



G.C.E O/L

Practice Test

2022(2023)

Name/Index No:-.....

Science – I

Time: 1 Hour

*Answer all questions.

Time: 1 Hour

*In each of the questions 1 to 40, pick one of the alternatives to your choice 1,2,3,4 which you consider is correct or most appropriate.

*Mark a cross (x) on the number corresponding to your choice in the answer sheet provided.

01. What is the organelle important for protein synthesis in a cell?

- (1) Vacuole. (2) Mitochondria. (3) Ribosome. (4) Golgi complex.

02. A compound not formed by sharing electrons.

- (1) NH₃. (2) NaCl. (3) H₂O. (4) CO₂.

03. Another characteristic that can be observed in a plant with parallel leaf venation is

- (1) presence of two seed cotyledons. (2) presence of tetramerous flowers.
 (3) presence of a branched stem. (4) presence of a fibrous root system.

04. The acidic oxide from the following is

- (1) MgO. (2) SO₂. (3) Na₂O. (4) Al₂O₃.

05. What is the pair of bio molecules containing nitrogen element are

- (1) Lipids and carbohydrates (2) Lipids and proteins
 (3) Proteins and carbohydrates (4) proteins and nucleic acids.

06. An instance in our day to day life in which the frictional force must be increased is

- (1) Applying talcum powder to the carom board.
 (2) Making grooves in the soles of shoes of sportsmen.
 (3) Use of ball bearings for moving parts of vehicles.
 (4) Applying oil to the axis of a pulley of a well.

07. What is the answer containing a disease caused due to a gene mutation in a somatic cell and due to a sex linked gene respectively?

- (1) Albinism and haemophilia. (2) Albinism and thalassemia.
 (3) Colour blindness and haemophilia. (4) Haemophilia and thalassemia.

08. What is the accessory that disconnects the current supply automatically when the current exceeds 40A?

- (1) Overload circuit breaker. (2) Isolator.
 (3) Residual Current Circuit Breaker. (4) Distribution box.

09. The diagram shows an apparatus constructed to identify a factor required for photosynthesis. The solution shown as x is



- (1) NaCl. (2) KOH. (3) Na₂CO₃. (4) NaHCO₃.

10. What is the answer that shows correctly an excretory organ and the excretory products of it?

Excretory organ	Excretory products
(1) Lungs	Carbon dioxide and oxygen.
(2) Skin	Salts and carbon dioxide.
(3) Kidneys	Urea and uric acid.
(4) Liver	Bile and water.

11. What is the characteristic of sound that changes according to the frequency of a sound wave?

- (1) Pitch. (2) Loudness .
(3) Amplitude. (4) Quality of sound.

12. What is the answer that contains an electrolyte and a non-electrolyte respectively?

- (1) Distilled water and salt solution. (2) Salt solution and sugar solution.
(3) Acidulated water and dilute Sulphuric acid (4) Kerosene and sugar solution.

13. The genotype of a female carrier responsible for red green colour blindness is

- (1) X^cX^c (2) X^cX^c (3) X^cY (4) X^cY

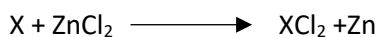
14. What is the relative molecular mass of glucose C₆H₁₂O₆? (H=1, C=12, O=16)

- (1) 24 (2) 29 (3) 180 (4) 36

15. What is the velocity gained by a body of mass m falling from a height of 20m when touching the ground? (g=10ms⁻²)

- (1) 400ms⁻¹ (2) 40ms⁻¹ (3) 20ms⁻¹ (4) 10ms⁻¹

16. The following shows the balanced chemical equation for the chemical reaction between X metal and ZnCl₂.



The chemical substance X can be

- (1) Cu 2) Mg (3) Fe (4) Pb

17. What is the answer containing only complex permanent tissues?

- (1) Xylem and cambium. (2) Parenchyma and phloem.
(3) Collenchyma and cambium. (4) Xylem and phloem.

18. Answer the question by reading the two statements given below.

Statement A- Concave mirrors are used by dentists to examine teeth.

Statement B- Ability to get virtual, upright and enlarged images.

Out of the above statements,

- (1) A is true and B is false. (2) A is false and B is true.
(3) Both A and B are false. (4) Both A and B are false.

19. Three statements relevant to the production of salt are given below.

A. Calcium sulphate gets precipitated in the second tank.

B- If it is late to remove water from the third tank, calcium carbonate gets precipitated.

C- Certain salts can be removed by heaping harvested salt for about 6 months.

The correct statements are

- (1) A and B only. (2) A and C only. (3) B and C only. (4) A, B and C all.

20. What is the place in which an object must be kept to get an inverted, real and diminished image by using a convex lens?

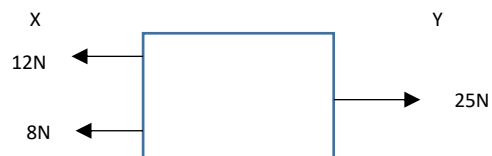
- (1) Less than the focal length. (2) Between the focus and twice of the focal length.
 (3) Twice the focal length. (4) Beyond twice the distance of focal length.

21. Carbon dioxide and water are considered as raw materials of photosynthesis as they

- (1) are released by respiration. (2) are formed as byproducts during the production of energy.
 (3) are used to produce glucose. (4) supply energy required for photosynthesis.

22. Consider the following statements relevant to three forces applied as shown in the diagram.

- A- The object moves towards Y . B- The object moves towards X .
 C- The resultant force acting on the object is 5N.

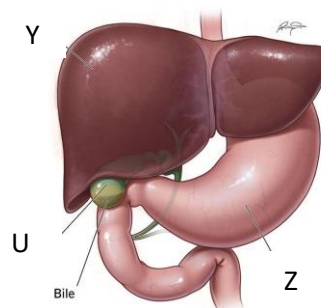


The correct statements out of the above are

- (1) A and B only. (2) A and C only. (3) B and C only. (4) A, B and C all.

23. The following diagram shows the diagram of a part of the food digestive system. The answer containing the organ shown by Z and its function respectively

- (1) Liver- Storage of food
 (2) Stomach- Physical and chemical digestion of food
 (3) Pancreas- production of enzymes required for the digestion of food.
 (4) Duodenum- Emulsification of lipids.



24. What is the main method of fixing carbon in an ecosystem?

- (1) Photosynthesis (2) Decomposition. (3) Fossilization. (4) Cellular respiration.

25. When a pea plant with dominant round seeds was crossed with a plant having wrinkled seeds, 50% of the seeds formed were with round seeds. The answer with correct genotypes in the correct order are

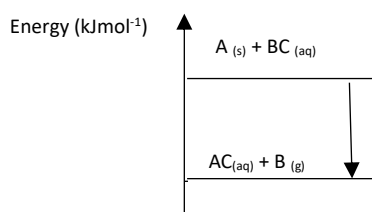
- (1) RR,rr (2) RR,Rr (3) Rr,Rr (4) Rr,rr

26. What is the answer that does not show a physical quantity and its standard unit correctly?

(1)	Velocity	ms^{-1}
(2)	Moment of force	Nm
(3)	Power	W
(4)	Voltage(potential difference)	A

27. The following energy level diagram represents the energy change in a chemical reaction .Two statements relevant to the above are given below.

- A- It is an exothermic reaction.
 B- Products have more energy than the reactants.



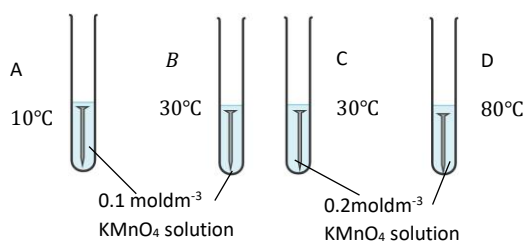
What is the most suitable answer for the above?

- (1) Both A and B are true. (2) Both A and B statements are false.
 (3) Statement A is true and statement B is false.
 (4) Statement A is false and statement B is true.

28. In order to keep an object in equilibrium under the impact of three forces,

- (1) The three forces must be coplanar.
 (2) The resultant of the three forces should be zero.
 (3) The third force should be equal to the sum of the two forces.
 (4) The lines of action of the three forces should intersect at a single point.

29. Four experimental set ups made by a group of students to study about the rate of a reaction are given below.

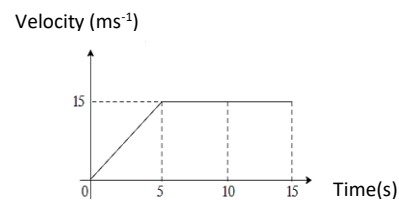


The answer containing the time periods taken by the setups to become KMnO_4 colourless in ascending order

- (1) A, B, C and D (2) D, C, B and A (3) A, C, B and D. (4) D, B, C and A.

30. The following diagram shows a velocity time graph that shown the motion of a body. Below given are three ideas about the motion of the above body.

- A- The maximum velocity of the body is 15ms^{-1} .
 B- The acceleration the body during the first 5 seconds is 5ms^{-2} .



C- The time period in which the body has moved with uniform velocity is 10s.

The correct statements are

- (1) A and B. (2) A and C (3) B and C (4) A, B and C all.

31. The answer in which the material media are arranged according to the ascending order of velocity of sound is

- (1) Solids, liquids and gases. (2) Liquids, gases and solids
 (3) Gases, liquids and solids. (4) Solids, gases and liquids.

32. The following table shows the observations obtained when blue and red litmus papers were added to several solutions.

Type of litmus	Observations.		
	Liquid A	Liquid B	Liquid C
Red	Red	Red	Blue
Blue	Red	Blue	Blue

The most suitable solutions for the above according to the above observations are

- (1) Lime juice, vinegar and caustic soda (2) Vinegar, salt solution and caustic soda.
 (3) Alcohol, vinegar and soap water (4) Lime juice, soapy water and caustic soda.

33. When a glass bottle filled with air to which a balloon is connected to the mouth of it, it can be observed that the balloon gets inflated. Which of the following is not a reason for it?

- (1) Increasing of the pressure inside the bottle. (2) Increasing of kinetic energy of air molecules.

(3) Expansion of the air inside the bottle.

(4) Expansion of the bottle.

34. Consider the statements give below regarding the aqueous solution of HCl acid which is a strong acid.

A- HCl acid undergoes complete ionization in an aqueous solution.

B- HCl acid reacts with Mg and forms H₂ gas.

C- H⁺, Cl⁻, OH⁻ and H₂O molecules are found in an aqueous solution of aqueous solution of HCl acid.

The correct statements out of the above are

(1) A and B only.

(2) A and C only.

(3) B and C only.

(4) A, B and C.

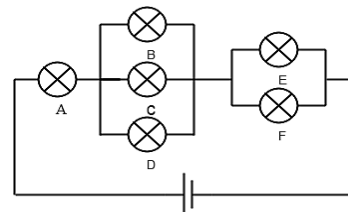
35. The following circuit shows how 6 identical bulbs are connected to a current supply. What is the bulb that glows with the maximum brightness?

(1) A

(2) B

(3) C

(4) E.



36. The separating technique that can be used to separate pure solid crystals

from a mixture containing little amount of impurities is

(1) Solvent extraction

(2) Crystallization

(3) Recrystallization

(4) Chromatography.

37. Several statements put forward by a group of students about the images formed by mirrors.

A- Only virtual images are formed by convex mirrors and plane mirrors.

B- The real images formed by concave mirrors are always inverted.

C- The enlarged images formed by concave mirrors are always upright.

The correct statements out of the above are

(1) Only A.

(2) A and B only

(3) Only B

(4) B and C only.

38. The number of organisms in a community increases,

(1) When the rate of mortality (number of deaths) is greater than the rate of natality(number of births).

(2) When the number of emigrations increases than the number of immigrations.

(3) When the rate of natality is greater than the rate of mortality.

(4) When the rate of natality decreases than the rate of mortality.

39. What is the most environmental friendly proposal that cane carried out as a remedy for energy crisis?

(1) Closing of coal powered power plants.

(2) Construction of new nuclear plants.

(3) Prevention of using electricity consumption as such as possible.

(4) Promoting the people to consume electricity generated by solar power.

40. The method by which you can contribute as a school child for sustainable development is

(1) Reforestation of destroyed/depleted forests.

(2) Formulation of laws relevant to sustainable development.

(3) Punishing people who do not consume energy in a thrifty manner.

(4) Making people aware of the importance of switching off unnecessary electric lamps.

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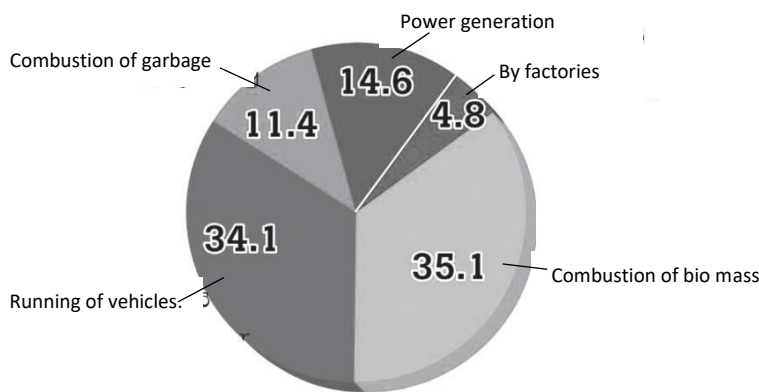
Science II Three Hours

Name/Index Number:.....

- Write your answers in neat hand writing.
- Answer four questions in Part A, in the space provided.
- Answer only three questions in Part B.

Part A-Structured Essay

01) A. The pie chart given below shows the methods by which air pollution occurs in Sri Lanka.



I. What is the main method by which air pollution occurs according to the graph?

.....(01mark)

II. What is the main human activity responsible for the above method in (I)? (01mark)

.....

III. What is the environmental friendly method that can be followed instead of burning garbage in order to control air pollution?..... (01mark)

IV. Write two strategies that can be followed to reduce air pollution when using vehicles. (02 marks)

.....

V. When obtaining annual revenue license, Vehicle Emission Test is compulsory. Write in brief how this helps to control air pollution. (02marks).....

.....

VI. How does air pollution occur when generating power? (02 marks)

.....

B. Occurrence of acid rains is one of the harmful impact of air pollution.

I. What is meant by acid rains? (01mark)

.....

II. Name two gases responsible for the occurrence of acid rains. (02 marks)

.....
.....
III. Write two harmful impacts of acid rains. (02 marks).....
.....

IV. Write another direct harmful impact of air pollution except acid rains. (01mark).....
.....

.....(Total marks 15)

2) The method of propagating plants with the involvement of human is known as artificial vegetative propagation. The following figures show two such methods.

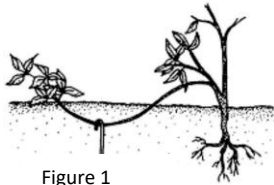


Figure 1

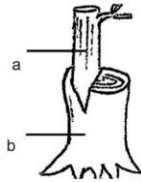


Figure 2

I. Name the methods of propagation shown by the figures 1 and 2. (02 marks)

Figure 1

Figure 2.....

II. Name the two parts shown as a and b in the figure 2. (02 marks)

a.

b.....

III. What is the methods that should be followed when wrapping using polythene tape? Is it from bottom to top or from top to bottom? (01mark).....
.....

IV. Explain the reason for the above(01mark).....
.....

V. What is the type of cell division important in vegetative propagation? (01mark).....
.....

B) Some of the animals that belong to Kingdom Animalia are given below.

Sea anemone, Sea urchin, Sea horse, Cuttle fish, Scorpion, Nereis, Ichthyophis

I. Write the name of an animal suitable for the given features using the above list.

a) Two forms as medusa and polyps are found. (01mark)

b) Possesses a muscular foot. (01mark)

c) Possesses a chitinous exoskeleton. (01mark)

d) Heart consists of two chambers. (01mark)

e) Possesses a glandular wet skin. (01mark)

II. Name two organisms with a vertebral column. (02 marks)

III. Name an organism that belongs to the phylum which has close evolutionary relationships with vertebrates. (01mark)

.....

(Total: 15 marks)

03) Electronic configurations of an atom and several ions are given below. The symbols are not the real ones. When answering questions use the given symbols.

Atom/ions	Electronic configuration
V	2,4
W ⁻	2,8
X ²⁺	2,8
Y ²⁻	2,8,8
Z ⁺	2,8,8

I. Insert the elements V, Y and Z in the periodic table. (03 marks)

	I	II	III	IV	V	VI	VII	VIII
1								
2							W	
3		X						
4								

II. Write the electronic configuration of X. (01mark).....

III. What is the chemical formula of the chemical compound formed by combining X and W? (01mark)

.....

IV. What is the bond nature of the chemical compound mentioned above (III)? (01mark)

V. What is the valency of V? (01mark)

VI. Draw the dot and cross diagram for the compound formed by combining V and Hydrogen. (02 marks)

.....
.....
.....

VII. Out of the elements V, W, X, Y and Z given in the above table,

a. What is the element with the highest electronegativity? (01mark)

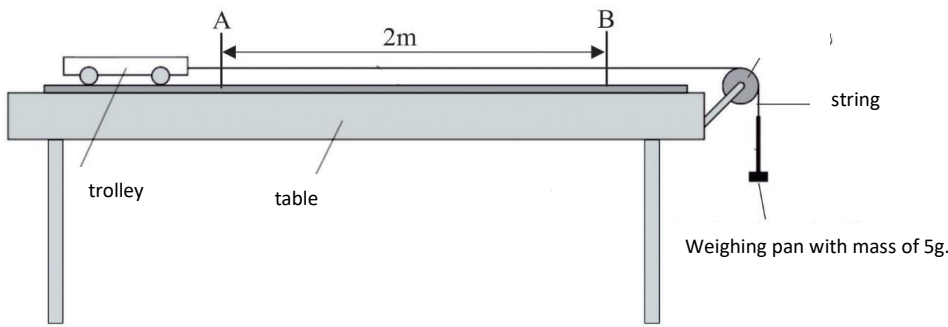
b. What is the element with the least first ionization energy? (01mark)

c. Write two elements with metallic properties. (02 marks)

VIII. Write two allotropic forms of the element V. (02 marks)

(Total :15 marks)

04) A. Following diagram shows an activity relevant to motion of a body done by a group of students.



I. At first the trolley is at rest. What is the term used to describe the type of friction that acts between the trolley and the surface of the table. (01 mark).....

II. When an additional mass of 15g was added to the pan, the trolley moved.

a. The trolley took 5s to move from A to B. Calculate the average speed of the trolley. (02 marks).....

b. When the mass used in the weighing pan is gradually increased, the time taken by the trolley to move from A to B decreased. What is the conclusion you can arrive at? (02 marks)

III. What is the normal reaction exerted by the surface of the table on the trolley, if the mass of the trolley is 1kg. ($g=10\text{ms}^{-2}$) (01 mark).....

B. Hydrometers are used in various instances in our day to day life. A rough sketch of a hydrometer is given below.

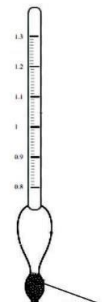
I. What is the physical quantity measured in association with a liquid by the hydrometer?

..... (01 mark)

II. What is the use of lead shots and solid tar at the bottom end of the hydrometer? (02 marks)

III. Name the physics theorem used in the construction of hydrometers. (01 mark)

IV. Mention an instance in which hydrometers are used. (01 mark)



Mixture of solid tar and lead shots.

C. A water tank containing 1000 l of water is located at a height of 4m from the ground level.

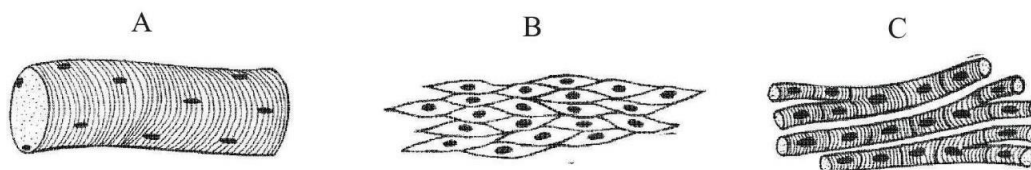
I. Calculate the amount of potential energy stored in water of the tank. ($g=10\text{ms}^{-2}$) (02 marks)

II. Write the energy transformation that occurs when water starts flowing down from the tank. (02 marks)

(Total 15 marks).

Part B- Essay type Questions.

05) A. The following three line diagrams show how muscle tissues are formed.



I. Name B and C type of cells. (02 marks)

II. Write two structural differences between the cells of A and B. (02 marks)

III. Write an example for the organs in which the above cells are present. (02 marks)

B). Connective tissues is another type of tissues found in living body of animals.

I. What is meant by a connective tissue? (02 marks)

II. What is the type of cells with a nucleus found in blood? (01 mark)

III. Write a function of platelets. (01 mark)

IV. Write a function done by white blood cells. (01 mark)

C) The diagram shown human blood circulatory system.

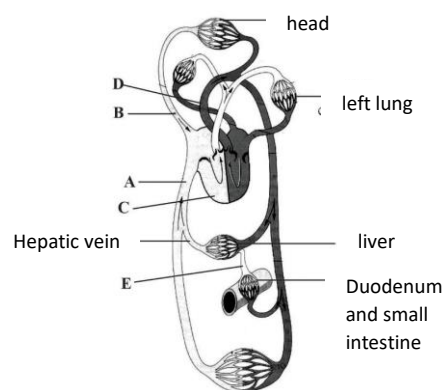
I. Name A, B, C and D. (04 marks)

II. Write two changes that occur to the composition of blood in lungs. (01 mark)

III. Name the blood vessel shown as E and write the importance of it in brief.

(02 marks)

IV. Double circulation can be identified in human circulatory system. What is meant by double circulation? (02 marks)



(Total: 20 marks)

06) A. Following substances are found at home.

Salt solution, powder blue dissolved water, fruit salad, kerosene, jak latex, water

Out of the above,

I. Name a homogeneous mixture and a heterogeneous mixture.(01 mark)

II. Give an example for polar and non-polar solvents. (01 mark)

III. Calculate the mass fraction of the salt solution prepared by dissolving 10g of salt in 100g of water. (02 marks)

IV. The following diagram shows a set up used to prepare a standard solution.

a. Name two glassware shown in the diagram. (02 marks)

b. Write a fact that should be considered when adding water to the flask. (01 mark)

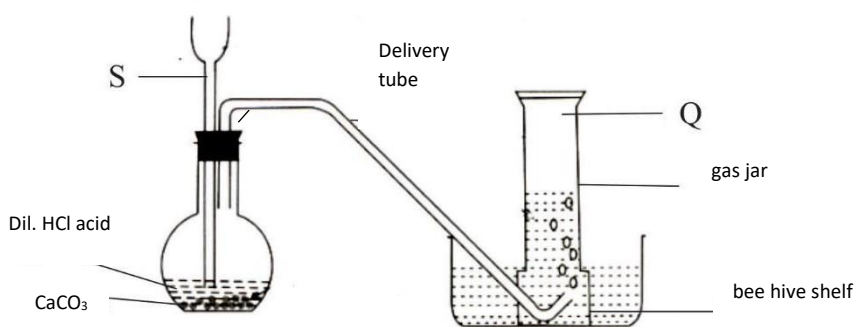
c. 5.85 g of NaCl is added to the above solution. Calculate the number of moles in it. (Na=23, Cl=35.5)

(02 marks)

d. Write a fact that should be mentioned in the label when naming the solution. (01 mark)



B) The following diagram shows an experimental set up used to prepare a certain gas in the laboratory.



I. Name Q and S. (02 marks)

II. What can be the gas collected in the gas jar? (01 mark)

III. Write the balanced chemical equation for the preparation of the above gas in the set up. (02 marks)

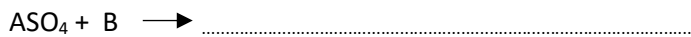
IV. What is the type of chemical reaction to which the above one belong? (01 mark)

C) Three different metals and their reactions with metal salts are given below. The three metals are given as A, B and C. They are not the real symbols.



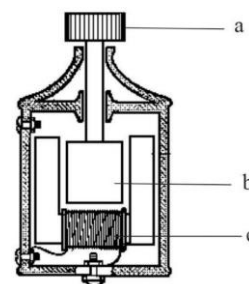
I. According to the above chemical reactions arrange the three metals according to the descending order of their reactivity. (02 marks)

II. Complete the following chemical equation according to the above reactions. (01 mark)



(Total -20marks)

07) A. The diagram shows a longitudinal section of a bicycle dynamo in which current is generated by electromagnetic induction.



I. Name the parts a, b and c. (03 marks)

II. Is the current generated by this direct current or alternative current? (01 mark)

III. Draw a rough graph to show the variation of the current with time. (02 marks)

IV. Write two strategies that can be followed to increase the magnitude of current generated by a dynamo. (02 marks)

B) A student suggests to light an electric bulb of 12V using the power supply of main electricity of 240V supplied to home.

I. What is the accessory used to reduce the voltage from 240V to 12V? (01 mark)

II. Draw the circuit symbol of the above mentioned accessory. (01 mark)

III. Write a suitable expression for calculating the number of turns of the secondary coil, if the number of turns of the primary coil is 2000 turns. (01 mark)

IV. Calculate the number of turns of the secondary coil by using the above expression. (02 marks)

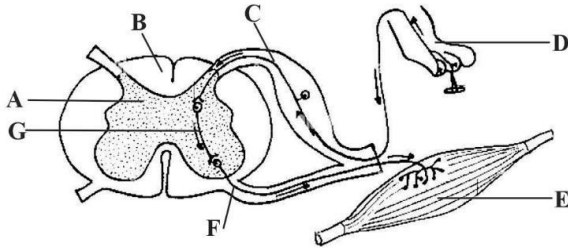
C). A coconut of mass 2kg is located at a height of 20m.

I calculate the amount of gravitational potential energy stored in the coconut when it is attached to the tree. ($g=10\text{ms}^{-2}$) (02 marks)

II. Calculate the velocity of the coconut at the moment of touching the ground, when it falls. (03 marks)

III. Draw a rough sketch for the velocity time graph for the falling coconut. (02 marks) (Total- 20 marks)

08) A. The diagram shows a functional state of the nervous system.



I. What is the term given for this functional unit? (01 mark)

II. Name the parts A, B, C and D of this. (02 marks)

III. Write the path of nerve impulses using the letters in the correct sequential order. (02 marks)

IV. Write the letters used to show white matter and grey matter in the spinal cord respectively. (01 mark)

B. Coordination of the body is done by hormones as well.

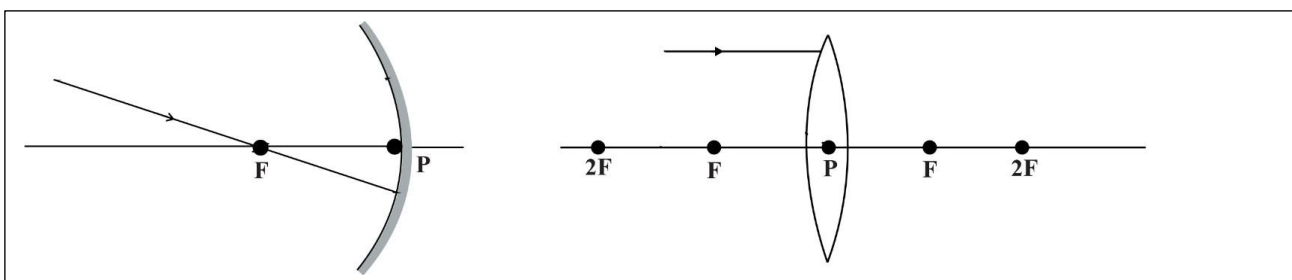
I. Write two characteristics of hormones. (02 marks)

II. What is the gland that produces hormones and act as an exocrine gland as well? (01 mark)

III. What is the action of the anti-diuretic hormone ADH secreted by the Pituitary gland? (01 mark)

C. Lenses and mirrors are used to handle light.

I. Complete the ray paths in the following diagrams. (02 marks)



II. An object of height 10cm is placed vertically on the principal axis at a distance of 40cm in front of a convex lens of which the focal length is 20cm.

a. Draw the ray diagram of it to show the formation of the image using a suitable scale. (02 marks)

b. What is the height of the image? (01 mark)

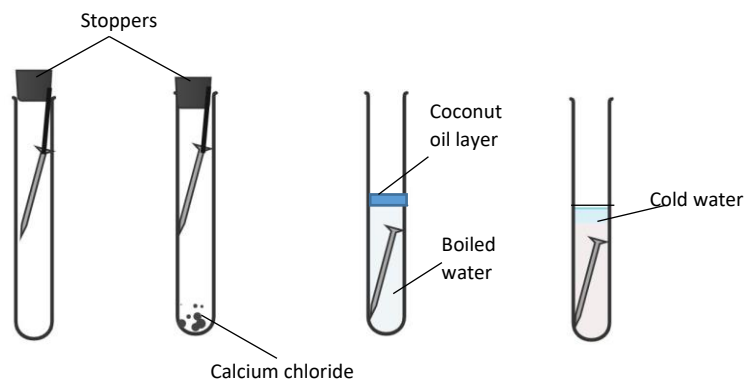
c. Write another characteristic of the image formed except the size of the image. (01 mark)

D. Write the Snell's law relevant to refraction of light. (01 mark)

II. What is meant by total internal reflection? (01 mark)

III. Write an instance in which total internal reflection is used. (01 mark)

09) A. Four experimental set ups constructed by a group of students to investigate about the factors required for rusting of iron are given below. Well cleaned iron nails were used in the above set ups and lustre of the nails were observed daily.



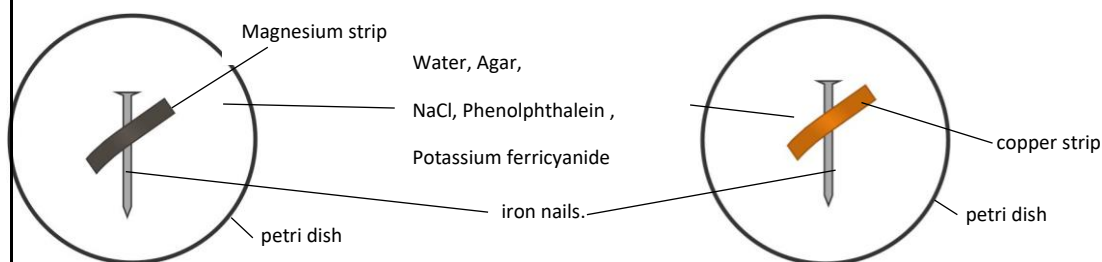
I. In which atom out of A and B, the lustre remains unchanged for a longer period of time? Mention the reason for it. (02 marks)

II. Mention in which set up out of C and D, the lustre decreases first. (01 mark)

III. What is the purpose of the oil layer in set up C? (01 mark)

IV. Mention the two factors needed for rusting confirmed by the above experiments. (02 marks)

B. One method of protecting iron form rusting is giving cathodic protection. . The following are two experimental set ups constructed by some students to investigate about it.



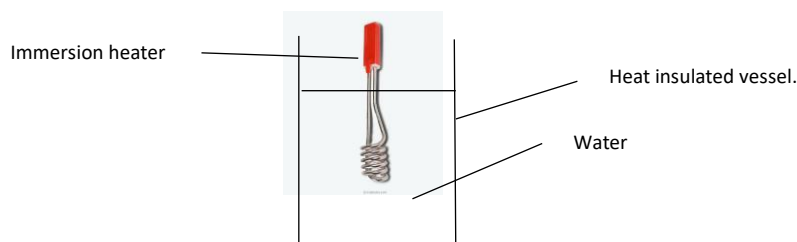
I. In which experimental set a blue colour can be observed near the iron nail? (01 mark)

II. What is the reason for the above answer in (I)? (01 mark)

III. Near which metal strip out of Mg and Cu, a pink colour can be observed? (01 mark)

IV. Name a more suitable metal that can be used to give cathodic protection for iron. (01 mark)

C) The following diagram shows how an immersion heater is used to heat 1.8kg of water kept in a heat insulated vessel.



I. What is the method by which heat transfers through water? (01 mark)

II. Name the instrument used in the lab to measure the temperature. (01 mark)

III. A student says that it is better to immerse the heater completely to the bottom. Do you agree with this?

Explain the reason. (02 marks)

IV. It took 6 minutes to heat from 27°C to 97°C .

a. Calculate the amount of heat absorbed by water (Specific heat capacity of water is $4200\text{Jkg}^{-1}\text{C}^{-1}$). Assume that the whole amount of heat produced by the heater is completely absorbed by water). (02 marks)

b. Calculate the power of the immersion of heater. (02 marks)

V. When a part of a nichrome coil removed from a heater is connected to as voltage of 12V, a current of 0.03A flows through it. Calculate the resistance of it. (02 marks)

(Total marks: 20 marks))