Important -

- **Answer all questions**
- **In each of the questions 01 to 40 pick one of the al4ernatives 1,2,3,4 which you consider as correct or most appropriate answer.**
- **Mark a cross (×) on the number corresponding to your choice in the answer sheet provided.**

01. Which of the following is a flowering plant

1. Marchantia 2. Cycus 3. Margosa 4. Selaginella

02. The element of highest electronegativity

1. Oxygen 2. Carbon 3. Sulphur 4. Fluorine

03. Select the vector quantity

1. Time 2. Velocity 3. Speed 4. Distance

04. Select the correct statement

1. Polydactyly is a common inherited characteristic
2. Syndactyly is a rare inherited characteristic
3. Albinism is a common inherited characteristic
4. Curly hair is not an inherent feature

05. The electronic configuration of K^+ ion

1. 2,8,1 2. 2,8,8,1, 3. 2,8, 4. 2,8,8

06. The mass of an object is 10 kg. What is mass necessary to produce $2ms^{-2}$ acceleration on it

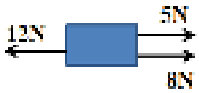
1. 5N 2. 10N 3. 20N 4. 40N

07. Deficiency of which mineral causes retardation of growth and chlorosis in mature leaves of plats.

1. N 2. P 3. K 4. Fe

08. Which of the following is a covalent compound

1. NaCl 2. $CaCl_2$ 3. H_2O 4. KF

09. 

The resultant foce acts on the object above

1. 0N 2. 1N 3. 12N 4. 13N

10. Select the correct statement

1. An object remains in equilibrium under single force.
2. The objects accelerate due to the unbalanced four acts on it.
3. The objects move at uniform velocity due to the unbalanced force acts on it.
4. The mass of the an object does not affect the acceleration of the object.

11. Which of the following statement is false regarding the cell

1. A cell wall exists only in plant cells
2. Mitochondria are present in both animal and plant cells
3. Choloroplast can only be found in plant cells
4. Plant cells do not have a plasma membrane.

12. The element that forms amphoteric oxide is

1. Al 2. Na 3. K 4. Ca

13. The number of carbon atoms in 12g of C

1. ———— 2.

3. 4.

14. Consider the following statements regarding gene technology

A. E-coli bacteria inserted human gene are used to produce insulin

B. Golden rice is produced using a gene extracted from carrot

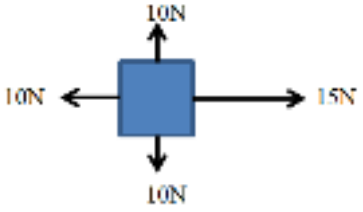
C. A tomato resistant to cold weather is produced by a gene obtained from a fish living in mud of cold countries

Of the above statement

1. only A is true 2. only B is true
3. only A & B is true 4. All A,B,C, are true

15. Four forces are acted on an object shown below Select the false statement regarding it.

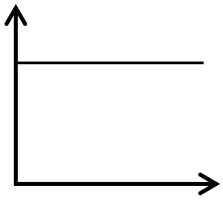
1. The object remains rest
2. An unbalanced force is acted on the object
3. The object dose not move up or down
4. The object move in the direction of the is N



16. Find the answer with only animals belonging to the group mammalia.

1. Bat, Lizard 2. Dolphin , shark 3. Whale, skate 4. whale , man

17. The figure shows a graph of a rest object. The grapn can be



1. A velocity - time graph
2. A speed - time graph
3. A displacement - time graph
4. An acceleration - time graph

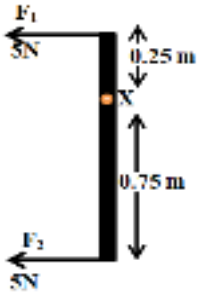
18. Select the correct statement regarding meiosis

1. Variations do not occure due to meiosis
2. Two daughter cells result at the end of the division which are similar to the mother cell
3. Important to maintain a constant number of chromosomes from generation to generation
4. Importance in wound healing and cell replacement

19. Find the number of moles in 50g of $CaCO_3$ (Ca = 40, C = 12 , O = 16)

1. 100 mol 2. 50ml 3. 1mol 4. 0.5mol

20. A uniform rod is clamped at the point X. F_1 and F_2 forces are exerted as shown below.



Select the true statement about the moment acts on the road

1. The resultant moment is zero
2. The moments due to F_1 and F_2 are equal
3. clockwise moment is greater than anticlockwise moment
4. The direction of resultant moment due to F_1 and F_2 forces acts clockwise

21. The area of the bottom of a metal block is $0.5m^2$. Its weight is 50N.What is the pressure exerts by this metal black on the ground.

1. $1Nm^{-2}$ 2. $10Nm^{-2}$ 3. $100Nm^{-2}$ 4. $1000Nm^{-2}$

22. Select the correct relationship

1. Monocot plants → Tetramerous flowers
2. Dicot plants → Trinerous flowers
3. Monocot plants → Secondary growth takes place
4. Dicot plants → Hare reticulate venation

23. Select the option contains only seeds or fruits disperse by explosive mechanism

1. Rubber , Madatiya, Ladies fingers, Balsam
2. Hora, Gammalu, Drumstick, Wara
3. Castar, Olinda, Gannalu, Bitterguard
4. Coconut, Kottamba, Diyakaduru, Lotus

24. A reaction used to produce H_2 gas in the lab is shown below

$$Zn + 2\,HCl \longrightarrow ZnCl_2 + H_2$$

This reaction is

1. Double displacement reaction
2. Single displacement reaction
3. Decomposition reaction
4. Combination reaction

25. Consider the statements below regarding the activity series

A. Used to decide on the methods suitable for extracting metals

B. Useful to find methods that prevent corrosion of metals

C. Helps select methods to make electrochemical cells

Of A B & C

1. Only A is correct
2. Only B is correct
3. A & B are correct
4. A B and C all are correct

26. Three forces act on the object shown below. F is the friction force exerted by the surface on the object. If the object does not move

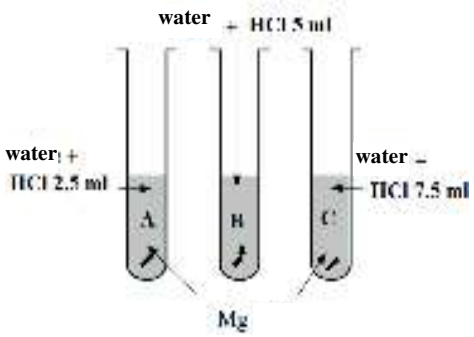
1. F is 5N
2. F is less than 5N
3. F is greater than 5N
4. F is greater than limiting frictional force.

27. The kinetic energy of a vehicle of 500kg moves at 20ms^{-1} velocity

1. 20x500 J
2. 10x20x500 J
3. 20X20X500 J
4. 20X500X500 J

28. A set up used to factors affect the rate of reaction is shown in the figure. The final volume of each test tube of HCl and water is equal. Select the correct statement regarding with this activity.

1. The rate of evolving gas in A is higher than C
2. The rate of evolving gas in A is higher than B
3. The rate of evolving gas in three test tubes is same
4. Air bubbles evolve faster in C tube



29. Select the correct statement

1. Copper sulphate is a covalent compound
2. NaCl has ionic bonds
3. Ionic bonds are formed by sharing electrons
4. Hydrogen and oxygen are combined by lonic bonds in water molecule.

30. A student made the following statements

A. A change which is strong enough to bring a response is called stimulus.

B. The ability to respond to stimuli receives from internal or an external environment is called irritability

C. The stimuli are detected by eyes, ears, tongue, nose and skin of A B C

1. Only A is true
2. Only B is true
3. Only A & B are true
4. All A B C are true

31. Select the correct statement regarding human chromosome

1. There are 23 pairs of chromosomes in human cells
2. The sex chromosomes of a female are known as X and Y
3. The male sex chromosome pair are known as X
4. The male sex chromosome pair are known as Y

32. A sucrose molecule is formed

1. By binding two glucose molecules
2. By binding two fructose molecules
3. By binding a fructose molecule with a glucose molecule
4. By binding a glucose molecule with a glucose molecule

33. A student made the following statements regarding an object moves at uniform velocity

A. An unbalanced force acts on the object

B. The resultant force on the object is zero

C. No force is exerted on the object

Of the above statements

1. Only A is true
2. Only B is true
3. Only A & B are true
4. A B C all are true

34. The resistance of a resistor which is marked with red, red, red and silver coloured bands is

1. 22 Ω
2. 220 Ω
3. 2200 Ω
4. 22000 Ω

Red	silver
2	10%

35. Select the correct statement

1. Whenever an unbalanced force acts on a body, acceleration occurs
2. The objects move at uniform velocity when an unbalanced force acts in the direction of motion
3. An unbalanced force can be acted on a rest objects also
4. Every action has a reaction action in the same direction of equal magnitude

36. Select the answer that correctly matches the example with the method of natural propergation

1. Roots - Akkapana
2. Bulbil - pineapple
3. Bulb - potato
4. Runners - Hulankeeriya

37. Select the correct statement

1. Although water molecule is a poler and there are no inter molecular attractions
2. Water molecule is non-polar and there are no inter molecular attractions between them
3. Water molecule is polar and there are inter molecular attractions between molecules
4. Water molecule is polar and there are inter molecular attractions between molecules

38. Following are 03 statements made by a student regarding the resistance of a conductor

A- Resistance decreases as the cross sectional area of the conductor increases.

B- Resistance increases as the length of the conductor increases.

C- The resistance of the conductor does not change according to the material composition of the conductor

Of A, B, C

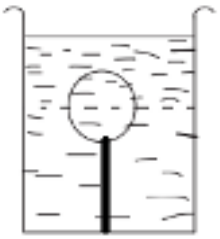
1. Only A is true
2. Only B is true
3. Only A & B are true
4. A, B, C all are true

39. Select the incorrect statement.

1. Hydrogen gas can be collected by downward displacement of water
2. Oxygen gas can be collected by downward displacement of water
3. Hydrogen gas can be collected by downward displacement of water as well as downward displacement of air
4. CO_2 gas can be collected by downward displacement of air as a well downward displacement of water

40. As shown below figure a ball is tied at the bottom of a bowl of water with a string to prevent it from rising

Select the correct statement regarding this phenomena



1. The weight of the object is greater than the up thrust act on it by the liquid
2. The weight of the object is less than the up thrust act on it by the liquid
3. The weight of the object is equal to the up thrust act on it by the liquid
4. Non of the above are correct

පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව - උතුරු මැද පළාත
மாகாணக் கல்வித் திணைக்களம் - வட மத்திய மாகாணம்
DEPARTMENT OF EDUCATION – NORTH CENTRAL PROVINCE

Third Term Test - 2023

Grade 10

Subject :- **Science- II**

School Name : .....

Index Number : .....

Time : **3 hours**

Instractions :-

- Write your ansers in neat handwriting
- Answer the four questions in Part A in the space provided of the five questions only.
- After answeting the part A, add answer script of Part B together and hand over.

Part - A

1. A Below chart shows the organization levels of a multicellular organism.

Cell ⟹ A ⟹ B ⟹ System ⟹ C

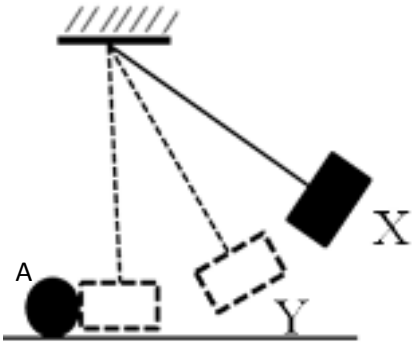
i. Write the appropraiate words that match A,B,C

A …… B…….. C ……

ii. Complete the table below.

The Living Characteristic	Description
Growth	.....
.....	Production of a new generation
.....	The stored food is converted into energy
.....	Move from place to another place

B. A wooden block is supended by a string as shown bleow. It is pulled up 0.5m and dropped. Then it moves as shown below and collides with sphere A



i. Calculate the potential energy of the wooden block when it pulled up 0.5 m height

.....

.....

ii. What is the form of energy obtained by sphere 'A' after collision.

.....

ii. One student said that the sphere movers farther when it is collided form X position than Y position. Is it true or false? .....

b. Explain the reasan for your answer

.....

.....

C. As shown in the following figures, three test tubes filled with equal volumes of H_2SO_4. Cleaned three Mg strips were added to the three test tubes.

i. Mg strips were dissolved in X Y acid solutions at once but Mg strip in Z solution was dissolved a little later. (All 03 test tubes are at the same temperature)
(Explain one reason for this abservation.

.....

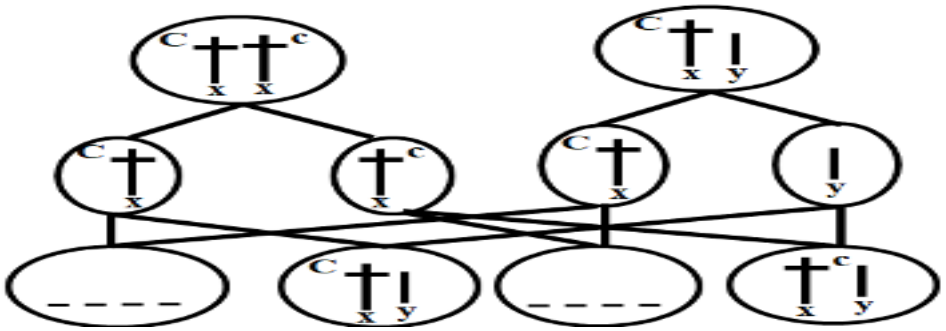
.....

ii. Write any other observation that can be seen in the test tubes apart from melting of Mg strips.

.....

02. A. How colour blindness is inherited is illustrated the figure bleow.

i. Fill in the blanks with correct phenotype and genotype.



Genotype

Phenotype

....

ii. The above figure show a sex - linked inherited disorder. What is known as a sex linked inheritance.

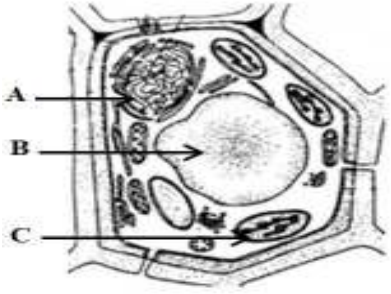
.....

.....

iii. What type of genetic disorder causes albinism

.....

B. A typical plant cell is shown below diagram.



i. Name A to C organells shown in the diagram.

A .....

B .....

C .....

ii. A Write 02 functions of A organel.

1. ..... 2.....

iii. Write down 2 differences between animal cell and plant cell.

1.....

2.....

03. A The number of sub atomic particles of some atoms are shown below table.

Atom	Number of protons	Number of electrons	Number of neutrons
P	11	11	12
Q	6	6	6
R	17	17	17
S	6	6	8

i. Write the atomic number and mass number of P element.

a. atomic Number .....

b Mass Number .....

ii. Of PQ RS state the pair of isotope.

.....

iii. Write electronic configuration of R

.....

iv. Write the chemical formula of compound formed between P & R elements.

.....

B. A Part of the periodic table is given below. The symbols given are not standard symbols. E is a noble gas in 3rd period.

		A	**B**	**C**	**D**	
						E

i. Arrange the elements A B C & D according to the ascending order of their first ionizations energy.

.....

ii. Which element has the lowest elegronegativity among above elements.

.....

iii. Briefly explain eletronegativity

.....

.....

C. Thermal decomposition of 200g of $CaCO_3$ is shown below.

$$CaCO_3 \longrightarrow CaO + CO_2$$

i. Find the relative molecular mass of $CaCO_3$. Ca - 40 C - 12 O = 16

.....

.... (Ca = 40, C = 12, O = 16)

ii. Find number of moles in 200 g of $CaCO_3$

.....

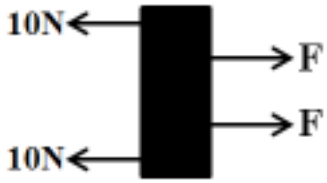
.....

iii. Find the mass of CaO produced after heating 200g of $CaCO_3$

.....

.....

04. A. The object below is at rest under 04 forces exerted on it.



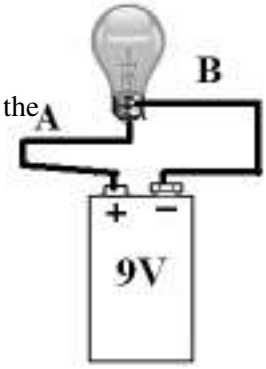
i. What is the resultant force of two forces of 10 N

.....

ii. Draw the resultant force due to two F on this diagram.

iii. What is the resultant of all four forces. .....

B A. Battery of 9V is connected to the circuit.



i. Which property of the battery is marked as 9V

.....

ii. State the instrument used to measure the property you mentioned above and what is the symbol of it

Instrument : .....

Its symbol : . .....

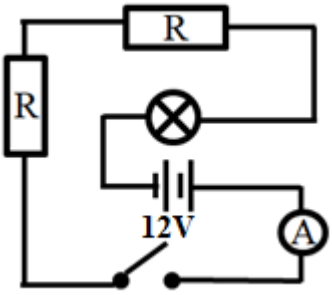
iii. State the direction that current flows from the buttery using A & B letters.

.....

iv. Write a factor affects resistance of a conductor.

.....

C The resistance value of R is 2ohm and the resistance of bulb also 2ohm



i. Are the two resistors named as R connected in series or in parallet. .....

ii. Calculate equivalent resistance of the two resistors shown as R

.....

.....

iii. Find the ammeter reading when switch is closed

.....

.....

iv. Which law is used to obtain answer above (iii)

.....

v. What is the factor should be maintained constant when testing the law you mentioned above (iii)

.....

Part - B

05. The table below is based on experimants related several types of food

A. i. Fill in the blanks in the table.

Nutrient	Test used to identify relevent nutrient	Reagents used	Observation
Starch	Iodine Test	(a)……	(b) ……
Glucose	Benedict Test	(c) ……	(d) ……
(e) ……	(e) ……	Sodium hydroxide and copper sulphate	(g) ……

ii. What is the type of sugar contains in sugarcane.

iii. Name the elements in protein

iv. What is the building unit of the bio molecule used to store genetic informations.

B. Some organisms found in the enviroment are shown below.

i. Classify above animals as vertebrates and invertebrates.

ii. Name the animal with chitinous cuticle.

iii. Write two characteristic of the animal group that Squid (Cuttle fish) belongs.

iv. Write one characteristic of Eagle which help for locomotion.

v. Write 02 uses of fungi.

06. The below figure shows a setup used to produce a gas.

i. Write an experiment used to identyfy the X gas produced here

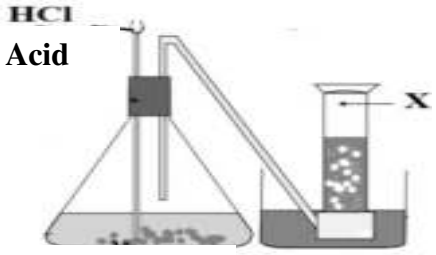
ii. a. Write a suitable method for collecting gas X other than the one shown here

b. Which property of gas X is considered in above collecting methods.

iii. Suggest a suitable method can be used in this test to increase the rate of evolving gas bubbles.

iv. a. Draw Lewis stracture for gas X,

b. What is the type of bond present in gas X



v. State the reaction between HCl and lime stone in a balanced chemical equation

B. The methods of extracting P,Q, R metals are stated below respectively

P - The ore is powdered finely and mixed into a drain of water

Q - Electrolysis of fused chloride

R - By reducing metal oxide.

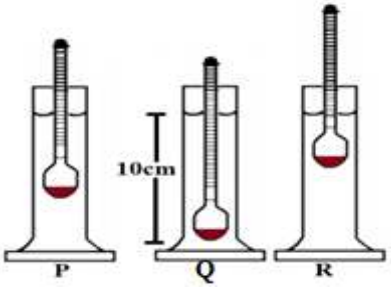
i. From sodium, gold and iron, indicate the suitable metals for P Q R

ii. Of P Q and R which does react with water and write the observations can be seen there.

iii. Arrange P Q R in ascending order of their reactivity.

iv. Write two raw materils used for iron exraction.

07.A. Three identical hydrometers are immersed in three liquids with different denisties.

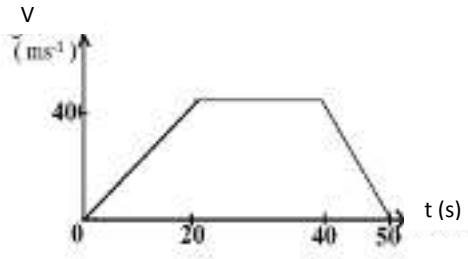


i. Arrange the densities of P Q R liquids the ascending order
ii. If the mass of hydrometer is 250g, calculate the upthrust acts on it by 'P' liquid.
iii. What is the upthrust acts by Q liquid
iv. Calulate the pressure exerts by Q liquid at the lower part of the hydrometer shown in second figure (density at Q = 900 kgm^{-3})

B. i. A bullet in an air rifle has a of 250g. What is the acceleration that the bullet is received when gun is exerted 20N
ii. Does the acceleration reduce if a bullet of 50g is used.
iii. Find momentum of the bullet of 50 g when it moves at a velocity of 200ms^{-1}
iv. Afrer moving a short distance the bullet falls on the ground. Why?

08.A. The sexual reproductive structure of plants is the flower. Fruits are produced after pollination.
i. What is pollination?
ii. What are the main methods of pollination. Write one adaptation of flowers relevent for each pollination methods.
iii. A student stated that the cross pollination is more advatageous than self pollination. Do you agree with that statement or not agree? explain your answer.
iv. Name male and female gamate cells of human.
v. What is known as a disintegrating morulla of uterine wall, sinking and depositing in the wall?
vi. Name the hormone that influences for the growth of uterine wall.

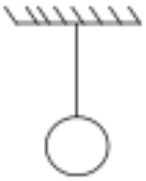
B. The variation of velocity of a certain object that travelled along a straight line is shown in the graph below.



i. According to the graph state the nature of motion in 0s - 20, 20s - 40s and 40s - 50s
ii. Calculate the acceleration of object wihin first 20S.
iii. Find the relevent unbalanced force acts on the object duting 20S - 40S
iv. Find the total displacement of the object.
v. What is the force exerts between two contact surfaces to opposo the tendency to move

09. A. The mass of a selected atom was taken as a unit and the masses of the other atoms were given relative it.
i. Define relative atomic mass.
ii. The mass of an Na atom is 3.819 x 10^{-23} g. The mass of C atom is **1.99 x 10^{-23}**. Calculate the relative atomic mass of Na
iii. Find th number of moles in 90g of urea ($CO(NH_2)_2$) C = 12 O=15 N = 14 HCl
iv. Find the number of urea molecules in 90 g.
v. State the type of reaction takes place when Mg reacts with HCl acid.

B The figure below shows an object remains in equilibrum under two co - linear forces.



i. What are the two forces act on the objects.
ii. What can you say about the magnitude of forces you mentioned above.
iii. Find the weight of the this object if its mass is 400g (g = 10 ms^{-2})
iv. The below figure shows the force applied to close a gate.
a. Find the moment of the gate.
b. Write two examples for couple of forces.