



JAFFNA HINDU COLLEGE

First Term Exam - 2023

Grade - 11

Science

Time: - 1 Hours

Name/Index No:

Part – I

01) Which of the following organelle has a double membrane in the animal cell?

1. Ribosome 2. Cell wall 3. Nucleus 4. Golgi bodies

02) What is the specific property of water used in transportation of water upwards through the trunk of tall tree?

1. A good solvent 2. High cohesive and adhesive force
3. A coolant 4. Has higher specific heat capacity

03) What are the methods of extracting sodium and Iron respectively?

1. Electrolysis, reduction 2. Reduction, Electrolysis
3. Heating, Electrolysis 4. reduction, Heating

04) What is the answer that consists of double displacement reaction?

1. $\text{CaCO}_3 \longrightarrow \text{CaO} + \text{CO}_2$
2. $\text{Na} + \text{HCl} \longrightarrow \text{NaCl} + \text{H}_2$
3. $\text{CuSO}_4 + \text{Mg} \longrightarrow \text{MgSO}_4 + \text{Cu}$
4. $\text{NaCl} + \text{Pb}(\text{NO}_3)_2 \longrightarrow \text{PbCl}_2 + \text{NaNO}_3$

05)

0.1 moldm³ H⁺ / KMnO₄ 30°C A

0.01 moldm³ H⁺ / KMnO₄ 30°C B

0.01 moldm³ H⁺ / KMnO₄ 30°C C

0.1 moldm³ H⁺ / KMnO₄ 60°C D

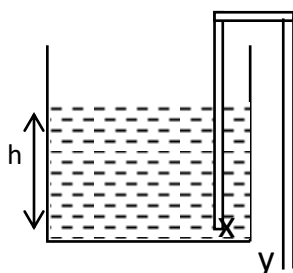
What is the correct ascending order of time t_A , t_B , t_C and t_D

1. $t_A < t_C < t_B < t_D$ 2. $t_D < t_B < t_C < t_A$ 3. $t_D < t_C < t_B < t_A$ 4. $t_D < t_B < t_A < t_C$

06) What is the fundamental unit of moment of force

1. Kgms^{-2} 2. Nm 3. Kgms^{-2} 4. Kgms^{-1}

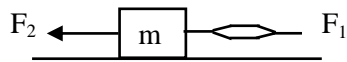
07)



What is the different of pressure created between a point X at the bottom of the tank and point Y when water remove through this siphontube. (density of the liquid ρ gravitational acceleration g atmospheric pressure p_0)

1. $p_0 + h\rho g$ 2. $h\rho g$ 3. $p_0 - h\rho g$ 4. $h\rho g - p_0$

08)



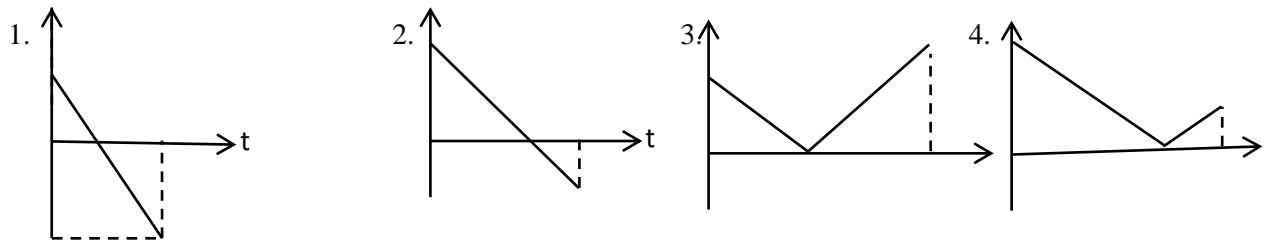
A mass of wooden block pull using a Newton balance with F_1 force on rough surface, frictional force F_2 exerted in the opposite direction. Find the acceleration (a)?

1. $a = \frac{F_1}{m}$ 2. $a = \frac{F_1 - F_2}{m}$ 3. $a = \frac{F_2}{m}$ 4. $a = \frac{F_2 - F_1}{m}$

09) Which characteristics of sound helps to identify the instruments when playing a song notes by two instruments?

1. Quality of sound 2. Loudness 3. Pits 4. Frequency

10) The velocity time graph that correctly represents the motion of a stone which is thrown upwards on 100m tower returns back to the ground.



11) Which is not a feature of electro magnetic waves?

1. They travel at a speed of $3 \times 10^8 \text{ms}^{-1}$
 2. They do not require a material medium for propagation.
 3. Electromagnetic waves are not affected by magnetic field
 4. They are affected by electric field

12) What is the number of O atoms in 22g CO_2 ? [Avagadro constant is 6.022×10^{23}]

1. $\frac{22}{44} \times 6.022 \times 10^{23}$ 2. $\frac{22}{44} \times 6.022 \times 10^{23} \times 2$ 3. $\frac{44}{22} \times 6.022 \times 10^{23}$ 4. $\frac{44}{22} \times 6.022 \times 10^{23} \times 2$

13) The balanced of chemical decomposition reaction of $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$
 How many moles KClO_3 is needed to produce 64g Oxygen gas (K- 39, Cl - 35, O - 16)

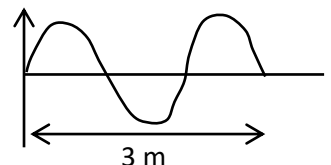
1. $\frac{3}{2}$ mol 2. $\frac{2}{3}$ mol 3. $\frac{2}{3} \times 2$ mol 4. $\frac{3}{2} \times 3$ mol

14) The incorrect example of flowers are adapted to avoid self-pollination and promote cross-pollination

1. Having unisexual flower - corn
 2. Self-sterility - passion fruit
 3. Hercogamy - orchid
 4. Dichogamy - coconut

15) The frequency of the above wave is 350Hz Find the velocity of the above wave.

1. 1050ms^{-1} 2. 525ms^{-1} 3. 350ms^{-1} 4. 700ms^{-1}



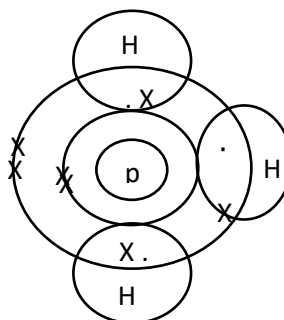
16) The chemical formula for carbonate of X is $\text{X}_2(\text{CO}_3)_3$

What is the chemical formula of Phosphate of X

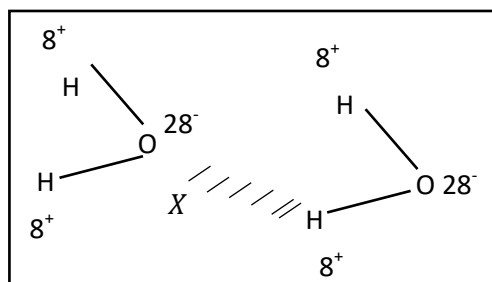
1. X_3P_2 2. $\text{X}_3(\text{PO}_4)_2$ 3. XPO_4 4. X_3PO_4

- 17) Mass of 10g NaOH is dissolved in water to prepare 250cm^3 of solution. what is the concentration of this solution?
(Na=23, H=1, O=16)
1. 0.01mol dm^{-3} 2. 1mol dm^{-3} 3. 0.1mol dm^{-3} 4. 2mol dm^{-3}
- 18) Electronic configuration of elements S,T are given below. Where S,T are not standard symbols
S= 2,8,6 T= 2,8,1
What is the correct chemical formula of compound that produced by the combination of S and T?
1. S_2T 2. ST_2 3. T_2S 4. TS
- 19) Consider the following statements about cell division
- Take place in diploid cells only
 - Daughter cells are similar to mother cell
 - No, variation
- Select true statement about on mitosis ?
1. Only a 2. Only b 3. Both a and c 4. Both b and c
- 20) A fruit in a tree that detaches from the stalk takes 2s to fall to the ground.
What is the velocity when it reaches the ground?
1. 20ms^{-1} 2. 10ms^{-1} 3. 2ms^{-1} 4. 6ms^{-1}
- 21) The increasing order of acidity of the oxides?
- Na_2O , MgO , Al_2O_3
 - Al_2O_3 , SO_3 , MgO
 - Cl_2O_7 , SO_3 , P_2O_5
 - SiO_2 , Al_2O_3 , MgO

- 22) Given below shows a covalent molecules structure of a compound. Select the true statements about atom P
- Atom P has 10 electrons
 - Electronic configuration of P is 2, 7
 - Valency of P is 5
 - The molecule which has tree triple bond

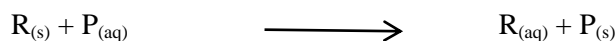
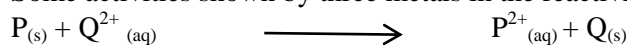


- 23) The following diagram shows attraction between water molecules. What is not special property possessed by above compound due to attractive forces of X among of the above molecules.
- High boiling point
 - High specific heat
 - Having a lower density than that of ice
 - non of the above



- 24) Select the correct answer regarding the function of the following tissue
- Sclerenchyma – Photosynthesis
 - Collenchyma – Provide support to the plant body
 - Paranchyma – Food storage
 - Xylem – Food synthesized in the leaves are transported throughout the plant body.

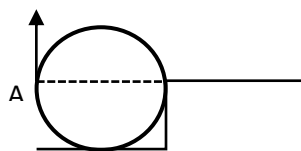
25) Some activities shown by three metals in the reactivity series are given below.



Arrange them according to their reactivities

1. $P < Q < R$ 2. $P < R < Q$ 3. $Q < R < P$ 4. $Q < P < R$

26) Figure given below shows the force applied on a circle dish of 7cm radius on a stair. 10N force is applied at the point A .Find the moment of force in point A?

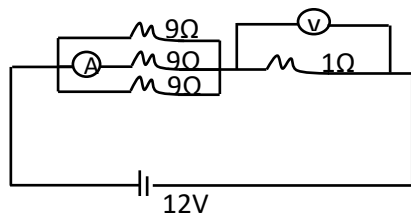


1. $10N \times 7m$ 2. $10N \times 0.07m$
3. $10N \times 14m$ 4. $10N \times 0.14m$

27) What is the mole fraction of glucose in solution made by dissolving 180g of glucose in 180g water.

1. $\frac{1}{11}$ 2. $\frac{1}{10}$ 3. $\frac{10}{11}$ 4. $\frac{10}{18}$

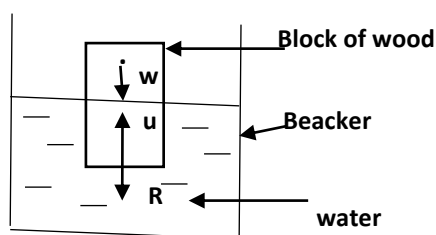
28)



In the given circuit, what is reading of A, V meter reading respectively

1. 0.4A, 3 V 2. 1A, 3V
3. 3A, 1V 4. 2A, 12V

29)



When put into a beacker of water, a block of wood floats.

The weight of wood is W. The force exerted by it on water is R and the upthrst is U.

The equaling of which pair of forces makes the object float on water

1. U and R 2. R and W 3. U and W 4. All are correct

30) What property , of the electric signal, received from the microphone is amplified by the amplifier?

1. Frequency 2. Wave Length 3. Amplitude 4. Pitch

31) During the production of salt in salterns. Precipitation of salts. Which of the following correctly. Gives the relationship among the solubility of those salts?

1. $CaCO_3 < CaSO_4 < MgCl_2 < NaCl$ 2. $CaCO_3 < CaSO_4 < NaCl < MgCl_2$
3. $NaCl < MgCl_2 < CaSO_4 < CaCO_3$ 4. $MgCl_2 < NaCl < CaSO_4 < CaCO_3$

32) What is the main disadvantage of vegetative reproduction?

1. To get fruit in a short time
2. To get varieties that can withstand drought
3. It is able to get new improved varieties
4. To propagate of the plants which either do not produced seeds

33) A child of a mass 40kg climbs up a rope to a vertical height of 6m in 2 minutes. What is this rate of doing work in W? ($g = 10\text{ms}^{-2}$)

1. $\frac{40 \times 6}{2 \times 60}$

2. $\frac{40 \times 10 \times 6}{2 \times 60}$

3. $\frac{40 \times 6 \times 2}{10}$

4. $\frac{40 \times 10 \times 6}{2}$

34) An ultrasound wave emitted by the instrument reflected back after the part of the destroyed ship and noted in the instrument again after 0.4s velocity of sound in sea water 1500ms^{-1} . find the depth from the ship the part of the destroyed ship.

1. $1500 \times 0.4\text{m}$

2. 1500m

3. $\frac{1500 \times 4}{2}\text{m}$

4. $\frac{1500 \times 0.4}{2}\text{m}$

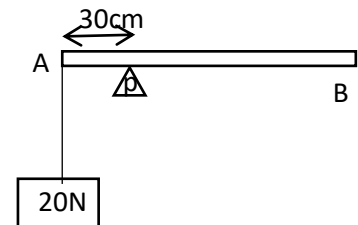
35) A uniform beam AB of 1m in length is kept in equilibrium by suspending it from the point p shown in the diagram below. find the weight of beam.

1. 10N

2. 20N

3. 30N

4. 60N



36) The information regarding a metal is given below

- Does not react with cold water but react with hot water
- It rapidly react with acid
- It is strongly heated in steam, it oxide and H_2 gas

Metal could be

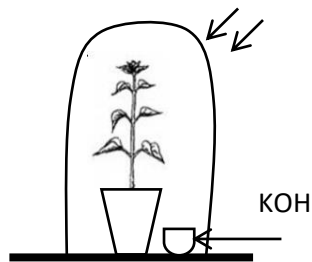
1. Al

2. Na

3. S

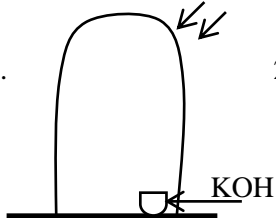
4. Mg

37)

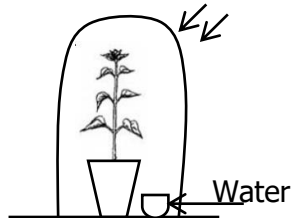


The figure indicates an apparatus setup by a students for an experiment conducted with regard to photosynthesis. Which setup of a control experiment suitable for this experiment?

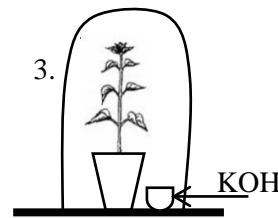
1.



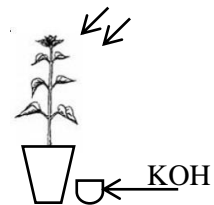
2.



3.



4.



Answer the following question 38, 39

In a certain hereditary disease, the homozygous recessive form is the sickly condition while the homozygous dominant form is healthy. The heterozygous form act as a carrier of the disease. Dominant gene relevant to the disease as T recessive gene as t

38) Write the genotype which denote the sickly condition and healthy condition respectively.

1. TT, tt

2. tt, TT

3. Tt, Tt

4. tt, Tt

39) What is the ratio of sick and healthy one among the children if tt father is healthy and mother is carrier

1. 1 : 2 : 1

2. 2 : 1

3. 3 : 1

4. 1 : 3

40) Which is not way to reduce plastic pollution and disease

1. Recycle when clean bottles, cans, paper and carbon
2. Use alternative packaging
3. Prevent the plastic item into the water bodies
4. Find reusable option

(40 x 2 = 80 marks)



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First Term Examination -2023

Science - II

Name / Index No:-.....

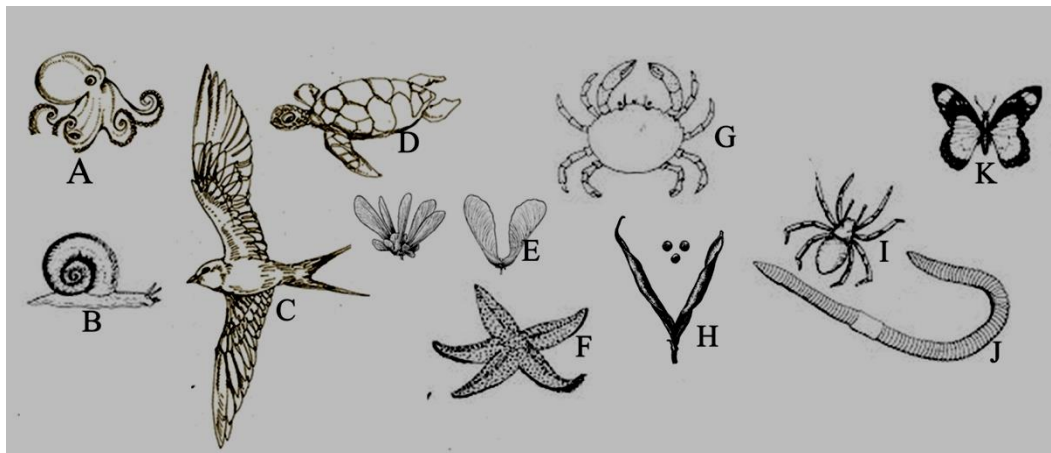
Grade - 11

Time - 3 hours

PART II A

- ❖ Write your answer in neat handwriting.
- ❖ Answer the four questions in **Part A**, in the space provided.
- ❖ Of the five questions in **Part B** answer three questions only.
- ❖ After answering, tie **Part A** and the answer script of **part B** together and over.

01. (A) A group of students are done the assignment nature of study about organisms and their life style. The several pictures of organisms collected from the internet, answer the questions used these organisms.



- i. Name two ecosystems that the above organisms are found ?
 (1 mark)
- ii. Mention one adaption of seed 'E' and 'H' for their dispersal.
 E H.....(2 mark)
- iii. Which energy source is supply energy to this ecosystems ?
(1 mark)
- iv. State a human activity that polluted the above ecosystems?

 (1 mark)

- v. Name the organisms which are belongs that the organism 'J' grouped.

(2 mark)
- vi. Write an adaptation of plant which pollinated by organism K

 (1 mark)
- vii. Mention the special character of organism 'B', it has calcium carbonate shell for protection.
(1 mark)

(B) i. Give the chemical formula of calcium carbonate.

.....(1 mark)

ii. 50g of calcium carbonate dissolve in 500ml of water, Calculate the mass volume fracture. (m/v)

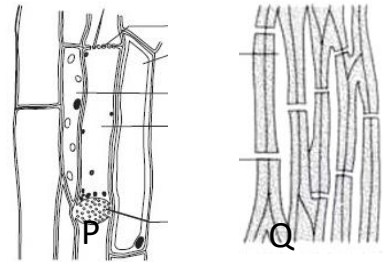
.....
 (2 mark)

viii. Find the concentration of above calcium carbonate solution. (C-12, O-16, Ca-40)

.....
 (3 mark)

02. A) Two types of tissues are given in the diagram.

i. Tissues are groups of that have a similar structure and act together to perform a Function.
 (2 mark)



ii. Above P and Q figures are tissues in the Plant. Name them

P..... Q(2 mark)

iii. Mention the special function of tissue P.

.....(2 mark)

iii. Mention the place that tissue Q found in the plant parts.

.....(2 mark)

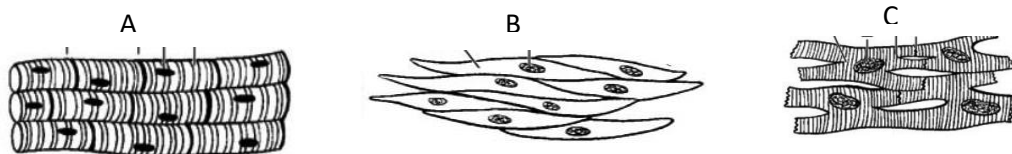
iv. In which type of plant tissue is an active site of cell division?

.....(1 mark)

v. Which tissue is responsible for transporting water in the plants?

.....(1 mark)

(B) Diagrams of muscle tissue in the human body are given below.



i. Name A and C?

A..... C.....(2 marks)

ii. Name the voluntary muscles that have striation?

.....(1 mark).

iii. State a place that tissue "A" can be seen.

..... (1 mark)

iv. State the letter of tissue that never become fatigue

.....(1 mark)

v. Give a structural different between the muscle tissue A and C?

.....(2 mark)

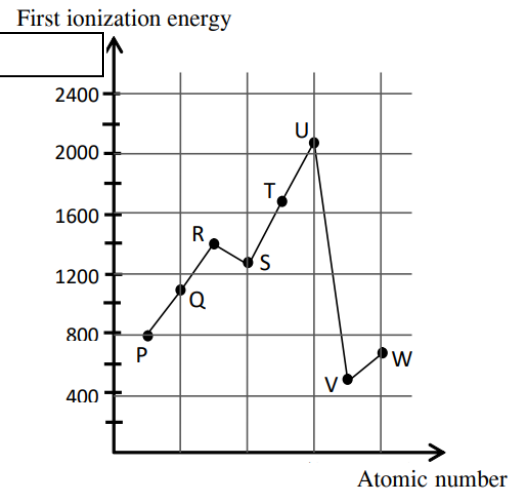
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03. (A) P, Q, R, S, T, U, V, and W are the adjacent elements of the periodic table and given are not their symbols. W belong the 3rd period. The first ionization energies of those elements are given below in a graph. The mention English letters aren't standard symbols.

(i) What is the unit of measuring ionization energy mark in a proper place of the given graph? (1 mark)

(ii) Give one medical use of element 'W'.

.....
..... (2 mark)



(iii) Identify the above elements which suitable to below descriptions and fill the blanks by their chemical symbols.

a) Element with maximum first ionization energy

b) Element with valency 3

c) Element with high electro negativity value

d) Element with the electronic configuration of 2, 8, 2 (4 mark)

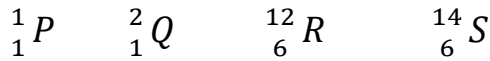
(iv) Write the chemical formulae which is formed by the element "V" and "S"

.....
.....(2 mark)

(v) Draw the lewis' structure of atomic compound which is formed "R" with Hydrogen / H.

(2 mark)

B) Some atoms are expressed below.



(i) Which are isotopes from above atoms? (1 mark)

(ii) Mention a characteristic that can be used to identify above atoms as isotopes.

.....
(2 mark)

(iv) Mass of an atom of Z is 6.476×10^{-23} g Atomic mass unit is 1.67×10^{-24} . Hence find the relationship of relative atomic mass of "Z"

Atomic mass of Z = $\frac{\text{mass of an atoms}}{\text{atomic mass unit}}$

$$= \frac{\boxed{}}{\boxed{}} = \boxed{}$$

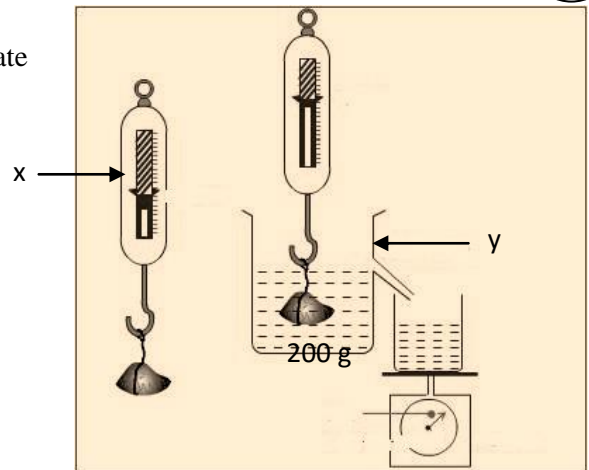
(3 mark)

04. (A)The following is an apparatus arranged to investigate the validity of a certain law.

i. Name the equipment x and y

x.....

y (2marks)



ii. Which law is experimented here?

..... (1 marks)

iii. Write down the relationship stated by the law mentioned (ii) above.

..... (1 marks)

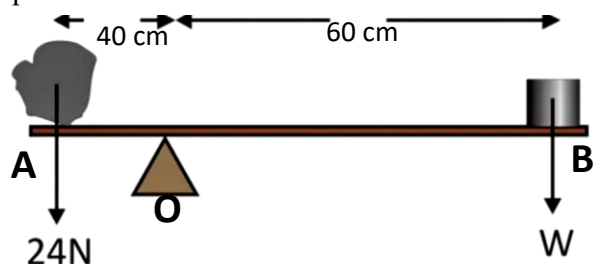
iv. What is the upthrust created by water? ($g = 10 \text{ ms}^{-2}$)

..... (2marks)

(A) Diagram shows how a uniform rod is balanced at point 'O'.

i. When the rod is balanced at 'O', calculate the force exerted by W.

.....
 (2marks)

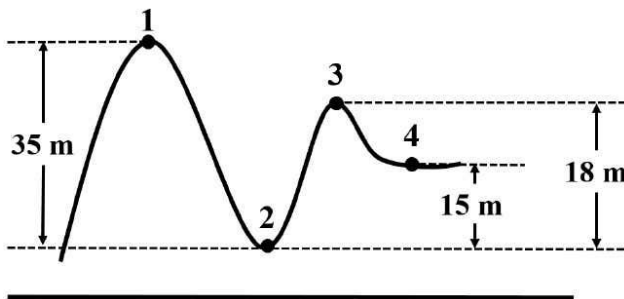


- ii. The rod should be balanced at 'O' after object weight of 6 N instead of 24 N at the end. What is the distance 6 N weight need to be moved pivot from point "A"?

.....
 (2marks)

(C)

- i. At what point of the track is the kinetic energy at minimum level? (The ball is start from the point 1.)



- (1 mark)
- ii. Give the equation to find out the potential energy.

- (2 mark)
- iii. The 100 g ball that reach at point 3, calculate the potential energy of the ball. ($g = 10 \text{ ms}^{-2}$)

.....
(2 mark)



JAFFNA HINDU COLLEGE

First Term Exam - 2023

Grade - 11

Science II B

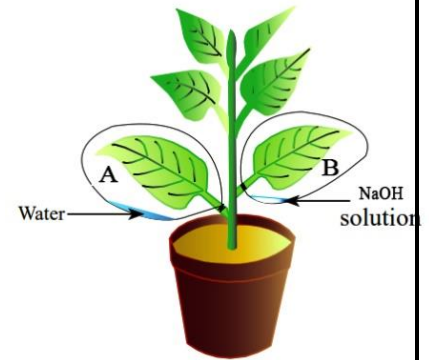
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Part – II B

(05)

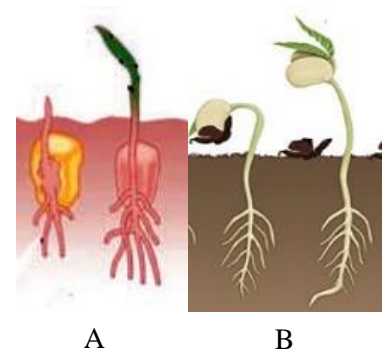
A. The process of producing food in green plants is called photosynthesis.

- 1) Write down the word equation for the process of photosynthesis (2 marks)
- 2) Name the organelle that absorb solar energy (1 mark)
- 3) Write down the form that the main product of the photosynthesis transported into storage tissue and the tissue that transport above form (2 marks)
- 4) The setup was given here to test a factor that needed for the processes of photosynthesis
 - i. In which factor is tested here that needed for the processes of photosynthesis (1 mark)
 - ii. State the purpose of having NaOH in this setup B (1 mark)
 - iii. For the above purpose of testing factors, A student use the potted plant that have reticular venation leaves. Identify the type of root present in this potted plant?



B. Germination of seeds occurs in two ways.

- 1) Name A and B? (2 marks)
- 2) According to which type stated above does Germination of bean seeds occur. (1 mark)
- 3) Sometimes seeds do not germinate, through the Essential factors for germination are fulfilled how we known this condition. (1 mark)
- 4) The above condition is an adaptation for adverse Environmental conditions. State a factor that affect the above condition. (1 mark)



C. The process of transmission of inherited characters to next generation is known as inheritance.

- 1) How many pairs of chromosomes are the responsible for sex determination of humans.? (1 mark)
- 2) Name a genetic disorder due to sex linked inheritance? (1 mark)
- 3) Show the sex determination of human using diagram? (3 marks)

4) What is the probability of getting a boy child? (1 mark)

5) State an application of knowledge of inheritance in a field? (1 mark)

(06)

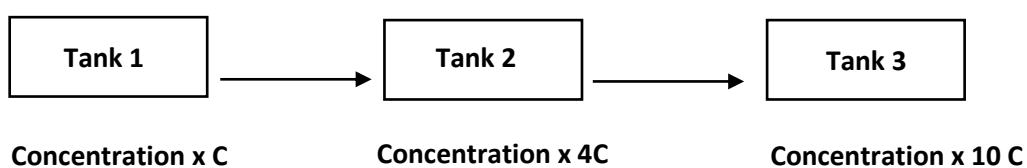
A. We use several methods of separating substances in the environment

01) Mention the most suitable separating method using the following instance

1. Extract iodine from aqueous solution of iodine
2. Obtain distilled water from a sample of well water
3. Separate oxygen gas and nitrogen gas from the atmosphere
4. Identifying active chemical compounds in plants

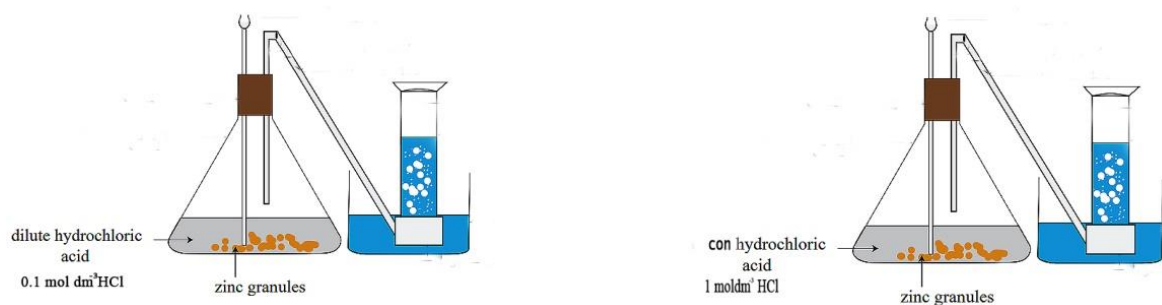
(4 x ½ = 2 marks)

02) The following figure shows the extraction of salt from sea water



1. Name the energy source that is used to extract salt from sea water? (1 mark)
2. Write down the chemical formula of the substance that crystallizes and settles down at Tank 2? (1/2 mark)
3. A student tries to prepare a standard solution using the substance NaCl that settles down in Tank 3
(he prepared 500 cm³ of 0.1 mol dm⁻³ NaCl solution)
 - i. What do you understand by 0.1 mol dm⁻³ NaCl solution? (1 mark)
 - ii. Name 3 essential pieces of equipment required to prepare a standard solution in the laboratory (1 ½ marks)
4. State a defect when you are involved in the practical activity in the laboratory and give the solution to overcome the above defect? (2 marks)
5. 0.1 mol dm⁻³ 500 cm³ NaCl standard solution was prepared. Calculate the number of moles present in the above solution (1 mark)

B. The below setup shows, A student prepared to identify the factors affecting the rate of reactions



1. From the above activity which factor was tested, to identify the rate of reaction. (1 mark)
2. Name 2 factors that affect the rate of reaction except that you mention above question(1) (1 mark)
3. Write down the balance equation for the above reaction? (1 mark)

Fill in the blanks using the above collected gas in the above set up

1. Name the gas that collected.....
2. Method that used to collect the above gas
3. State a method to identify the above collected gas (3 marks)

C.

The above stated gas combine with oxygen and form an inorganic compound. that compound is very essential for the existence of living organisms.

1. Draw the dot- cross diagram for the above stated compound (1 mark)
2. State a specific character that the above compound consists for the existence of life (1 mark)
3. Explain in brief how the above character useful for the organism for their existence of life (1 mark)

(07)

A. When we push or pull something we apply a force

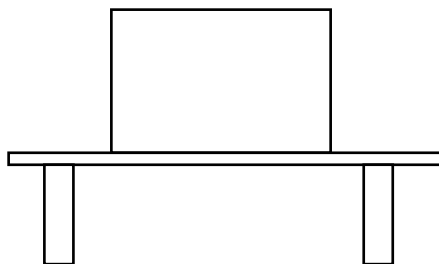
1. State the Newton's second law of motion (2 marks)
2. A force of 12N is applied on a body of mass 6kg moving at a uniform velocity in the directions of its motion. Find the acceleration of the body. (2 marks)
3. State 2 day to day application of Newton's 3rd law of motion (2 marks)

B. A coconut falling from a tree independently. It takes 3 seconds to reaches the ground.

1. Draw the velocity- time graph for the above activity (3 marks)
2. Find out the velocity when the coconut reaches the ground (2 marks)
3. Calculate the height of coconut tree that the coconut falling from? (2 marks)

C.

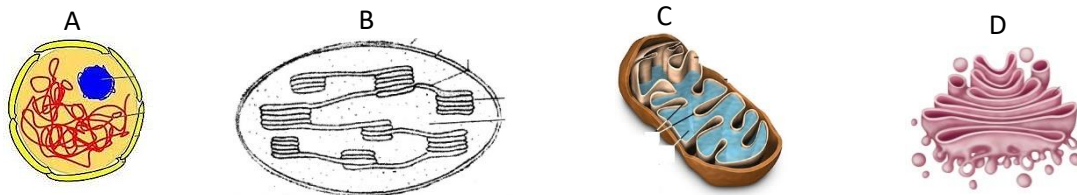
1. Draw the forces acting on the object that in equilibrium on a table



2. Write down the condition that must be satisfied when the two forces are in equilibrium (2 marks)
3. If the mass of the object is 0.2kg. what will be the force applied if the object must be in equilibrium? (2 marks)

(08)

A. The following pictures shows the organelles that use in living cells for their existence of life. Answer the following using these pictures.



1. Name two organelles that have double membrane from the above (02 marks)
2. Name the structure that present only in plant cell and state its function. (02 marks)
3. State the process that occur in organelle which call as “Power house” (01 mark)
4. State 2 difference between the two types of cell division (02 marks)
5. The structure present in figure A, that responsible to transport genetic characters from one generation to another.
 - a. Name the building unit of the above structure (01 marks)
 - b. Give two importance of the above polymer (01 marks)

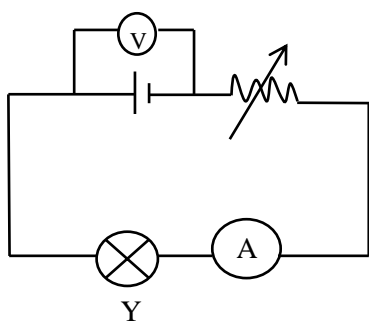
B. A part of activity series is given here, copy this reactivity series in your answer script.

1. In which basis the above activity series is designed
2. State a use of the above activity series
3. Mark the proper place of the high reactivity elements Na, K in the reactivity series.
4. How the above metals (Na, K) stored in the laboratory
5. Name the gas that released when Mg react with hot water
6. State 2 uses of the above released gas
7. Give the method to Extraction of gold that present in the activity series
8. When adding zinc to Copper Sulphate solution, we can extract copper.
 - a. Write down the equation for CuSO_4 and Zn
 - b. Which type of reaction occurs here

Ca
Mg
Al
Zn
Fe
Pb
H

(09)

A.



The above activity prepared to test the Ohm's law in the laboratory.

1. Identify X and Y and state a function of X. (2 marks)
2. Draw a graph to show the relationship between V and I (2 marks)
3. Write down the equation that you gain from the above activity. (1 marks)
4. Write down the quantities that can be measured by $\text{---}\text{A}\text{---}$ and $\text{---}\text{V}\text{---}$ (2 marks)

5. When the bulb is connected to a 12V power supply, a current of 0.5A flows. what is the resistance of the filament of the bulb of that instance. (3 marks)

B. Grouping the organisms according to their special features is known as classification.

1. State the two types of classification (1 mark)
2. From the above you mention which one is considered as the effective? (1 mark)
3. State the reason for your answer? (1 mark)
4. State 2 special features that aves have for their locomotion? (2 marks)

C. The following table shows the preparation of gas in the laboratory.

Reaction	Gas evolved	Use/ Uses
Zn + HCl
KMnO ₄ heating	O ₂
..... + HCl	Extinguishing Fires

(5 x 1 = 5 marks)