillarity	Water cannot rise to a high level by capillarity

[any 3 x 1.5 mark = 1.5 marks]

ii. **inorganic component of the soil**

soil particles, mineral salts, water **[any 3 x 1.5 mark = 1.5 marks]**

QUESTION 3 [15 MARKS]

3.(a) i. α. A **fuse** is a safety device used to limit the current in an electric **circuit**

β. **Earthing** it protects your appliances, your home and everyone in it from surges in electricity.

¥. **Switch** is used to connect and break the flow of connectivity

[Any 3 x 1 mark = 3 marks]

ii. **uses of capacitor.**

- for controlling charging and discharging
- for blocking direct current.
- for storing energy
- for tuning radio to a particular frequency.

[Any 2 x ½ mark = 1 marks]

(b) i. **Insects** typically **pollinate flowers** as they move from plant to plant searching for food. When an **insect** lands on a **flower** to feed, pollen grains stick to its body. As the **insect** moves to another **flower** of the same species, these pollen grains are transferred to the **flower's** stigma and **pollination** occurs. **[2 marks]**

ii. Flowers of a flamboyant plants are **unisexual**. They have one sexual part; meaning they have either a male part or a female part. **[2 marks]**

(c) i**. Uses of hoe**

-for weeding, for making mounds, for planting crops**. [any 3 x 0.5 mark= 1.5 marks]**

ii. **Common farming tool**

hand trowel, cutlass, watering can, mattock, pick axe, garden fork, wheel barrow, shovel hand fork, spade, rake, garden shears. **[any 3 x 0.5 mark= 1.5 marks]**

(d) i**.**

Sublimation	**Condensation**
the substance changes directly from a solid to a gas without going through the liquid phase	the substance changes from a gas to a liquid
Energy is gained in the process	Energy is lost in the process

[any 2 x 1 mark = 2 marks]

ii. **Factors that affect the rate of evaporation**

- Temperature.
- **Surface area** of the liquid exposed to the atmosphere.
- Wind speed and.
- Humidity. **[Any 4 x ½ mark = 2 marks]**

QUESTION 4 [15 MARKS]

(a) i. **A base** is a substance which produces hydroxide ions (OH^-) when it is dissolved in water **[1 mark]**

ii. -Bases taste bitter,
-Bases have a pH greater than 7
-Bases are corrosive when concentrated
-they conduct electricity when dissolved in water
- they react with acids in neutralization reactions to produce salt and water only
-they change the colour of moist red litmus paper blue, methyl orange yellow and phenolphthalein red **[any 3 x 1 mark=3 marks]**

iii. **Organic acids** are mostly used for food because they are weak and harmless to touch and consumption. **[1 mark]**

(b) i. **Uses of protein in the body**
- to build and repair tissues
-to make enzymes, hormones, and other body chemicals
-Protein is an important building block of bones, muscles, cartilage, skin, and blood
-it is used by the body for growth **[4 x ½ mark=2 marks]**

ii. Because proteins are very large molecules and must be turned into amino acids by the digestive system before it can enter into the blood. **[2 mark]**

(c) i. **Cocoa beans** – butter, liquor, garden fertilizer, etc . **[2 mark]**

ii. **Palm oil** – basis of soap products, biofuel, pharmaceutical purposes, etc **[2 mark]**

(d) i.**Properties of magnets.**
-magnets have north and south poles
-like poles repel,unlike poles attract
-there is a magnetic field/force around it
-when it is freely suspended, it swings and comes to rest with the magnetic axis pointing north-south **[any 2x0.5 mark = 1 mark]**

ii. **Ways of demagnetizing a magnet.**
-hammering it
-dropping it repeatedly
-heating it in red hot fire and allowing it cool while lying in east-west direction
-placing it in a solenoid and allowing alternate current to flow through
[any 2 x 0.5 mark = 1 mark]

QUESTION 5 [15 MARKS]

(a) i. **Pupal stage.**
-releasing oil or kerosene on the surface of water to prevent breeding
-adding salt to stagnant water to increase the salinity
-use of chemicals to destroy the pupae of mosquitoes. **[2 marks]**

ii. **Adult stage**
- biological control
-chemical control
-environmental control **[2 marks]**

(b) i. **P-N junction diode** is an electronic component in which the p-type semiconductor is combined with an n-type semiconductor. **[1 mark]**

ii. **[3 marks]**

Forward bias	**Reverse bias**
The p-type region is connected to the positive terminal of the battery and the n-type is connected to the negative terminal	The p-type region is connected to the negative terminal of the battery and the n-type is connected to the positive terminal
The resistance of the junction becomes very low and appreciable current flows because majority charge carries are able to cross the junction	The resistance of the junction becomes very high and little or no current flows

(c) i. **harmful effects of weevils**
-they reduce the quality of crops
-they increase post harvest loses **[2 marks]**

ii. . **ways of controlling weevils**
- drying grains regularly
- using pesticides to kill them
- store grains at higher temperatures
- use integrated pest management **[any 2x 1mark=2 marks]**

(d) i. **Saturated solution** is a solution which cannot dissolve any more solute at a given temperature in the presence of its solute. **[1 mark]**

ii. **how to prepare saturated solution in the lab**
1. Place some quantity of solute into a beaker.
2. Slowly add some solvent. ...
3. Stir until fully mixed and paste forms.
4. Add solvent by half rule, stir until fully mixed.

5. Continue to add solvent in this manner until all solute is dissolved.
[2 marks]

Question 6 [15 MARKS]

(a) i. Fungus, Virus, Nematode **[1.5 marks]**

ii. Wind, Insects, Fungal spores carried by water, spread by Mealy bugs and white fly
[Any 3 x 0.5 mark = 1.5 marks]

(b) i. **harmful effects of smoking.**

- mouth cancer.
- laryngeal cancer.
- throat cancer.
- esophageal cancer.
- kidney cancer.
- cervical cancer.
- liver cancer.
- colon cancer. **[any 4x 0.5mark = 2 marks]**

ii. **causes of heart diseases**

- Heart failure.
- Arrhythmia.
- Valvular heart disease.
- Aortic aneurysms.
- Heart infections.
- Heart problems at birth.
- Related conditions., etc

[any 4x 0.5mark=2 marks]

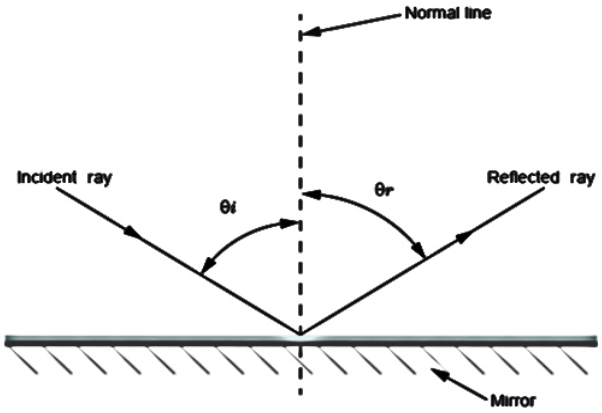
(c) i. **harmful effects of air pollution.**

- climate change
- respiratory problems
- hypoxia
- greenhouse effect
- acidic rain, etc **[any 3x0.5 mark = 1.5 marks]**

ii. **ways of reducing air pollution.**

- Public education
- Use of modern technology in industry
- Enforcement of laws and regulation
- Regular maintenance of vehicles
- Better alternative sources of energy
- Control of bush burning, etc **[Any 3 x 0.5mark = 1.5 marks]**

(d) i. - the **incident** ray, the **reflected** ray, and the **normal** to the surface at the point of incidence all lie in the same plane.
- the angle of **reflection** is equal to the angle of **incidence.**
[2 marks]



[3 marks]