



Royal College - Colombo 07

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Third Term Test - (January 2025)

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කාලය : ෧.෫
Time : 1.5

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Grade } 10

Science

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34 E I

Name :- Class :- Index No :-

Paper I

- Answer all the questions.
- Read the instructions carefully and select the correct or most appropriate answer from 1 to 4. And mark X in front of the question number in the answer sheet provided.

- (01) Three domain system of classification was introduced by;
- 1) Aristotle
 - 2) Carolus Linnaeus
 - 3) Robert Whittaker
 - 4) Carl Woese

- (02) What is the measuring unit of work?
- 1) W
 - 2) J
 - 3) Nm^{-2}
 - 4) N

- (03) The bio molecule which produces more energy in the metabolic activities in living body is;
- 1) Protein
 - 2) Lipid
 - 3) Carbohydrates
 - 4) Vitamins

* Answer question number (04) and (05) by using the description given below.

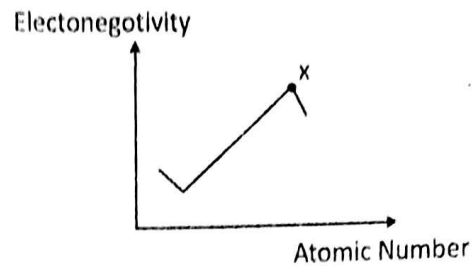
A bus started to travel with the speed of $40kmh^{-1}$ from the town A to town B. After moving 2 hours and 15 minutes with the above speed it stopped for 15 minutes for the tea break. Then the bus came to town B after a journey of 1 hour and 30 minutes with the speed of $60kmh^{-1}$.

- (04) What is the total distance travelled by the bus?
- 1) 90km
 - 2) 120km
 - 3) 180km
 - 4) 200km
- (05) Find the mean speed of the bus.
- 1) $45kmh^{-1}$
 - 2) $50kmh^{-1}$
 - 3) $48kmh^{-1}$
 - 4) $30kmh^{-1}$

- (06) What is the name given for removal of by products from the body which are produced during metabolic activities?
- 1) Irritability
 - 2) Respiration
 - 3) Development
 - 4) Excretion
- (07) The compounds which are formed by combining elements with oxygen are called oxides. What is the weakly basic oxide from the following?
- 1) Cl_2O_7
 - 2) MgO
 - 3) Na_2O
 - 4) SO_3
- (08) Select the compound which has the strongest intermolecular bonds between its molecules.
- 1) H_2O
 - 2) NH_3
 - 3) HF
 - 4) HCl
- (09) A method that does not reduce the friction is;
- 1) decreasing the roughness of contact surfaces.
 - 2) increasing the normal reaction between contact surfaces.
 - 3) inserting roll bearings or ball bearings between contact surfaces.
 - 4) applying oil between contact surfaces.
- (10) Select the function of rough endoplasmic reticulum.
- 1) synthesis of protein
 - 2) production of secretory substances and packaging.
 - 3) transportation of proteins.
 - 4) controlling biological activities of cell.
- (11) The atomic mass of the element M is twice of the mass of one atom of $^{12}_6\text{C}$ isotope. Find the relative atomic mass of M
- 1) 24
 - 2) 12
 - 3) 48
 - 4) 36
- (12) The reproductive structures of following kingdom can be used as a supplementary for protein. What is that kingdom?
- 1) Protista
 - 2) Bacteria
 - 3) Fungi
 - 4) Protozoa
- (13) Find the depth of a pond if the pressure of the bottom of the pond is 20000Pa.
(Density of water = 1000kgm^{-3} / $g = 10\text{ms}^{-2}$)
- 1) 2m
 - 2) 1.5m
 - 3) 3m
 - 4) 2.5m

- 4) Following graph shows the variation of electronegativity against atomic number. What are the suitable elements for x.

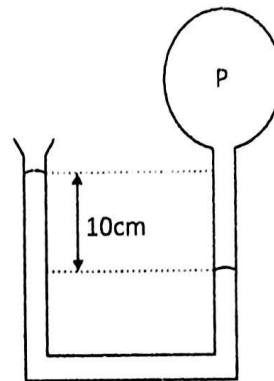
- 1) He or Ne
2) Na or K
3) Cl or Ne
4) F or Cl



- 5) Consider the following statements about grafting of plants.
(A) Grafting can be done to a plant of same species or to a closely related species.
(B) Grafting can be successfully done to a monocotyledonous plant.
(C) Grafting can be done on plants which have cambium tissues.
Select the correct statements from the above.

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

- 6) The U tube shown below was filled with Mercury and with open two ends. Later an air filled balloon was fixed to it's one end. Before fixing the balloon the Mercury levels of the two arms were in the same horizontal level. But after fixing the balloon the height difference between the Mercury levels in two arms is 10cm. What is the pressure inside the balloon if the atmospheric pressure is 76 cmHg?



- 1) 10cmHg
2) 66cmHg
3) 76cmHg
4) 86cmHg

- 7) Select the unicellular organism that locomote using pseudopodia.

- 1) Amoeba
2) Euglena
3) Paramecium
4) Chlamydomonas

- 8) Select the correctly balanced equation from the following.

- 1) $2\text{Ca}_3(\text{PO}_4)_2 + 2\text{H}_2\text{SO}_4 \rightarrow 2\text{CaSO}_4 + \text{Ca}(\text{H}_2\text{PO}_4)_2$
2) $2\text{Ca}_3(\text{PO}_4)_2 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + 2\text{Ca}(\text{HPO}_4)_2$
3) $\text{Ca}_3(\text{PO}_4)_2 + \text{H}_2\text{SO}_4 \rightarrow 2\text{CaSO}_4 + \text{Ca}(\text{H}_2\text{PO}_4)_2$
4) $\text{Ca}_3(\text{PO}_4)_2 + 2\text{H}_2\text{SO}_4 \rightarrow 2\text{CaSO}_4 + \text{Ca}(\text{H}_2\text{PO}_4)_2$

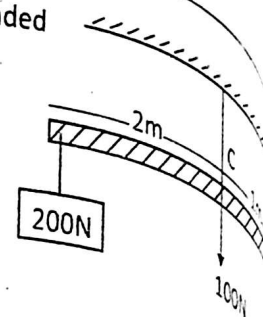
- 9) which factor is not essential for the germination of seeds?

- 1) light
2) water
3) temperature
4) air

(20) As shown in the following figure a uniform rod AB is suspended at the point C. Find the value for W if the rod AB to be in an equilibrium.

- 1) 400N
- 3) 100N

- 2) 200N
- 4) 50N



(21) What is the correct statement about virus from the statements given below?

- 1) can be observed by using a light microscope only.
- 2) presence of DNA and RNA.
- 3) absence of any organelles.
- 4) grow inside living or non-living cells.

(22) Which sub atomic particles are present in equal amount in $^{23}_{11}\text{Na}$ and $^{23}_{11}\text{Na}^+$?

- 1) electrons and protons
- 2) neutrons and protons
- 3) electrons and neutrons
- 4) electrons, protons and neutrons

(23) Select the occasion where a couple of force is not applied.

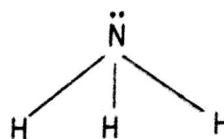
- 1) when opening a tap.
- 2) when unscrewing a nail using a spanner.
- 3) when rotating a steering wheel.
- 4) when unscrewing a nail using a screw driver.

(24) Which response represents correctly, the necessary vitamin and mineral iron for the growth of teeth and bones?

- 1) Vit A, Na and Ca
- 2) Vit c, Fe and Ca
- 3) Vit D, Ca and P
- 4) Vit E, Mg and Fe

(25) Given below is the Lewis structure of an ammonia molecule. Find the number of single bonds and free electron pairs represented correctly in the Lewis structure.

- 1) 3 and 2
- 2) 3 and 1
- 3) 2 and 3
- 4) 1 and 2



(26) What is the momentum of a bullet of the mass 20g and traveling with the velocity of 200ms⁻¹?

- 1) $20 + 200 \text{ kgms}^{-1}$
- 2) $20 \times \frac{200}{100} \text{ kgms}^{-1}$
- 3) $\frac{20}{1000} \times 200 \text{ kgms}^{-1}$
- 4) $\frac{20}{100} \times 200 \text{ kgms}^{-1}$

(27) Find the number of oxygen atoms in 36g of water.

- 1) $2 \times 6.022 \times 10^{23}$
- 2) $2 \times 6.022 \times 10^{24}$
- 3) 6.022×10^{23}
- 4) $4 \times 6.022 \times 10^{24}$

(28) Select the plant that shows the dispersal of fruits and seeds by water.

- 1) valisnaria
- 2) guava
- 3) coconut
- 4) hora

(29) What is the correct ascending order of reactivity of cool water with Na, Ca and Mg?

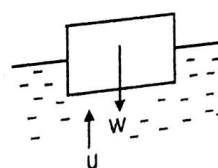
- 1) $\text{Na} < \text{Ca} < \text{Mg}$
- 2) $\text{Mg} < \text{Na} < \text{Ca}$
- 3) $\text{Ca} < \text{Mg} < \text{Na}$
- 4) $\text{Mg} < \text{Ca} < \text{Na}$

(30) Select the method which is used to remove chlorophyll in plant leaves in starch test of plant leaves.

- 1) placing plant leaves in cool water.
- 2) placing plant leaves in hot water.
- 3) boiling plant leaves in water.
- 4) boiling plant leaves in water and heating in alcohol.

(31) The following diagram shows a floating object. Select the correct statement regarding the figure.

- 1) Weight of the object is greater than the upthrust force.
- 2) The total weight of the object is balanced by the upthrust force.
- 3) The object will sink in liquid if the upthrust force is greater than the weight of the object.
- 4) The object is fully submerged in the liquid if the upthrust and the weight of the object are equal.



(32) The bio molecule which posses the double helical structure?

- 1) Protein
- 2) Lipids
- 3) DNA
- 4) RNA

(33) What is the compound with ionic bonds from the following?

- 1) NH_3
- 2) AlCl_3
- 3) CH_4
- 4) K_2O

- (34) The mass of each of A and B Newton balances are 1kg and they are hung as follows.
A mass of 4kg is hung on the balance B.
Find the readings of A and B

- 1) 6N and 5N
- 2) 4N and 4N
- 3) 50N and 40N
- 4) 40N and 40N



- (35) Select the catalyst and the inhibitor of the decomposition of H_2O_2

- | | |
|-----------------------|--------------------------|
| 1) H_2SO_4 and sand | 2) MnO_2 and H_2SO_4 |
| 3) sand and meat | 4) MnO_2 and sand |

- (36) In which phase of the ovary does ovulation occur?

- | | |
|--------------------|---------------------|
| 1) Luteal phase | 2) Follicular phase |
| 3) Menstrual phase | 4) Secretory phase |

- (37) Find the organism with penta radial symmetry and a water vascular system?

- | | |
|--------------|---------------|
| 1) cockroach | 2) sea anemon |
| 3) starfish | 4) hydra |

- (38) Select the single displacement reaction from the following.

- 1) $Mg + CuSO_4 \rightarrow MgSO_4 + Cu$
- 2) $2H_2O_2 \rightarrow 2H_2O + O_2$
- 3) $NaCl + AgNO_3 \rightarrow NaNO_3 + AgCl$
- 4) $2Mg + O_2 \rightarrow 2MgO$

- (39) Not an evidence for a chemical reaction.

- | | |
|------------------------------|--|
| 1) Formation of precipitate. | 2) Changing the arrangement of particles |
| 3) Changing of a colour. | 4) Liberation of a gas. |

- (40) Lives of people and their properties are badly affected by flood which results due to continuous heavy rain. What is the most accurate reason for the occurrence of flood?

- 1) Destruction of forests.
- 2) Adding garbage to environment.
- 3) Releasing green house gases to atmosphere.
- 4) Irregular construction of buildings and roads in urban and semi urban areas.



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කාලය : 03
Time : 03

Science

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34 E II

Class: Index No :-

Paper II

Write the answers in clear hand writing.

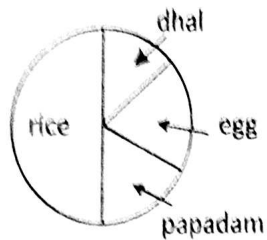
Write answers for part A in the space provided on the paper itself.

Answer only three from the given questions in Part B.

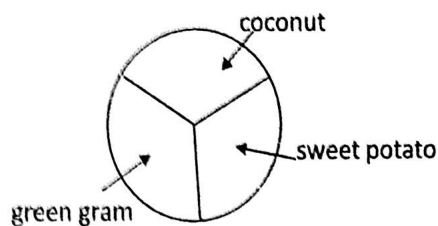
Attach and handover the answer sheets of part A and Part B together after writing.

Part A

1)(A) Two charts of list of food included in the lunch of two grader 10 students are given below.



Student S



Student T

i) The main organic compounds in living organisms are known as biological molecules. Write two biological molecules in above food items.

1)

2)

ii) Write the test to identify the nutrient in eggs in two steps.

.....

.....

iii) What is the expected observation.

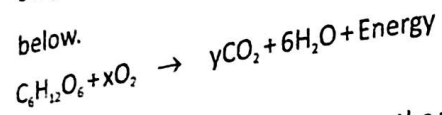
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iv) Students in the above class were assigned to test the activity of enzymes. Which enzyme should be used by them to check the activity of enzyme on starch?

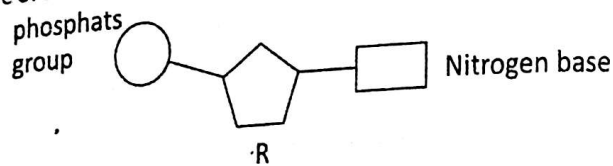
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- v) The above mentioned enzyme can be produced by using a food item in the diets of student given in the discription. Name that food.

(B) Glucose is the structural unit of carbohydrates. Glucose obtained from food digestion is subjected to cellular respiration and energy is released. Chemical reation of that process is given below.



- i) Write the values of x and y to balance the above equation.
 x - y -
- ii) What is the mass of CO_2 produced by the complete oxidation of one mole of glucose (C-12, O-16, H-1)
- iii) Write the vitamin or mineral that affects to cause the following defficiency diseases.
 a) Delaying blood clotting -
 b) Aneamea -
- iv) Structure of a nucleotide is given below. Name the carbohydrate given as "R"



- R -
 v) Name the structural unit of the nucleic acid which is responsible for protein synthesis.

(15 Marks)

(02)(A) A group of grade 10 students are given an assignment to find information to state whether the

following things are living or non living and prepare a report.

1st group - Chicken egg

2nd group - A tissue seperated from a body of an organism which is kept in a freezer.

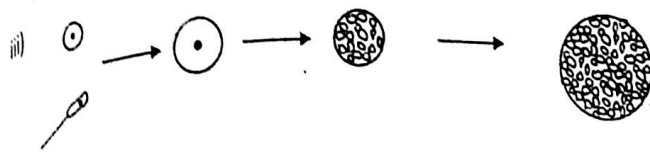
3rd group - A fossil of thousands years old.

Facts about the characteristics of living organisms are revealed by the information gathered by those three groups.

- i) Write two characteristics of living things.

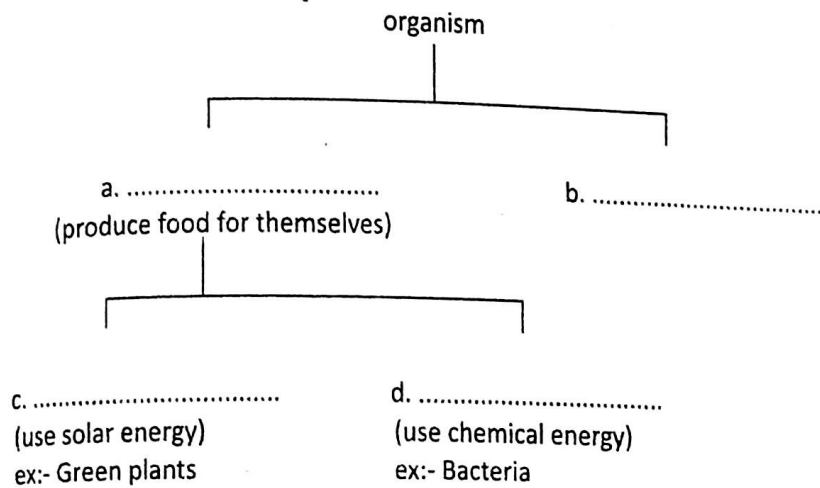
1)
 2)

ii) Name one unicellular organism that can be found by a student who observed a pond water sample.

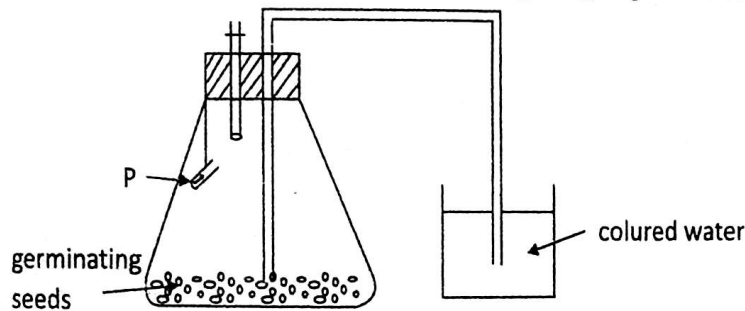


The above diagram represents how the development of human embryo occurs. Which kind of cell division occurs when the Zygote becomes to an embryo.

iv) Nutrition is the fulfilling energy and materials required for maintaining the life. Complete the following chart given about nutrition.



v) An activity conducted to identify the characteristics of living beings is given below.



a) What is the aim of the above activity.

b) Name the chemical given as "P"

c) What is the expected observation of above activity.

(B) Following data has collected by 4 groups of students during a field visit about organisms.

Organism A

- ◇ Soft and muscular foot
- ◇ Having external shell
- ◇ Body cover moistened with mucous.

Organism B

- ◇ Stream lined body
- ◇ No teeth in mouth
- ◇ Light skeletal system

Organism C

- ◇ Fibrous root system
- ◇ Having three petals in flowers
- ◇ Parallel veination

Organism D

- ◇ Tap root system
- ◇ Having 4 petals in the flower
- ◇ Reticulate veination

i) Write two uses of chassification of organisms.

- 1)
- 2)

ii) Name the groups of above organisms.

- A
- B
- C
- D

iii) Write one example for each A and D.

- A
- D

(15 Marks)

Information of elements table is given below. The symbols given in it are not true symbols of the respective elements. Answer the questions below which are based on them.

Element	Atomic number	Electronic configuration	Period	Group
W	1	1	1	i
X	6	2, 4	2	iv
Y	11	2, 8, 1	b....	i
Z	17	a....	3	...C....

Write suitable values / numbers for a, b and c

- a
b
c

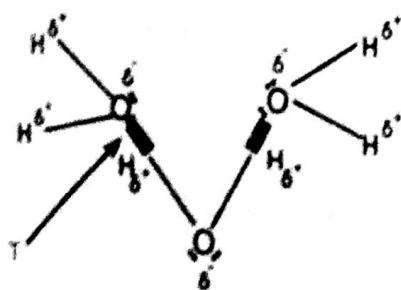
Write the chemical formula of the compound formed with ionic lattice from above two elements.

Draw a 'Z' element with diagram of electrons fill in the respective energy levels.

Select the suitable element for the following uses.

- a) Producing of street lamps with a yellow glow
b) Produce goods by nano materials
c) Production of indigo dye used to dye trouser materials (Denim)

'W' has three isotopes. Two are called protium and tritium. Write the another isotope.

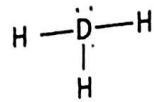


Type of bond between water - water molecules label as T in the above diagram.

What is the type of above bond.

ii) Write two special properties possessed by water due to above bond.

iii) Hydrogen and D elements bond together and form Lewis structure of compound is given below.

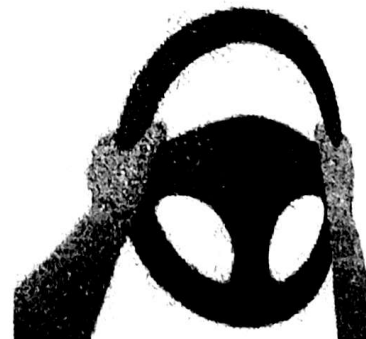
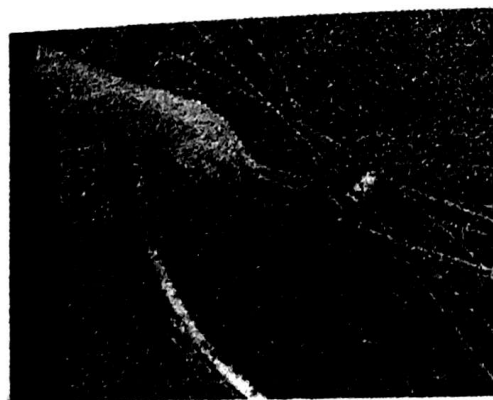


a) What is the name of non bonding pair of electrons in above D

b) Draw a dot and cross diagram of bond between two atoms of D.

c) Write a characteristic of ionic compound with ionic bond.

(04) Two diagrams of moment of force are given below.



i) The rotational effect of a force on a body about a fixed point or axis is called moment. Two factors affect the moment of force.

ii) A ruler of 1m is suspended and balanced at 30cm mark point. If the 20N weight