

බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව மேல் மாகாணக் கல்வித் திணைக்களம் Department of Education - Western Province			
වර්ෂ අවසාන ඇගයීම - 2024 (2025) ஆண்டிறுதி மதிப்பீடு - 2024 (2025) Year End Evaluation - 2024 (2025)			
ශ්‍රේණිය தரம் Grade	10	විෂයය பாடம் Subject Science	පත්‍රය வினாத்தாள் Paper I
නම பெயர் Name		කාලය காலம் Time 1 hour	
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- Answer all questions.
 - In each of the questions 1 to 40, pick one of the alternatives (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. The special proteins that are produced within the organisms to increase the rate of bio-chemical reactions are known as

1. enzymes
2. hormones
3. bio molecules
4. amino acids
 02. Of the following substances which one is a compound?

1. Sulphur
2. Brass
3. Mercury
4. Water
 03. What is the most abundant organic compound of the surface of the earth?

1. Protein
2. Lipids
3. Carbohydrate
4. Nucleic acid
 04. If 30 N force is applied on to an object and when it gets the acceleration of 1.5 m s^{-2} . What is the mass of the object?

1. 30 kg
2. 20 kg
3. 15 kg
4. 45 kg
 05. Which of the following is not a use of friction?

1. Walking easily
2. Heating the vehicle engine

3. Driving a vehicle
4. Stopping a vehicle when applying brakes
 06. Of the following which one is living semi permeable and selective permeable membrane?

1. plasma membrane
2. cell wall
3. nucleus membrane
4. tonoplast
 07. Select the incorrect statement on neutral atoms in the same element.

1. number of protons are equal.
2. number of neutrons are equal.

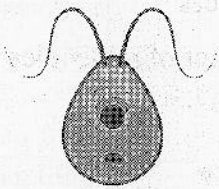
3. atomic numbers are equal.
4. number of electrons are equal.
 08. What is the name of the organism given below?

1. fungi
2. algae

3. bacteria
4. arthropoda
 09. Select a common characteristic of two elements in the same group.

1. Has same ionization energies.
2. Has same electronegativity.

3. Has the same number of energy levels.
4. Number of valence electrons is equal.



Which of the following is a factor that affects pressure in a liquid?

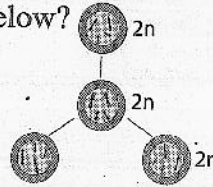
1. nature of the surface
2. area of the bottom
3. shape of the vessel
4. height of the liquid

Select the answer with the correct method of connecting voltmeter and ammeter to a circuit respectively.

1. series, parallel
2. parallel and parallel
3. parallel, series
4. series and series

Which of the following is **not** an importance of cell division given below?

1. Important in growth of multi cellular organisms.
2. When healing wounds.
3. When producing new varieties during evolution.
4. To produce new cells instead of dead cells.



Of the following compounds, select the answer with covalent compounds only.

1. H_2O , NH_4Cl , $C_6H_{12}O_6$
2. CO_2 , NH_3 , HCl
3. CH_4 , H_2O , NH_4NO_3
4. H_2S , $C_6H_{12}O_6$, NaH

A Certain metal burns in air and forms a bright flame with white colour powder. This metal is,

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

A swimming competitor applied his force towards which direction?

1. Towards the swimming direction
2. Towards backward direction.
3. Toward either sides time to time
4. Cannot say the direction exactly.

Which of the following shows the photo auto tropic, chemo auto tropic and hetero tropic organisms respectively?

1. bacteria, green plants, fish
2. green plants, bacteria, mammals
3. fish, mammals, bacteria
4. bacteria, fish, mammals

Which of the following organisms in kingdoms form symbiosis association called Lichens?

1. plantae and animalia.
2. protista and plantae.
3. protista and fungi
4. fungi and plantae.

Of the following gases which one is the lightest gas? ($C = 12$, $N = 14$, $Cl = 35.5$, $O = 16$)

1. CO_2
2. O_2
3. N_2
4. Cl_2

A group of students as spectators of a sports meet noted the speed of runners. The correct speed is noted in,

1. 8 ms^{-1}
2. 8 ms^{-1}
3. 8 m s^{-1}
4. 8 m s^{-1}

Which of the following group of organisms has 2 chambers in the heart?

1. Amphibia
2. Pisces
3. Aves
4. Mammalia

Which one has the equal number of molecules that of 22 g of carbon dioxide?

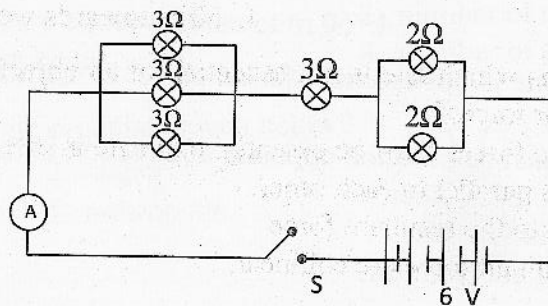
($H = 1$, $O = 16$, $N = 14$, $Cl = 35.5$, $C = 12$)

1. 18 g of water
2. 17 g of ammonia
3. 36.5 g of hydrogen chloride
4. 90 g of glucose

Which of the following compound does **not** complete an octet of electrons around the central atom?

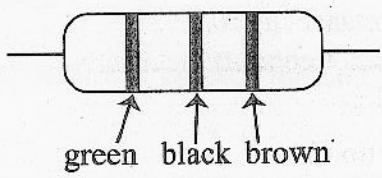
1. NH_3
2. PCl_3
3. BF_3
4. CO_2

23. Which of the following is a characteristic of covalent compounds?
1. All covalent compounds do not dissolve in water.
 2. At room temperature they exist as solid, liquid or gaseous state.
 3. Aqueous solutions of all covalent compounds do not conduct electricity.
 4. Mostly they consist of ions and exist as molecules.
24. Plants which consist suckers for vegetative propagation is,
1. Akkapan, Begonia, Paddy
 2. Paddy, Banana, Kadupul
 3. Banana, Pineapple, Paddy
 4. Gotukola, Pineapple, Begonia
25. Which flower shows hercogamy?
1. Pinna
 2. Jasmine
 3. Corn
 4. Orchid
26. A driver exerted a couple of force of 50 N on a steering wheel. If the steering wheel has 50 cm diameter, what will be the moment of force?
1. 25 N m
 2. 50 N m
 3. 500 N m
 4. 2500 N m
27. Of the following elements, which one forms an amphoteric oxide after reacting with oxygen?
1. S
 2. C
 3. Al
 4. Mg
28. Select the balance chemical reaction.
1. $2C + O_2 \rightarrow 2CO_2$
 2. $Mg + O_2 \rightarrow MgO_2$
 3. $SO_2 + O_2 \rightarrow SO_4$
 4. $CaCO_3 \rightarrow CaO + CO_2$
29. Select the material which is not transferred from mother to foetus through umbilical cord.
1. blood
 2. oxygen
 3. nutrients
 4. pathogens
30. Scientist/s who introduced double helix structure of DNA molecule is/are
1. Gregor Mendel.
 2. Dmitri Mendaleef.
 3. Watson and Crick.
 4. Mendel and Linneaus.
31. Which of the following has number of electrons equal to K^+ ?
1. Cl^-
 2. O^{2-}
 3. Mg^{2+}
 4. Na^+
32. If atomic number of 'X' is 7. What is the chemical formula of chloride of X?
1. $XC1$
 2. $XC1_2$
 3. $XC1_3$
 4. $XC1_5$
33. Of the following characteristics, which one is not considered as a characteristic of inheritance.
1. Having or not having curly hair.
 2. Ability to fold the tongue.
 3. Fused ear lobes or free ear lobes.
 4. Growth of muscles due to exercise.
34. Find the equivalent resistance of this circuit.



1. $\frac{6}{14} \Omega$
2. 5Ω
3. 8Ω
4. 16Ω

35. Figure below shows a permanent resistor. What is the value of the resistor?



colour	value
black	0
brown	1
green	5

1. 5 Ω
2. 500 Ω
3. 5000 Ω
4. 50000 Ω

36. Given below are observations of metals when they react with water.

- A - Does not react with cold water, but reacts with hot water and emit gas bubbles.
- B - Floats on cold water and reacts rapidly.
- C - Does not react with cold water or hot water.

Identify metals A, B and C respectively,

1. Mg, Cu, Na
2. Mg, Na, Cu
3. Cu, Mg, Na
4. Na, Mg, Cu

37. Given below are few statements on photosynthesis.

- A - Photosynthesis occur only when there is light.
 - B - Photosynthesis occur only in green plants.
 - C - CO₂ and H₂O are raw materials which are used in photosynthesis.
- Which statement/s is/are correct?

1. Only A
2. Only B
3. Only C
4. A, B and C

38. What is the line drawn on the body of the ship to limit amount of sinking in the sea, when placing containers with goods?

1. Plimssole line
2. Zonar wave lines
3. Central line drawn on the body of the ship
4. Disconnected line

39. A person started a journey and walked 150 m towards north and turned toward east and walked another 50 m. When his work is over there again he walked 100 m towards south and turned to west and walked 50 m along the road towards west. Select the answer which shows the displacement between the place he started and the place finally he reached.

1. 50 m towards north
2. 50 m towards south
3. 50 m towards east
4. 50 m towards west

40. Of the following conditions which one is **not** essential for an object to maintain equilibrium under the action of three coplanar forces?

- 1. The resultant of any two forces must be essential opposite in direction to the third force.
- 2. Three forces are always parallel to each other.
- 3. The third force is equal to the resultant force.
- 4. The third force and resultant force are collinear.

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වර්ෂ අවසාන ඇගයීම - 2024 (2025)
 ஆண்டிறுதி மதிப்பீடு - 2024 (2025)
 Year End Evaluation - 2024 (2025)

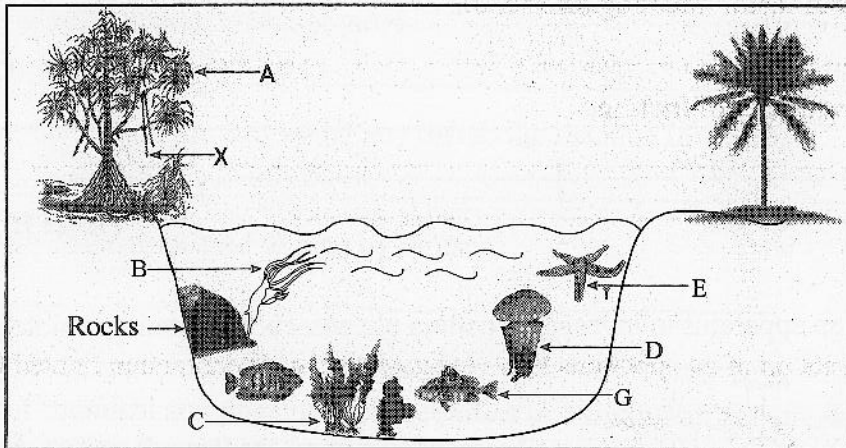
ශ්‍රේණිය Grade	10	විෂය பாடம் Subject	Science	පත්‍රය வினாத்தாள் Paper	II	කාලය காலம் Time	3 hours
නම பெயர் Name				විභාග අංකය சுட்டிலக்கம் Index No.			

Instructions

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

Part A

01. A. Diagram of marine eco system is given below. Answer the following questions relevant to it.



(i) A plant which is grown in coastal areas is shown in the diagram above as A. Identify the plant A and name the structure 'X'

A: X: (1 mark)

(ii) Identify 'B' in marine waters and write its pattern of symmetry.

(a) B (b) type of symmetry (1 mark)

(iii) Write the phylum of 'B' and mention another organism which belongs to the same phylum.

(a) B - (b) (1 mark)

(iv) Find the organism with highly distributed water vascular system and its phylum.

(a) Organism (b) Phylum (2 marks)

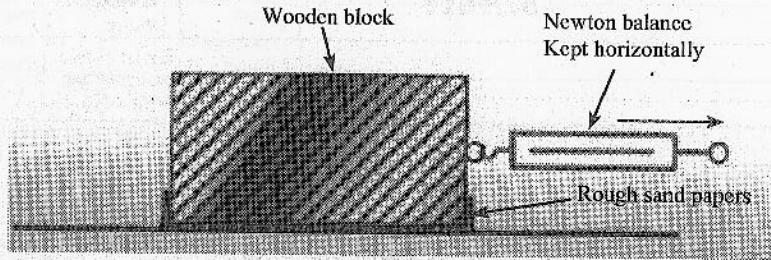
(v) The structure 'C' shows an organism in kingdom protista. It acts as a producer in food chains. Identify the organism and write its domain.

(a) Name : (b) Domain : (2 marks)

3. The process of depositing matured pollen of a flower on the stigma of the flower of the same species is known as pollination.

- (i) What are the two main methods of pollination?
 - (a) (b) (2 marks)
- (ii) Write the agents of pollination for the flowers given below.
 - (a) Corn (b) Vallisneria (2 marks)

2. The diagram belows illustrates an activity done in the laboratory to study factors affecting on friction.



- (i) Name the factor investigate above. (1 mark)

.....
- (ii) Mention another factor affecting on friction. (1 mark)

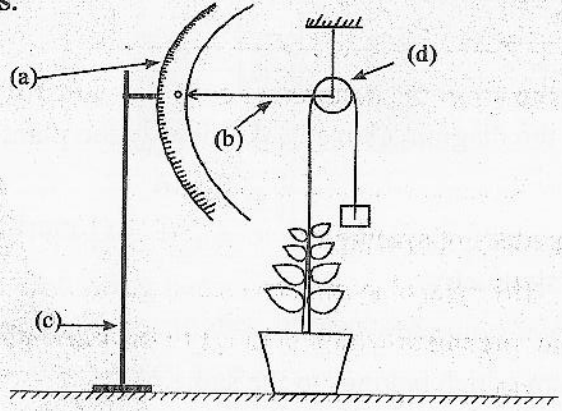
.....
- (iii) Write 2 disadvantages of friction. (2 marks)

.....

.....

(Total 15 marks)

A. Given below is a set up of an apparatus to investigate certain phenomenon related to a biological process.



- (i) Name the apparatus shown above. (1 mark)

.....
- (ii) Which biological process can be investigated using the given set up. (1 mark)

.....

(iii) Name the parts (a) - (d) shown in the set up.

(2 marks) $1/2 \times 4$

(a) (b)

(c) (d)

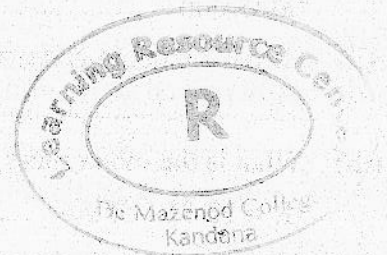
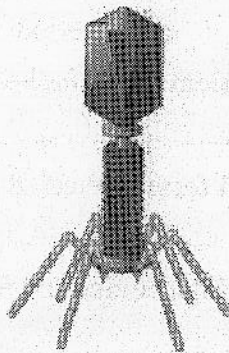
(iv) What is meant by growth in a unicellular organism?

(1 mark)

(v) The increase in the complexity of the cell is known as

(1 mark)

B. Given here is a structure of a virus as a model observed through electron microscope.



(i) Write a specific characteristic of virus.

(1 mark)

(ii) Mention the reason for not having any metabolic reaction in viruses.

(1 mark)

(iii) Write two diseases caused to man by viruses.

(2 marks)

C. The sum of chemical and physiological activities or building up and breaking down of materials within the cell are known as metabolic activities.

(i) What is meant by excretion?

(1 mark)

(ii) Name 2 excretory products in animals.

(2 marks)

(iii) Write the organ that nitrogenous excretion of human takes place.

(1 mark)

(iv) What is known as the process by which stored food is transformed into energy inside the cells?

(1 mark)

(Total 15 marks)

- A. Following table shows some elements and their locations in the periodic table. P, Q, R, T, U, X and Z are not standard symbols.

							X
		Q	R				Z
					T	U	
P							

- (i) State the group and the period of element 'T'.

(a) Group - (b) Period - (2 marks)

- (ii) Of the elements given above which element has completed its last energy level?

..... (1 mark)

- (iii) What is the molar mass of the compound form between R and U.

(2 marks)

(R = 12, U = 35.5)

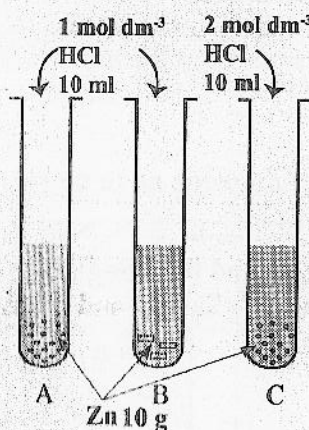
- (iv) Find the number of molecules in 77 g of the compound form between R and U.

(2 marks)

(Avogadro number = 6.022×10^{23})

.....

- B. Given below is a set up to study rate of reaction.



- (i) Of the set ups A, B, C which set up would you select to show the affect of following factors on rate.

(a) Concentration of reactants - (1 mark)

(b) Surface area - (1 mark)

- (ii) What is the factor that affect on rate of reaction which is not tested here? (1 mark)

.....

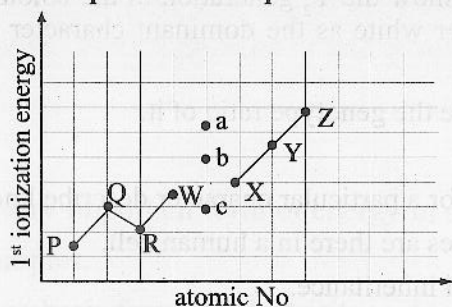
- (iii) State a change that should be done to keep the above factor constant during the experiment.

..... (1 mark)

- (iv) Write the balance chemical equation for the above mentioned reaction.

..... (2 marks)

B. Following graph shows the variation of first ionization energy of elements. P, Q, R, W, T, X, Y and Z in the second period of the periodic table. Answer the durations using the given symbols.



- Of the places a, b and c where the element T can be placed? (1 mark)
- Write the symbol of the element which has highest electronegativity. (1 mark)
- What is the symbol of the element which has the highest first ionization energy? (1 mark)
- Write the unit of measuring ionization energy. (1 mark)

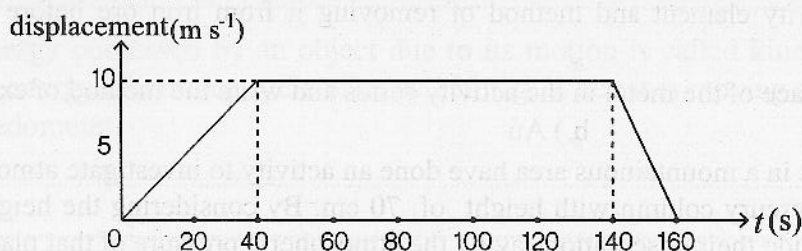
- Mention 2 specific features of water due to inter molecular bonds. (2 marks)
- Draw the lewis structure of a water molecule. (2 marks)

- Write down an observation when Zn pieces are added to test tube with copper sulphate. (1 mark)
- Write the balance equation for the above reaction. (1 mark)
- What is the type to which above reaction belongs? (1 mark)

(Total 20 marks)

- What is meant by power? (2 marks)
- A child lifts a pile of books of mass 5 kg to a height of 1.5 m. If it takes 3 seconds to do the work above, what is the rate of doing work. (power)? ($g = 10 \text{ m s}^{-2}$) (4 marks)
- Frictional force can be divided into 3 categories, depending on the situations they act on a body. Name 3 types of frictional forces. (3 marks)
- Of the above mentioned frictional types, what are the factors that affected friction when the body just begins to move? (2 marks)

B. Given below is a graph that shows the motion of a train between two stations.



Answer the following questions using above graph.

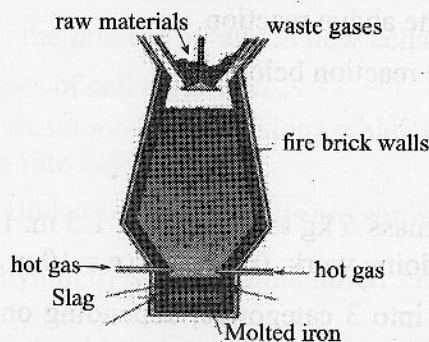
- Briefly explain the motion of the train between two stations. (3 marks)
- Calculate the deceleration of the train. (2 marks)
- Find the distance between two stations? (3 marks)
- Calculate the length of the train, if last compartment passes a certain place after 25 seconds of the engine passing the same place. (2 marks)

(Total 20 marks)

08. A. Punnet square can be used to show the inheritance of mono hybrid character.
- Draw a diagram using a punnet square to show the F_2 generation of the colours of flowers white and purple in a garden pea plant. Consider white as the dominant character and purple as the recessive character. (4 marks)
 - According to this monohybrid cross, Write the genotype ratio of it. (1 mark)
 - What is the phenotype ratio of F_2 ? (1 mark)
 - How does the combination of a gene pair for a particular character describe known as? (1 mark)
 - How many pairs of autosomal chromosomes are there in a human cell. (1 mark)
 - Name 2 genetic disorders due to sex linked inheritance. (2 marks)
 - What is known as gene mutation? (1 mark)
- B.
- Write the Archimides principle. (3 marks)
 - Calculate the pressure exerted on the body of the submarine if it 300 m below the surface water. (gravitational acceleration = 10 m s^{-2} , density of marine water = 1050 kg m^{-3}) (3 marks)
 - Write a use of liquid pressure. (1 mark)
 - A cyclist of 100 kg mass moves with 80 m s^{-1} velocity. If he met with an accident with a lorry at that moment what is his momentum? (2 marks)
 - What can be measured using a hydrometer? (1 mark)

(Total 20 marks)

09. A. The following figure shows a blast furnace that is used to extract iron.



- Write chemical formulas for raw materials used here. (3 marks)
 - Activity series can be used to decide on the methods suitable for extracting metals. What is the method of extracting iron? (1 mark)
 - Write 2 reactions that take place inside the blast furnace that produces CO_2 gas. (2 marks)
 - Name an impurity element and method of removing it from iron ore before it is fed into the furnace. (2 marks)
 - Consider the place of the metal in the activity series and write the method of extracting following metals. a.) Na b.) Au (2 marks)
- B. A group of students in a mountainous area have done an activity to investigate atmospheric pressure. They observed a mercury column with height of 70 cm. By considering the height of the mercury column, they conclude their observation saying the atmospheric pressure of that place is 70 Hg cm.
- Find the above given atmospheric pressure in pascals. ($g = 10 \text{ m s}^{-2}$, density of mercury 13600 kg m^{-3}) (3 marks)
 - What can you say about the boiling point of water in the same premises? (2 marks)
 - What is the principle behind taking readings in a triple beam balance? (1 mark)
 - Name two vector quantities. (2 marks)
 - If the speedometer indicates 72 km h^{-1} , give the same speed in m s^{-1} . (2 marks)

(Total 20 marks)

(v) Mention a method of identifying gas released in the above reaction.

..... (1 marks)

(vi) Write the ascending order of rate of reaction in A, B and C test tubes.

..... (1 mark)

(Total 15 marks)

04. Electricity is a very important form of energy in daily life. Washing, cooking and cooling rooms are some of the examples.

A. i. Name two basic forms of electricity.

(2 marks)

.....
.....

ii. What is meant by electric conductors?

(1 mark)

.....
.....

iii. The potential difference between the terminals of a nichrome wire is 12 V. When it is connected to a power supply a current of 0.6 A flows. Calculate the resistance of the coil.

.....
.....

..... (2 marks)

iv. Name the law which is related to (iii) above.

(1 mark)

.....

v. Name 2 electric insulators.

(2 marks)

.....

B. Energy is an ability to do work.

i. Name four different forms of energy that help us to do work.

(2 marks)

.....
.....

ii. The energy possessed by an object due to its motion is called kinetic energy. Calculate the kinetic energy of a motor cycle of mass 150 Kg, When it is moving at a 20 m s^{-1} according to its speedometer.

(3 marks)

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

iii. Show energy transformation in production of hydro electricity using a flow chart. (2 marks)

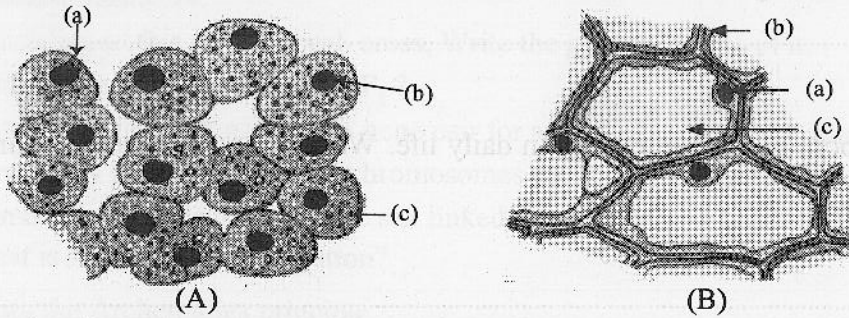
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(Total 15 marks)

Part B

• Answer three questions.

05. A. Given below are two diagrams of electron microscopic views of cells.



i. Identify and name A and B types of cells. (2 marks)

ii. a.) Name parts a, b, c in diagram A. (1 1/2 marks)

b.) Name parts a, b, c in diagram B. (1 1/2 marks)

iii. Write 2 organelles in cell 'B' that can be observed through electron microscope. (2 marks)

iv. What is the main function of the nucleus in a cell? (1 mark)

v. What is the main task of chromosomes in a cell? (1 mark)

vi. Write two main differences between cells of A and B. (2 marks)

B. The cell division is the process by which new cells are formed.

i. Name two types of cell divisions. (2 marks)

ii. Of the above mentioned cell divisions which one makes the number of chromosomes into half. (1 mark)

iii. In which cell division daughter cells are similar to mother cell? (1 mark)

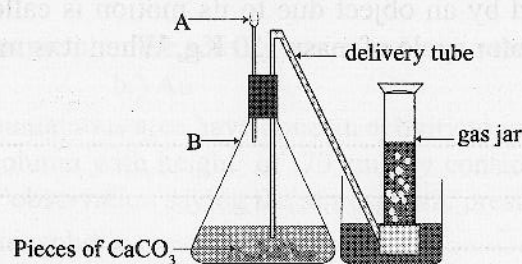
C. i. What is the phylum to which Multicellular, Triploblastic soft bodied animals belong? (1 mark)

ii. Name 3 main parts of their body. (2 marks)

iii. Snail belongs to this phylum. Name 2 other organisms which belong to the same phylum. (2 marks)

(Total 20 marks)

06. A. Given below is a set up done by student to prepare and collect CO₂ gas.



i. Name the parts 'A' and 'B' (2 marks)

ii. Write 2 errors in this set up. (2 marks)

iii. What is the method of collecting gas in the above set up? (1 mark)

iv. Write the method of identifying gas in the gas jar and write your observations. (2 marks)

v. Write 2 uses of carbon dioxide gas. (2 marks)