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Provincial Department of Education - NWP

දෙවන වාර පරික්ෂණය - **10** ශ්‍රේණිය - **2023**
Second Term Test - Grade 10 - 2023

SCIENCE - I

Time : 01 hour

Name / Index No. :

Instructions :-
- Write answers to all the questions.
- In questions number 1 to 40, four options are given as (1), (2), (3), (4) for answers. Choose the correct or most appropriate option for each question or answer.
- Mark (X) in the circle provided for the number of the option you have chosen for each question on the answer sheet provided to you.

01. Not a bio-molccule,
    (1) Carbohydrate   (2) Protein   (3) Lipids   (4) Vitamin

02. Select the element which forms an acidic oxide,
    (1) Sulphur   (2) Sodium   (3) Aluminium   (4) Potassium

03. Which organelle does the production and storage of secretory materials?
    (1) Ribosome   (2) Golgi bodies   (3) Nucleus   (4) Vacuole

04. Select the correct statement regarding the motion of an object according to following displacement - time table.

Time (s)	0	1	2	3	4
Displacement (m)	0	2	4	6	8

    (1) Uniform velocity   (3) Uniform acceleration
    (2) Deceleration   (4) Acceleration

05. What is the correct statement about enzymes?
    (1) increase the rate of bio-chemical reactions   (3) inorganic compounds
    (2) formed from carbohydrates   (4) cannot be synthesized artificially

06. The international unit to mcasure amount of substances is,
    (1) cubic centimeters   (2) Kilogrames   (3) Pascals   (4) Moles

07. Which answer contains non-flowing plants with no seeds?
    (1) Selaginella, Cycas   (3) Pinus, Cycas
    (2) Poganatum, Pinus   (4) Selaginella, Poganatum

08. Select the strategy to increase friction,
    (1) Using lubricating oils for machine parts.   (2) Etching grooves in vehicle tyres.
    (3) Sharpening a peg.   (4) Sharpening the cutting edge of knife.

09. If he electronic configuration of an element belongs to third period is 2, 8, 6, what is the group of that element,
    (1) Group III   (2) Group II   (3) Group VI   (4) Group VIII

10. The mostly possible ion that can be formed by the above element is,
    (1) 1^+ (2) 1^-
   (3) 7^+ (4) 2^-
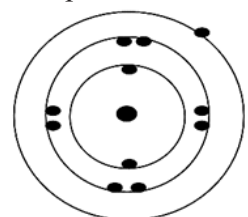
11. The main characteristic that can be used to differentiate a plant cell from an animal cell is,
    (1) Presence of plasma membrane
    (3) Presence of a cell wall
    (2) presences of a vacuole
    (4) absence of ribosomes

12. Select the answer which is not an example for a couple of force,
    (1) Water tap
    (3) Streering wheel
    (2) handle of the bicycle
    (4) spanner

13. What is the vegetative propagation method that can be used to obtain a large number of offeprings which are identical to the mother plant at once,
    (1) Tissue culture
    (3) Grafting
    (2) Rooting of stem cuttings
    (4) Layering

14. The chemical formula of the chloride of the element X is XCl_2 . The chemical formula of the oxide X is,
    (1) XO_2
    (2) XO
    (3) X_2O
    (4) X_2O_3

15. For which purpose the instrument called auxanometer is used ?
    (1) to measure the mass of man.
    (3) to measure the body temperature of animals
    (2) to measure the growth of a plant.
    (4) to measure the motion speed of planets.

16. Select the requirement that should not be satisfied to maintain equilibrium under 2 forces,
    (1) The two forces should not be equal in magnitudes.
    (2) The two forces should be in opposite directions.
    (3) The two forces should act along the same line of action.
    (4) It is not essential to be them coplanar.

17. What is the correct statement regarding isotopes?
    (1) atomic numbers are not equal
    (3) the number of electrons are not equal
    (2) mass numbers are not equal
    (4) the number of neutrons is equal

18. displacement (m)

    time (s)
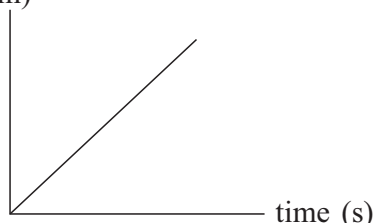
    The above graph is more suitable to,
    (1) represent acceleration
    (3) represent uniform acceleration
    (2) represent velocity
    (4) represent deceleration

19. Select the correct answer which shows the vitamin and the element needed for blood clotting respectively,
    (1) Vitamin K and Calcium
    (3) Vitamin A and iron
    (2) Vitamin K and Phosphorous
    (4) Vitamin E and iodine

20. What is the resultant force of following two forces?
    (1) 2 N
    (2) 4 N
    (3) 6 N
    (4) 10 N

    6 N

    4 N
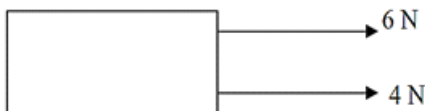
21. The compound represented by the below covalent bond is,
    (1) Carbon dioxide
    (2) Water
    (3) Ammonia
    (4) Methane

(02)
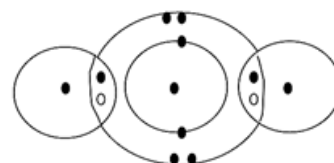
22. Select the correct statement,

    (1) An object falls down from height with uniform velocity.

    (2) An object falls down from height with an acceleration of 9.8 ms^{-2}

    (3) An object, projected from ground to a height travels in a positive acceleration.

    (4) An object, projected from ground to a height travels in an acceleration of 9.8 ms^{-2}

23. Which answer shows the correct scientific nomenclature of jungle fowl ?

    (1) GALLUS LAFAYETTI   (3) GALLUS lafayetti

    (2) Gallus Lafayetti   (4) *Gallus lafayetti*

24. "Until an unbalanced force is applied on it, bodies at rest remains stationary and bodies in motion continue to move at uniform velocities." The above statement describes,

    (1) Newton's third law   (3) Newton's first law

    (2) Newton's second law   (4) Not a Newton's law

25. $\dfrac{\text{Mass of an element of an atom}}{\frac{1}{12} \times \text{mass of atom } {}^{12}_{6}\text{C}}$ For which calculation is the above expression used,

    (1) to calculate relative atomic mass.

    (2) to calculate molar mass.

    (3) to calculate relative molecular mass.

    (4) to calculate the mass of carbon atom.

26. a. Pro-caryotic organisms

    b. can live in extreame environments

    c. can not be destroyed by antibiotics

    Above statements described,

    (1) about the domain Bacteria   (3) about the domain Eucarya

    (2) about the domain Archea   (4) about the Kingdom fungi

27. By using which expression, is it possible to calculate the kinctic energy of an object?

    (1) $h\rho g$ (2) mgh (3) $mc\theta$ (4) $\frac{1}{2} mv^2$

28. Select the correct answer containing the number of atoms in 23 g of sodium and number of molecules in 180 g of $(C_6H_{12}O_6)$ glucose.

    (1) 23 and 180   (3) 6.022×10^{23} and 6.022×10^{23}

    (2) 1 and 24   (4) 6.022×10^{23} and $6.022 \times 10^{23} \times 24$

29. What is the answer containing two sexually tansmitted diseases spread by a bacterium and virus in order,

    (1) Gonorrhoea and Herpes   (3) Gonorrhoea and Syphilis

    (2) Herpes and AIDS   (4) Herped and Gonorrhoea

30. Which answer contains only unisexual flowers,

    (1) Coconut and Orange   (2) maize and chillies

    (3) Coconut and maize   (4) passion fruit and chillies

31. Select the factor which influence seed dormancy,

    (1) not receiving sunlight   (2) not presence of a wet soil

    (3) not maturing the embryo   (4) absence of seed coat

(03)

32. Which answer contains similar structural characters in peacock and bat,

    (1) Warm blooded and 3 chambered heart   (2) four chambered heart and having wings

    (3) Warm blooded and 2 chambered heart   (4) Warm blooded and four chambered heart

33. A disease condition occured due to sex linked inheritance is,

    (1) albinism   (2) Haemophilia   (3) Thalassimia   (4) Stunting condition

34. The answer containing metals that can be extracted by oxidation method is,

    (1) Fe , Sn , Zn   (2) Fe , Pb ,Ca   (3) Sn , Fe , Na   (4) Mg , Al, Fe

35. The monohybrid cross in inheritance is,

    (1) testing how two contrasting characters are inherited.

    (2) testing how several contrasting characters are inherited.

    (3) testing how two similar characters are inherited.

    (4) testing the inheritance of one character from a pair of contrasting characters.

36. Consider following a, b, c expressions,

    a. no units for the relative atomic mass.

    b. molar mass possesses a unit.

    c. relative molecular mass possesses a unit.

    The true statements are,

    (1) only a   (2) only b   (3) only a and b   (4) only b and c

37. A special property received by water due to inter molecular forces between water molecules is,

    (1) Specific heat capacity becomes low.

    (2) Boiling point of water being low.

    (3) High density of water than that of ice.

    (4) Existing water in 3 states as solid, liquid and gas.

38. Equillibrium of a force under 3 forces is given in the figure. Select the correct statement,

    1. The sum of the forces T_1 and T_2 is equal to the force W.

    2. 3 forces are not collinear.

    3. The forces T_1 , T_2 and W are not parallel.

    4. The sum of the forces T_1 and T_2 is not equal to the force W.

39. Select a factor which affect the limiting frictional force,

    1. Nature of contact surfaces.

    2. Area of contact surfaces.

    3. The direction of motion of the object.

    4. The nature of the substances which form the object.

40. The factor that influence mostly for the environmental pollution in Sri Lanka at present due to the development of science and technology is,

    (1) Agrichemicals   (2) Electronic wastes

    (3) Industrial wastes   (4) Domestic wastes
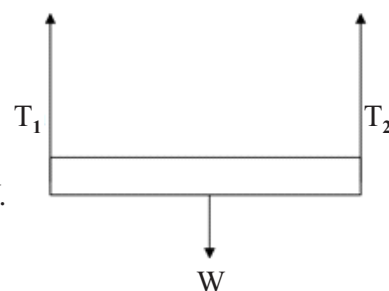
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Second Term Test - Grade 10 - 2023

SCIENCE – II

Time : 03 hours

Name / Index No. :

Instruction :

- **Answer four questions in part A in the space provided.**
- **Answer only three questions in part B.**
- **Attach both A and B answer scripts together after answering and handover.**

Part A

(01) A. Several matter present in the environment is given below.
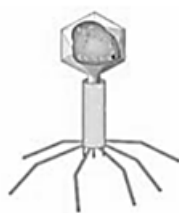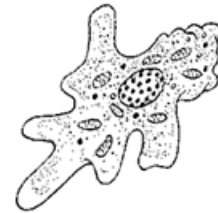
| A | B | C | D |

(i) Fill in the blanks considering above figures. (02m.)

Matter

Living   Non-living

Eg.:- ....   Eg. :- ....
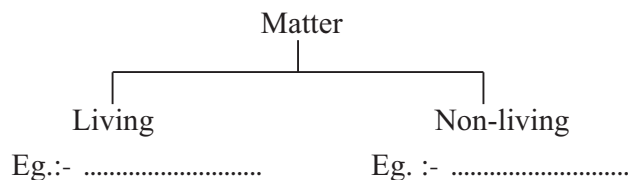
(ii) State one difference between C and D. (01m.)

....

(iii) State one similarity and one dissimilarity between a plant and A. (02m.)

Similarity :-

....

Dissimilarity :-

....

B. Water and salt are two compounds often use.

(i) Draw a structurl diagram to show the nature of bond in sodium chloride. (NaCl) (02m.)

(ii) The figure shows the nature of bond in a water molecule.
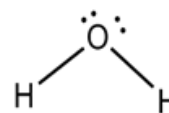
(a) What is the most electronegative atom of element among the atoms in the bond.
(01m.)

....

(b) State the specific property received due to difference in electro negativities among atoms of elements. (01m.)

....

(c) Draw the nature of bond, after receiving the specific property mentioned in (b). (01m.)

C. The speedometer reading of a motor-cycle travelling on a straight line path is given below.

At the beginning   0 km/h
in 5 s   18 km/h
in 10 s   36 km/h

(i) Express the unit used to measure the speed here in words. (01m.)

....

(ii) Is this motion a distance or displacement? (01m.)

....

(iii) Write an expression to calculate the acceleration. (01m.)

....

....

....

(iv) Express 36km/h in metres per second. (02m.)

....

....

02. A. A consider the flow chart about the living matter. Fill in the blanks using suitable words.

Living matter

Organic compounds   Inorganic compounds

(a) 1. ....   (b) 1. ....
2. Carbohydrates   2.   Minerals
3. Lipids   3.   Gases
4. Proteins

Monozaccharides   Disaccharides   Polysaccharides

c 1. .... - Produces in   e 1. .... -
photosynthesis in plants   Produces in seed gemination   Starch

2. Fructose   f 2. .... -
d 3. .... - One product of   Only sugar not present in plants
digestion of lactose   3. Sucrose   Cellulose

(06m.)

(02)
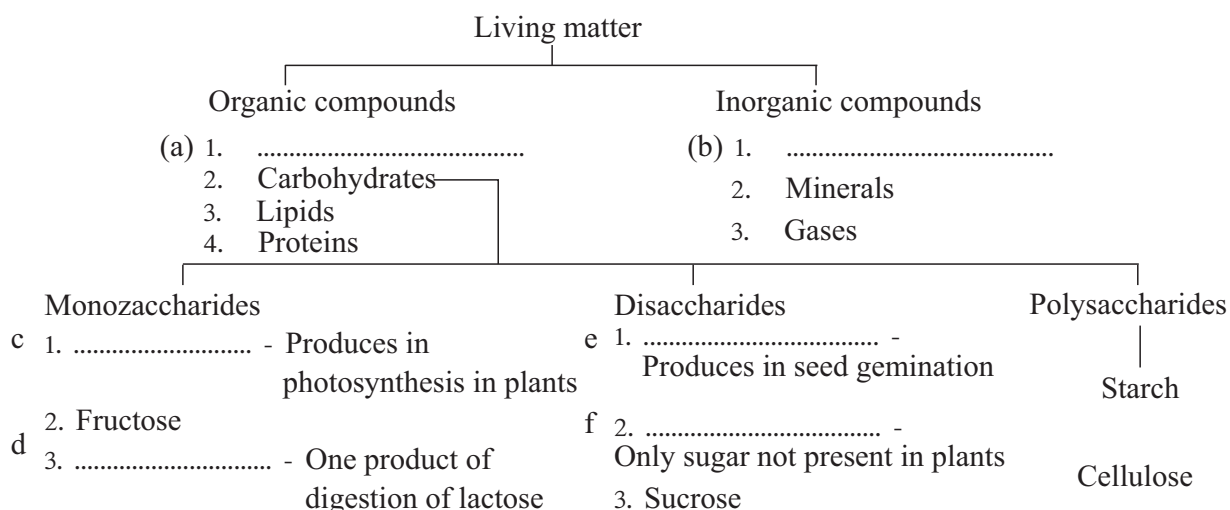
B. When observing an onion peel through the light microscope, air bubbles were present on the slide.
  (i) State the thing that should be done not to enter the air bubbles, when closing onion peel by the cover slip? (02m.)
  ....
  (ii) What is the semi-permeable membrane which marks the boundary of every cell?
  ....(01m.)
  (iii) Growing is a living characteristic. How do the new cells form for it? (01m.)
  ....

C. The natural classification of organisms is more scientific.
  (i) What is "classification of organisms"? (.01m.)
  ....
  (ii) Characteristics which are considered in natural classification are given below. Fill in the blanks.
    1. Morphological characteristics
    2. .... (01m.)
    3. .... (01m.)
    4. Molecular biological characteristics
  (iii) Name the kingdom which possess an organized nucleus and a cell wall made up of chitin. .... (01m.)
  (iv) The eukaryotic organisms with cellular organization belongs to domain......................
  (01m.)

03. A. An atom is formed by several sub-atomic particles. Complete the following table using it. (02m.)

Sub atomic particle	Charge	Mass
Electron	a)	neglegible
Proton	+1	b) ....

  (ii) The atomic number of potassium is 19 and the mass number is 39.
    a) State the number of protons and neutrons in potassium. (02m.)
    ....
    b) Write the electronic configuration of potassium. (01m.)
    ....

B. (i) The mass of ammonia (NH_3) molecule is 2.826×10^{-23} g. The atomic mass unit is 1.66×10^{-24} g. Mention an expression to calculate the relative molecular mass of NH_3. (simplification is not necessary) (02m.)
  ....
  ....
  ....

  (ii) The relative atomic mass of C=12, H=1, O =16 calculate the relative molecular mass of sucrose? ($C_{12} H_{22} O_{11}$) (02m.)
  ....
  ....
  ....

  (iii) How many molecules are there in 342g of sucrose? ($C_{12} H_{22} O_{11}$) (01m.)
  ....
  ....

C.   (i)   State the bond type in the compound KF?   (01m.)

....

(ii)   When forming that bond,

    a)   Write the symbol of the two ions.   (02m.)

....

....

    b)   State the electronic configuration of those ions.   (02m.)

....

....

04.   A.   An activity done by a group of students was recorded as follows.
- Marking the North direction on a flat ground.
- Drawing straight line AB and AC perpendicular to each other.
- Amara traveled 12 m within 4 seconds along AB.
- Suneetha travelled 12 m within 2 seconds along AC.
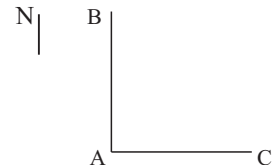
(i)   How do the students in above activity find the direction correctly.   (01m.)

....

(ii)   (a)   What is the distance travelled by Amara?   (01m.)

....

    (b)   What is the displacement of Amara?   (01m.)

....

(iii)   The displacement of Amara and Suneetha is not equal. Mention the reason for that.(01m.)

....

(iv)   Draw the two velocity time graphs relevant to the motion of Amara and Suneetha on a same plane.   (04m.)

(B)   A, B and C are identical wood blocks. They are on the same table and about to move. A sand paper is pasted on the table of B block. The block C is on sand.

sand paper   sand particles
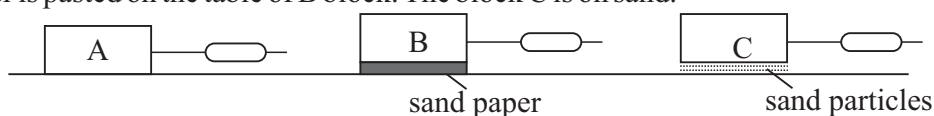
(i)   What is the force created when trying to move the wood block A?   (01m.)

....

(ii)   How do sand particles behave in moving the wood block C?   (01m.)

....

(iii)   What is the term used to introduce the force exerted by the table surface when wood block are begin to move?

....   (01m.)

(iv)   State the reading in 3 spring balances in ascending order, when wood blocks start their motion?   (02/00m.)

....

(v)   If the area of the contact surface of block A becomes low and starts motion explain what happens to the starting force?   (02m.)

....

Essay questions

05. A Ruwani brought rice, dhal and coconut sambol for her lunch in school.

   (i) Name 02 nutrients contained in Ruwini's diet. (02m.)

   (ii) Name the elements present in the biological molecule which contain genetic information. (02m.)

   (iii) What is the tem used to introduce the protein which contributes to increase the rate of bio-chemical reactions? (01m.)

   (iv) State 2 special properties in water which affect the existance of organisms. (02m.)

   (v) State a common function performed by carbohydrates, proteins and lipids. (01m.)

   (vi) Name two elements which cause the chlorosis in plant leaves . (02m.)

   B. The figure shows the sexual reproductive structure of plants.

   (i) Name the parts A and B in the figure. (02m.)

   (ii) State a function performed by C. (01m.)

   (iii) Which part becomes the fruit after pollination. (01m.)

   (iv) State one adaptation shown by flowers which are pollinated by air / wind and give one example for it. (02m.)
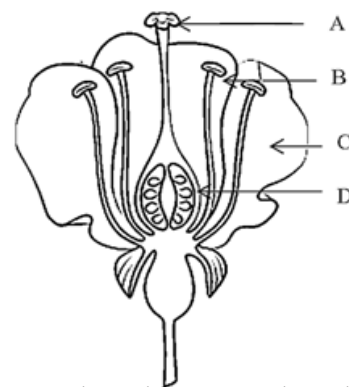
   C. (i) What is the place where the fertilization between human ovule and a sperm takes place? (01m.)

   (ii) What is the term used to introduce the deposition of morula in urerus. (01m.)

   (iii) Name the 2 hormones which are responsible for the appearance of secondary sexual characteristics in males and females. (02m.)

06. A. The periodic table helps in the identification of physical and chemical characteristics of elements. Several elements in the periodic table are given below.

   Na, Cl, O, C, Li, K, Mg, P

   (i) Rewrite these elements in the ascending order of their atomic numbers. (01m.)

   (ii) Place above elements in a periodic table. (02m.)

   (iii) Name the elements which belong to the same group in the periodic table you drew. (03m.)

   (iv) Name 3 elements belong to the second period from the above 8 elements. (03m.)

   (v) Write the electronic configuration of the element Cl. (01m.)

   (vi) The mass number of two isotopes of C are 12 and 14. Represent these two isotopes in standard form. (02m.)

B. To represent the bonds in covalent compounds Lewis structures are used.

   (i)   Draw the Lewis structures of CO_2 and NH_3.   (04m.)

   (ii) Draw the structural diagram to show the nature of the bonds in magnesium oxide.
                                                                                            (02m.)

   (iii) Although water molecule is a covalent bond, the boiling point is as high as ionic
         compounds. Explain the reason for this.   (02m.)

07.
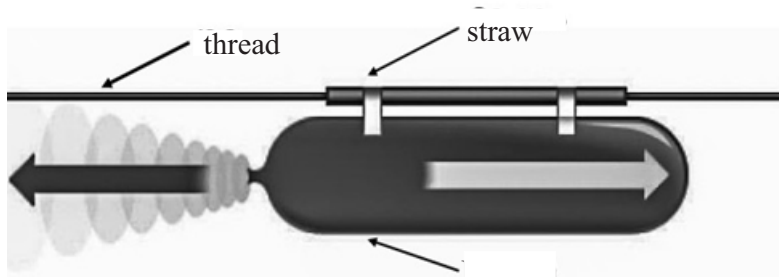
A. The figure shows an activity done by a group of students in the school laboratory.

   (i)   State 2 observations that can be seen when doing this activity.   (02m.)

   (ii) Which law is demonstrated by the above activity?   (01m.)

   (iii) Mention one incident occurs in the environment that can be explained by the above law
         and state the action and reaction.   (03m.)

   (iv) a) Name 2 physical quantities which are connected with the Newton's second
             law.   (02m.)

         b) When exerting a certain amount of force for a bicycle of mass 75 kg, it received an
             acceleration of 4 ms^{-2}. Using the equation relevant for the Newton's second law and
             calculate the amount of force exerted.   (02m.)

B. (i) a) State the international unit of measuring force.   (01m.)

        b) State 2 changes that can be done to an object by applying a force.   (02m.)

   (ii) Explain the amount of weight possessed by 1 kg of mass on earth using Newton's second
         law. (Take gravitational acceleration as 10 ms^{-2})   (02m.)

   (iii) The mass of a man is 60 kg,

         a) What is the weight of him on earth?   (01m.)

         b) If the gravitational acceleration on the moon is 1/6 th that of the earth, what is would
             be the weight of the man on the moon?   (01m.)

   (iv) a) Name the two physical quantities which affect the momentum.   (02m.)

         b) The momentum of a running car at a moment is 600. Express this using
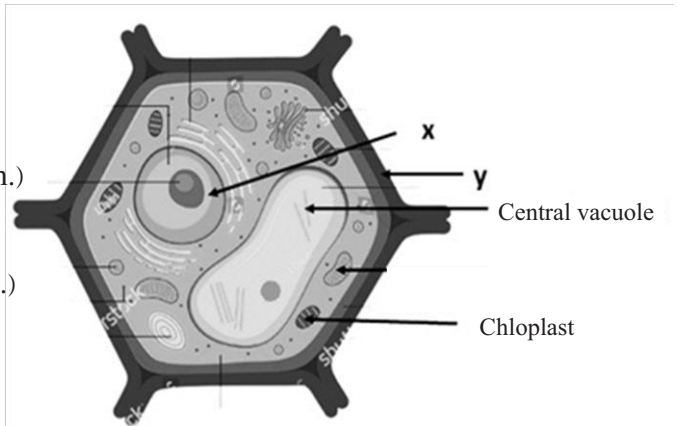   units.   (01m.)

(02)

08   A.   A typical living cell is given in the diagram.

   (i)   Name *x* and *y* mentioned in the figure. (02m.)

   (ii)   a)   Is this a plant cell or an animal cell.   (01m.)

          b)   Name two organelles you used to identify it.   (02m.)

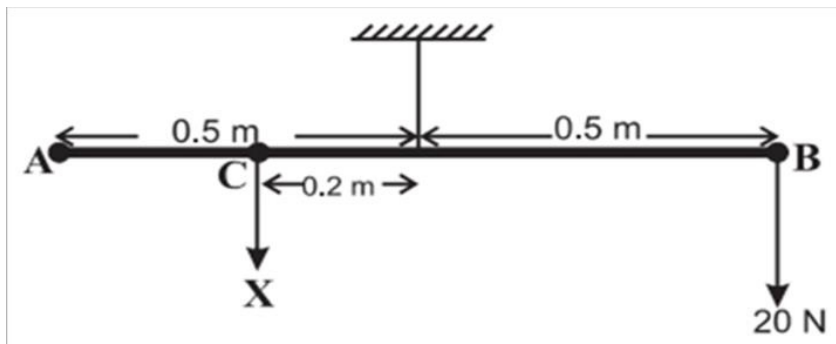   (iii) What is the organelle that generate energy in the cell. (01m.)

x

y

Central vacuole

Chloplast

   (iv)   State 2 components present in the cell sap of central vacuole?   (02m.)

   (v)   State one instance that meiosis occurs in a living body.   (01m.)

   (vi)   What is the importance of meiosis?   (01m.)

   B.   A uniform rod AB of length 1m is suspended and balanced at its centre, as shown in the figure.

   (i)   a)   What is the standard unit to measure the moment of force.   (01m.)

          b)   Name one instance where the moment of force is used in day-to-day life. (01m.)

   (ii)   Name the two factors that affect moment of force.   (02m.)

   (iii) If a weight of 20N force is suspended from B end,

          a)   What is the clock wise moment due to that force.   (02m.)

          b)   What is the weight suspended from a point C situated 0.2 m from the centre would balance the rod again.   (02m.)

   (iv)   State 2 instances where a coulple of force is used in our day-today activities.   (02m.)

(03)

09. A. Investigation about the quantity and quality of matter is done in chemistry.

   (i) What is the unit of Avogadro's constant? (01m.)

   (ii) What is the numbers of atoms contained in 17.75g of an element of relative atomic mas 35.5. (02m.)

   B. The mass of a selected atom is expressed relative to the relative atomic unit.

   (i) How is the relative atomic mass of an element taken. (01m.)

   (ii) Calculate the relative molecular mass of water (H_2O) molecule. ($H = 1, O = 16$) (01m.)

   (iii) Express "the first ionization energy of an atom" (02m.)

   (iv) How does the increase of the first ionization energy of elements affect metallic property of elements? (01m.)

   (v) a) What is the valency of NO_3^-? (01m.)

   b) Write the chemical formula of the compound formed between K^+ and NO_3^-. (01m.)

   C. A framed picture hung on a wall by an iron nail is given in the figure.

   (i) What is the reason for the picture not to fall down? (01m.)

   (ii) Draw a sketch to show how forces acting on the picture by using arrows for the direction of force? (03m.)

   (iii) Which is the force balanced by the iron nail? (01m.)

   (iv) An equilibrium of an object under 3 forces is shown in the figure.

   15 N

   40 N

   R
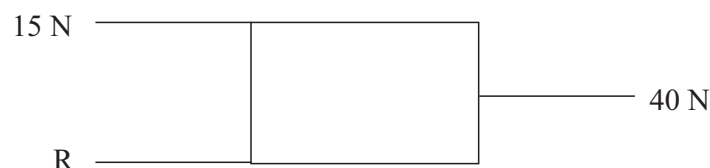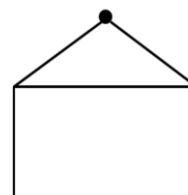
   a) What is the magnitude of force R? (01m.)

   b) When the force 40 N is increased up to 60 N, what is the force exerted to equilize the object? (01m.)

   D. (i) Explain the "resultant force"? (01m.)

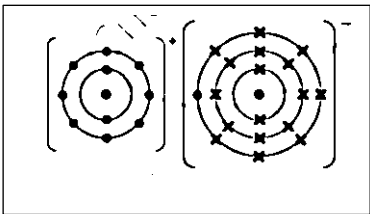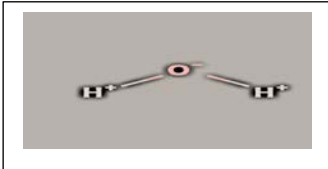   (ii) State two requirements for the equillibrium of 3 forces. (02m.)

(04)

Provincial Department of Education - NWP

Second Term Test - 2023

Grade 10 — **Answer Paper - Part I** — **Science – I**

Q.N.	Answer	Q.N.	Answer	Q.N.	Answer	Q.N.	Answer
01	4	11	3	21	2	31	2
02	1	12	4	22	2	32	4
03	2	13	1	23	4	33	2
04	1	14	2	24	3	34	1
05	1	15	2	25	1	35	4
06	4	16	4	26	2	36	3
07	4	17	2	27	4	37	3
08	2	18	3	28	3	38	1
09	3	19	1	29	1	39	1
10	1	20	4	30	3	40	1
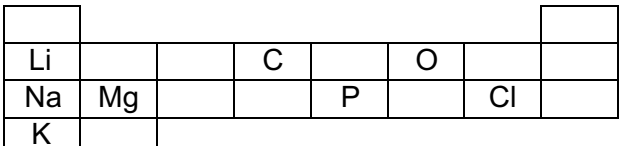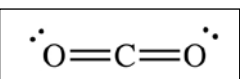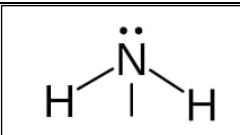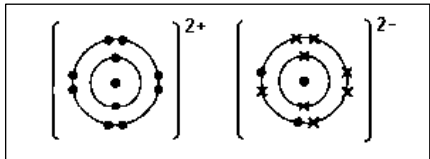
Part II

1	A	(i)	Living A/B/D non living C	02
		(ii)	A difference connected with a living characteristics	01
		(iii)	Similarity : Similarity in living characteristic	01
			Dissimilarity : A Locomotion / Plants - photosynthesis	01
	B	(i)		02
		(ii)	a - O	01
			b - Polarity	01
			c -	01
	C	(i)	Kilometers per hour	01
		(ii)	Displacement	01
		(iii)	Acceleration = $\dfrac{\text{Difference of velocity}}{\text{Time}}$	01
		(iv)	$\dfrac{36 \times 1000\,m}{60 \times 60\,s}$ = 10 ms^{-1}	02
				15

02.	A		a) Nucleic acid	01
			b) water	01
			c) Glucose	01
			d) Galactose	01
			e) Lactose	01
			f) Maltose	01
	B	(i)	Keeping a water drop on the specimen	01
			Closing with a cover slip to slip the water drop forward	01
		(ii)	Plasma membrane	01
		(iii)	Division of existing cells	01
	C	(i)	Classifying organisms according to the common features	01
		(ii)	a. Physiological characteristics	01
			b. Cytological characteristics	01
		(iii)	Fungi	01

		(iv)		Eukarya		01
					Total	15

3	A	i	a	Negative (-)	01
			b	1	01
		ii	a	Protons - 19	01
			b	Neutrons - 20	01
		iii		2 ,8,8,1	01
	B	(i)		2.826×10^{-23} g / 1.66×10^{-24} g	02
		(ii)		342	02
		(iii)		6.022×10^{23}	01
	C	(i)		Ionic	01
		(ii)		K^+ F^-	02
		(iii)		K^+ = 2,8,8 F^- = 2,8	02
				Total	15

4	A	(i)		Compass		01
		(ii)	a)	12m		01
			b)	12m		01
		(iii)		Difference in directions		01
		(iv)		for calculation $\dfrac{12m}{3s}$ = 4ms^{-1} Southern		01 / 01
		(v)				02
	B	(i)		Frictional force / static friction		01
		(ii)		Acting as rollers and reduce friction		01
		(iii)		Limiting frictional force		01
		(iv)		C < A < B CIF the three answers are correct		02/0
		(v)		No change in force friction does not depend on area		02
					Total	15

5	A	(i)	Carbohydrates, Lipids, Proteins (for 2)	02
		(ii)	Phosphorous, Nitrogen, Carbon, Hydrogen (for 2)	02
		(iii)	Enzymes	01
		(iv)	- High heat capacity - Ability to dissolve many substances - Melting point and boiling point being close to atmospheric temperature (for 2)	02
		(v)	Obtaining energy	01
		(vi)	Magnesium, Nitrogen, Phosphorous (for 2)	02
	B	(i)	Stigma, Anther	02
		(ii)	Attract insects, protect gynoecium and androceium	01
		(iii)	Ovary	01
		(iv)	Being light, Meize / corn	02
	C	(i)	Fallopian tube	01
		(ii)	Implantation	01
		(iii)	Oestrogen, Testosterone	02
			Total	20

6	A	(i)		Li, C, O, Na,Mg, P, Cl, K	01
		(ii)			02

Li		C	O	
Na	Mg		P	Cl
K				

6		(iii)		Li, Na, K	03
		(iv)		Li, C, O	03
				Cl 2, 8, 7	01
	B	(i)		$^{12}_{6}C$, $^{14}_{6}C$	02
		(ii)			04

					02

		(iii)		Due to inter - molecular forces between water molecules	02
				Total	20
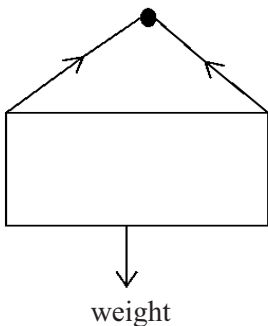
7	A	(i)		Moving the balloon forward Releasing air from the balloon	02
		(ii)		Newton's third law	01
		(iii)		Rowing, Rocket like incident Showing action Showing reaction	03
		(iv)		a) Mass, Acceleration, force (for 2)	02

				b) F = m4
				    F = 75 x 4 Using formula - 01
				      = 300J Answer - 01
					02

	B	(i)		a) N, Newton	01

				b) Moving stationary objects, stopping
				   moving objects, changing the direction of a moving object,
				   changing velocity, changing shape (for 2)
					02

		(ii)		F = mg F = 1kg x 10ms^{-2} = 10N	02
		(iii)		a) 60kg x 10ms^{-2} = 600N	01
				b) 600N x 1/6 = 100N	01
		(iv)		a) mass, velocity	02
				b) 600kgms^{-2}	01
				Total	20

8	A	(i)		X Nucleus	01
				Y Cell wall	01
		(ii)		a plant cell	01
				b Cell wall, chloroplast, central vacuole (for 2)	02

		(iii)		Mitochondria	01
		(iv)		Water, Pigments, ions	02
		(v)		Forming Gametes	01
		(vi)		To maintain constant number of chromosomes from generation to generation	01
	B	(i)		a) Nm or J	01
				b) rotating a nut using spanner or any suitable answer	01
		(ii)		force, perpendicular distance from the rotational axis to the line of action	02
		(iii)		a) 0.5 × 20 = 10 J , N m	02
				b) 0.5 × 20= 0.2 × m , 50 N	02
		(iv)		steering wheel, water tap	02
				Total	20

9	A	(i)		Per mole (mol^{-1})	01
		(ii)		Moles = $\frac{35.5}{17.75}$, $0.5 \times 6.022 \times 10^{23}$ = 3.011×10^{23}	02
	B	(i)		$\frac{\text{Mass of the atom of that element}}{\frac{1}{12} \text{ x mass of a } _{6}^{12}C \text{ atom}}$	01
		(ii)		18	01
		(iii)		Minimum energy that should be supplied to an atom in the gaseous state to remove an electron. (or mark for, energy that should be supplied to remove an electron of on atom)	02
		(iv)		Reducing metallic properties	01
		(v)		a) one	01
				b) KNO_3	01
	C	(i)		The forces eserted on the picture are in equillibriun	01
		(ii)		 weight	03
		(iii)		The resultant of force eserted by springs	01
		(iv)		(a) 25 N	01
				(b) 45 N	01
	D	(i)		The single force that gives the same result of two or more forces.	01
		(ii)		Three forces must be caplanar Exerting forces in same line of action	02
				Total	20