

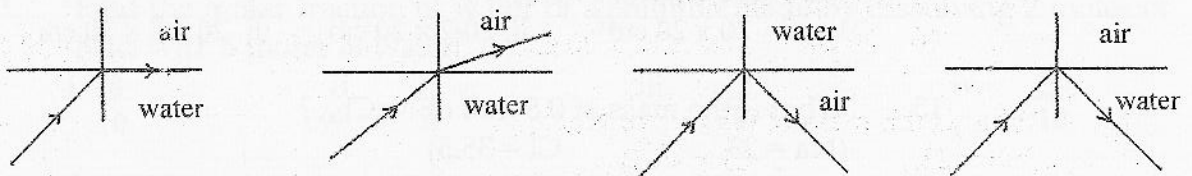


බස්නාහිර පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව සිංහල භාෂාභාෂිත කல்විත් ක්‍රියාකාරකය Department of Education - Western Province			
තෙවන වාර ඇගයීම ஆண்டு இறுதி மதிப்பீடு - 2019 Year End Evaluation			
ශ්‍රේණි Grade	11	විෂය Subject	Sciece
පත්‍ර Paper	I	පැය Hours	01

- (i) Answer all the questions
- (ii) Select the most correct or most appropriate answer from the given answers (i), (ii), (iii), (iv) from question no. 01 to 40. Put (x) Mark on the relevant answer in front of the question number in the answer sheet provided.

1. What is the gymnosperm out of the following ?
 i. Cocount ii. Cashew iii. Jaggery iv. Cycas
2. Which physical quantity is defined as the 'rate of change of displacement' ?
 i. Velocity ii. Deceleration iii. Acceleration iv. Speed
3. What is the metal that emits a gaseous product due to combustion in air ?
 i. Na ii. Mg iii. Ca iv. P
4. What is the substance that is not present in plants ?
 i. Glycogen ii. Lipid iii. Protein iv. Enzyme
5. What is the compound that have a pH value less than 7 in and aqueous solution?
 i. Na₂O ii. HNO₃ iii. Mg(OH)₂ iv. NaCl
6. Which molecule a given below has a double bond ?
 i. H₂ ii. N₂ iii. O₂ iv. Cl₂

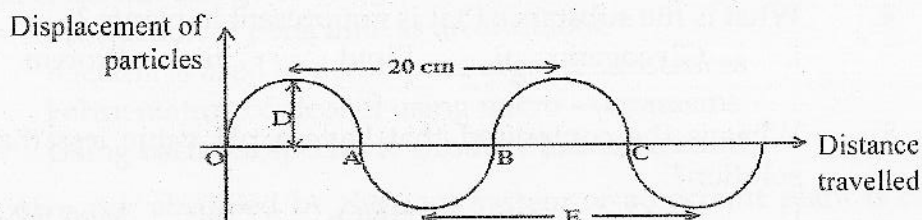
7. Which answer given below shows total internal reflection ?



8. Which of the following is a chemical change ?
 i. Dissolving of NaCl (Salt) crystals in water
 ii. Evaporation of water
 iii. Iodine dissolving in alcohol
 iv. Rusting of iron

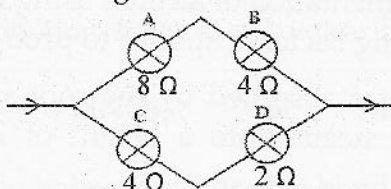
9. What is the organizational level in the biosphere to which the non living environment belongs ?
- Eco system
 - Population
 - Community
 - Individual
10. What is the element that the highest first ionization energy ?
- Na
 - He
 - Ne
 - Ar
11. Given below are some animals found in the home garden.
Frog, Iguan, Junglefow, Gaint squairrel (Dandulena),
- The vertebrate groups that the above animals belong in the respective order is,
 - Reptilla, Amphibia, Mammalia, Aves
 - Amphibia, Reptilia, Aves, Mammalia
 - Amphibia, Aves, Reptilia, Mammalia
 - Amphibia, Mammalia, Aves, Reptilia
12. What is the concentration of Cl^- in solution of $1 \text{ mol dm}^{-3} \text{ MgCl}_2$
- 0.5 mol dm^{-3}
 - 1 mol dm^{-3}
 - 0.1 mol dm^{-3}
 - 2 mol dm^{-3}

- Use the given diagram to answer question no. 13 and 14



13. What is the letter/s representing the amplitude of the above wave ?
- OA
 - OB
 - D
 - E
14. If the frequency of the above wave is 20 Hz , What is the distance travelled by the wave during 1 second ?
- $20 \times 20 \text{ cm}$
 - $20/2 \times 20 \text{ cm}$
 - $20 \times 2 \times 20 \text{ cm}$
 - $1/20 \times 20 \text{ cm}$
15. What is the mass of 0.5 mol of $\text{NaCl}_{(s)}$?
(Na = 23, Cl = 35.5)
- 5.85g
 - 11.7g
 - $58.5/2$
 - 58.5
16. Dancing by listening to a beat of a drum is two co-ordination activities done by the brain. What are the two parts of the brain that helps the above two coordinations respectively.
- Cerebrum and cerebellum
 - Medulla oblongata and cerebrum
 - Cerebellum and cerebrum
 - Cerebellum and medulla oblongata

17. What is the common feature to both Annelids and Arthropodes ?
- Presence of a wet skin
 - Having jointed appendages
 - Having a segmented body
 - Presence of a chitinous exoskeleton
18. The kinetic energy of an object of mass 10kg, moving with a certain velocity is 20J. What could be the velocity of that object ?
- 1ms^{-1}
 - 2ms^{-1}
 - 4ms^{-1}
 - 8ms^{-1}
19. The boiling point of N_2 gas is -183°C . The value of that temperature in Kelvin is,
- 32K
 - 190 K
 - 273 K
 - 456 K
20. The place where epithelial tissues that perform a secretory function can be found.
- Wall of the Bowman's capsule
 - Wall of the bladder
 - Inner wall of trachea
 - Inner lining of blood capillaries
21. The mass of a carom disc is 10g. What is the momentum of it when it is moving with a velocity of 20ms^{-1} ?
- $\frac{10 \times 10}{100} \times 20 \text{ kgms}^{-1}$
 - $\frac{10}{2} \times 20 \text{ kgms}^{-1}$
 - $\frac{10}{1000} \times 20 \text{ kgms}^{-1}$
 - $\frac{10}{1000} \times 20^2 \text{ kgms}^{-1}$
22. Given below is a circuit diagram of a circuit made by connecting 4 bulbs

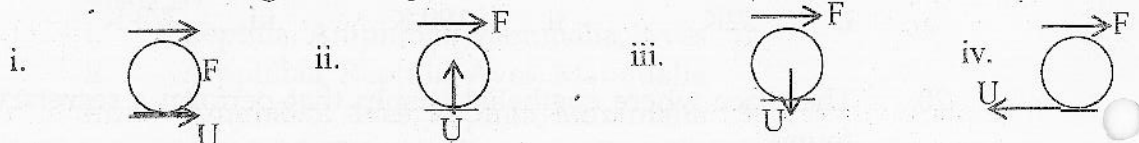


Select the pair of bulbs that let an equal current to flow through them.

- AC
 - AD
 - CD
 - BC
23. Find the molar fraction of water of a solution made by dissolving 2 moles of NaCl with 8 moles of water.
- $\frac{8}{10}$
 - $\frac{2}{5}$
 - $\frac{2}{8}$
 - $\frac{2}{10}$
24. What is the answer that carries only the plants that show natural parthenocarpy?
- Breadfruit and grapes
 - Pine apple and Banana
 - Pomogranate and Pineapple
 - Guava and appale
25. Select the pair of compounds with ionic bonds
- AlCl_3 and PCl_5
 - CuSO_4 and HCl
 - MgCl_2 and Na_2O
 - $\text{Co}(\text{NH}_2)_2$ and CH_3OH

26. Given below are 3 statements related to domestic electric circuit.
- When an electric shortage occurs in an appliance, the isolator gets disconnected.
 - Both live and neutral wires are connected to the residual current circuit breaker
 - The switch is connected only to a live wire
- Out of the above, the correct statements are,
- Only a and b
 - Only a and c
 - Only b and c
 - all a, b and c

27. Which answer correctly shows the direction for the frictional force. When a wheel is rotating on a rough surface (U - Frictional Force)



28. Which of the following is a single displacement reaction ?
- Burning a Mg Strip in air
 - Putting a piece of Cu into a AgNO_3 solution
 - Adding a Na_2SO_4 solution to BaCl_2 solution
 - Putting a piece of Cu to a MgSO_4 solution

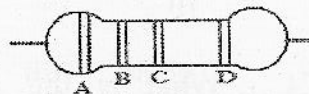
29. What is the advantage of using molecular biotechnology ?
- Production of peniciline as an antibiotic
 - Bacteria is used to decompose organic substances
 - Fermentation of alcohol using micro - organisms
 - Using bacterial species to produce human insulin

30. 25g of water absorbed by the root system of a coconut plant is carried up along the steam upto a height of 20m. Find the work done against the gravity.

- $\frac{25 \times 20}{1000}$ J
- $\frac{25 \times 10 \times 20}{1000}$ J
- $25 \times 10 \times 20^2$ J
- $\frac{25 \times 10 \times 20^2}{1000}$ J

31. A fixed resistor of the resistance in between $110 \Omega - 130 \Omega$ is is given below. Find the answer that gives the colours of ABC and D in the correct order. (Blank = 0, Brown = 1, Red = 2, Gold = 5%, Silver 10%)

- Red, Brown, Brown, Silver
- Brown, Black, Brwon, Silver
- Brown, Red, Black, Silver
- Red, Brown, Red, Silver

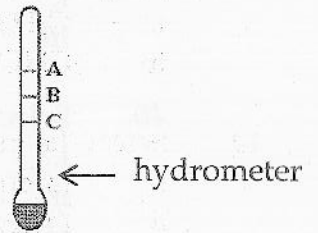


32. Gas bubbles evolve rapidly when the lid of a soda bottle is opened, What is the correct answer relevant to this phenomenon ?
- The solubility of a gas is high when the pressure is low
 - The solubility of a gas is high when the pressure is high
 - The molar fraction of CO_2 in soda is low when the lid is closed
 - The molar fraction of CO_2 in soda is high when the lid is opened

33. A, B and C are the levels upto which a hydrometer immersed when it was floated in there different liquids of different densities. C is the level when it was floated in sea water.

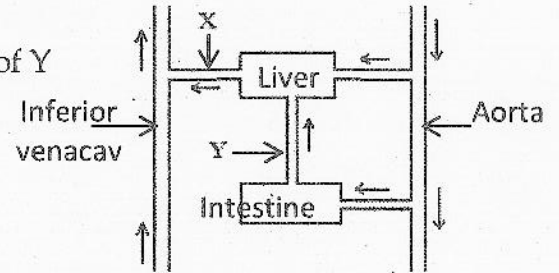
What is the answer that gives the liquids A and B Correctly

- | | | | | | |
|------|---|---|-------------|---|--------------|
| i. | A | - | Coconut oil | B | Kerosene oil |
| ii. | A | - | Coconut oil | B | Water |
| iii. | A | - | Water | B | Coconut oil |
| iv. | A | - | Water | B | Kerosene oil |



34. Given below is a draft of some organs in the digestive system. Select the incorrect statement about the blood vessels X and Y .

- The glucose concentration of X is greater than the glucose concentration of Y
- X has the highest urea concentration
- Y has more amino acids than X
- Both X and Y vessels have valves



35. What is the correct path of the reflex arc during a reflex action

- Receptor → effector → Sensory neurone → Spinal cord
- Receptor → Sensory neurone → Spinal cord → Motor neurone
- Receptor → Motor neurone → Spinal cord → Sensory neurone
- Effector → Sensory neurone → Spinal cord → Motor neurone

36. Select the correct statement regarding the rectifying diode

- There should be minimum two dry cells in order to flow a current through a diode
- Electron flow a current through a diode is from anode to the cathode
- A current can be passed in both directions through a diode
- The depletion layer becomes narrow when the diode is forward biased

37. Consider the following statements about an object at equilibrium under 3 coplanar forces

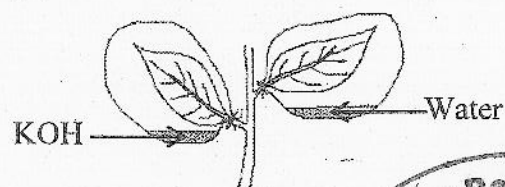
- The resultant of the 3 forces is zero
- The three forces meet at one point
- The three forces are parallel to each other

Out of A, B and C, the one/s that are always true is given in,


- Only A
- Only B
- Only A and B
- All A, B, C

38. A plant which was kept at dark for two days in then kept under sunlight for 6 hours after arranging as shown below. What is the factor that is provided unequally for the 2 leaves, A and B ?

- Water
- Carbondioxide
- Oxygen
- Chlorophyll



39. 0.1 mol of a certain organic compound has a mass of 3.2 g. This organic compound could be, (C = 12, H = 1, Cl = 35.5)
- | | |
|---------------|--------------|
| i. C_2H_5OH | ii. CCl_4 |
| iii. $CHCl_3$ | iv. CH_3OH |
40. Select the incorrect statement about the energy pyramid
- Energy pyramid is not always upright
 - Energy pyramid shows nutritional relationships in the ecosystem
 - Energy flows uni - directionally in the energy pyramid
 - At each trophic level 90% of energy is wasted.

බලකොටුව පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව ශ්‍රී ලංකා ප්‍රජාතාන්ත්‍රික සමාජවාදී ජනරජය Department of Education - Western Province			
වෛවන වාර ඇගයීම ஆண்டு இறுதி மதிப்பீடு - 2019 Year End Evaluation			
ශ්‍රේණිය Grade	11	විෂය මාතෘකා Subject	Science
පත්‍ර කිහිපයක් Paper	II	පැය කිහිපයක් Hours	03

- (i) Answer all the questions in Part A
 (ii) Answer only three questions in part B

Part A - Structured Essay

- (A) The composition of the earth's atmosphere changes due to the effect of human activities such as establishment of animal farms, combustion of fossil fuels and deforestation. The following table shows the variation of the concentration of carbon dioxide during the period of 1984-2014 and the corresponding variation for the temperature during that period.

Year	Atmospheric CO ₂ concentration (ppm)	Rise of Earth's atmosphere (°C)
1984	346	0-1
1994	358	0-3
2004	373	0-5
2014	400	0-8

- i. According to the above table, what could be the main human activities that lead to the increase of CO₂ concentration from 1984-2014?

- ii. According to the data given in the table, calculate the increase of the CO₂ concentration during the time period from 2004-2014 relative to the time period from 1984-1994.

- iii. With the increase of CO₂ concentration in the atmosphere, the temperature of the earth also has increased. What is the phenomenon responsible for this?

- iv. Sustainable development has the aims of leading a better human life style and minimizing the harmful effects caused to the environment. Accordingly, write down the actions that can be taken in the following fields.
 - (a) Generation of electricity
 - (b) Agriculture

(B) Health and environmental problems have arisen due to the increase of solid waste matter added to the environment and the inability to manage those solid wastes in a correct manner.

(i) Name a heavy metal that is released to the environment by the discarded CFL bulbs.

.....

(ii) Name the human organ that has the highest effect due to the above heavy metal

.....

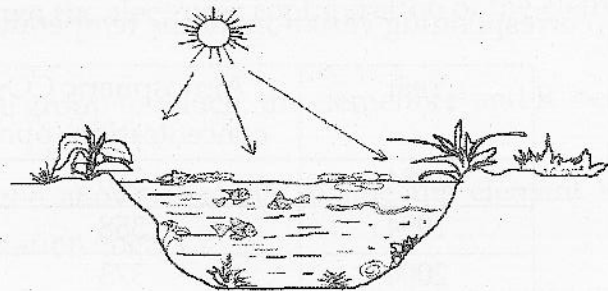
(iii) (a) Name a concept which was accepted at present regarding waste management

.....

(b) Petrol is produced using disposable polythene. Name the step to which this action is belonged in the above concept.

.....

(C) Given diagram shows an eco - system in a pond .



(i) What is the term used to denote all the living organisms in an ecosystem?

(ii) Write down an interaction that can be seen between living and non - living components in the above ecosystem.

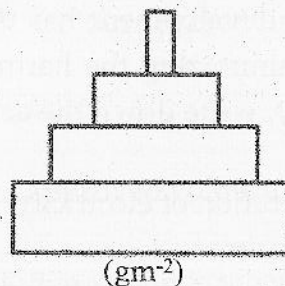
.....

(iii) Some animals that are living in the pond are given within the brackets using those animals, complete the following food chain. ("Diya Naya, Tadpole, Hydra, Mud skipper)

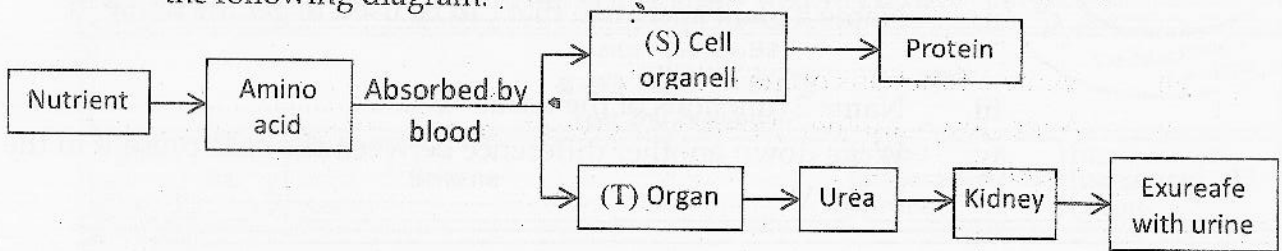
aquatic plants \longrightarrow X \longrightarrow "Kawaiya" \longrightarrow Y

(iv) If "Kawaiya" gets 20 J energy by eating X food, calculate the energy that "X" has?

(v) Name the given energy pyramid

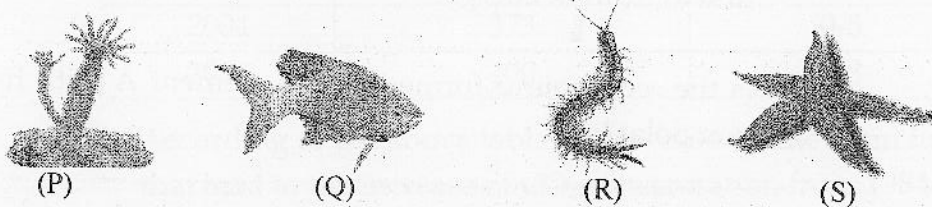


02. (A) Several biochemical reactions related to the end products of nutrition digested by the digestive system and the relevant incidents are give in the following diagram.



- (i) Name the "nutrient" of the above diagram
- (ii) Name the enzyme present in pancreatic juice that contributes to the digestion of the above nutrient
- (iii) Name the cell organelle, "S" and the organ, "T"
 - (a) Cell organelle "S"
 - (b) Organ T
- (iv) Urine production is done in 3 steps by the neptions present within the kidneys.
 - (i) Mention the 1st step in urine production
 - (ii) Name a component in blood which is not filtered during the 1st step of urine production.

(B) (i) Write down the letter correspond to each animal in front of the feature that is shown by each of them (relevant)



- (a) Having a chitineous exoskeleton
 - (b) Having a vertebral column
 - (c) Diploblastic
- (ii) Write the letter correspond to the animal who belongs to the phylum that shows evolutionary relationships with the phylum to which the animal "Q" belongs.

(C) Write down the answers using the given table

Type of permanent tissue	Feature
S	Edges of cell walls are thickened with cellulose
T	Composed of only non living cells
U	Composed of several cells that are different to each other
V	Composed of the large central vacuole Inter cellular spaces present



- i. Name the tissue that is responsible for translocation
.....
- ii. Name a plant specimen that can be used to get the tissue "T"
.....
- iii. Name 2 functions of the tissue "V".....
- iv. Write down another difference between the cells present in the tissues T and V.....

03. (A) Five elements belongs to the second and third periods of the periodic table are given below. The elements are not represented by their standard symbols.

P	Q	
R	S	T

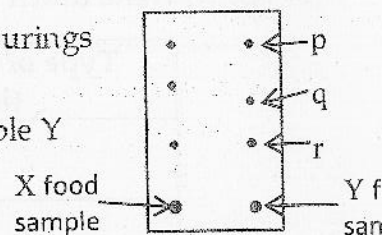
(Q is the element with the highest electronegativity)

- (i) Write down the electronic configuration of the element 'S'
.....
- (ii) Name the group to which, the elements P and R belong
.....
- (iii) Among the above elements, Name the element with the maximum first ionization energy.
.....
- (iv) Is the compound formed by the element A with hydrogen, polar or non polar?
.....

- (B) Chromatography can be used to identify whether the colourings added to a food item is approved ones or not.

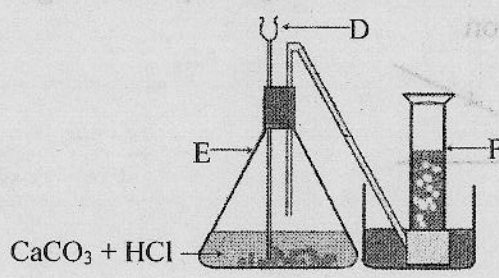
- i. What is done in order to make the chamber (boiling tube) saturated with the solvent vapour during the above activity?
.....
- ii. The following diagram shows how the colours are separated on the paper strip at the end of the activity.

- x - Food sample with approved colourings
y - food sample that was tested
a,b,c - Colours present in the food sample Y



- (a) Mention the approved colourings present in the tested food sample
.....
- (b) Mention another instance where chromatography can be used
.....

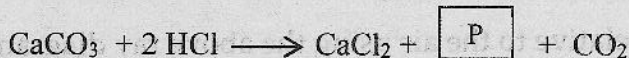
(c) Given below is a set up used to produce CO₂ in the laboratory



- D - Thistle funnel
- E - Conical Flask

- i. Name the equipment 'D'
-
- ii. Write down an observation that can be seen in the reaction occurred in E
-

iii. The intermediate reaction between calcium carbonate and dilute hydrochloric acid is given below



- Name 'P' in the above reaction

iv. The mass of CO₂ gas collected in F at the end of the test is 2.2 g

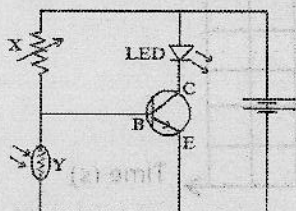
(a) What is the number of moles of CO₂ collected in F?

(C - 12, O - 16)

(b) Calculate the number of CO₂ molecules collected in E.

(Avagadro constant (L) = 6.022 x 10²³ mol⁻¹)

04. (A) The circuit diagram given below shows how the transistor acts as a light sensitive switch



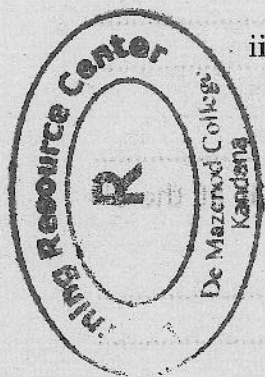
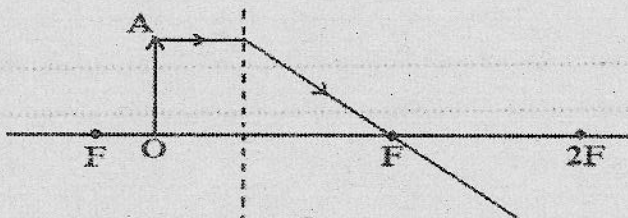
- i. Name the equipment X and Y
- X -
- Y -
- ii. What will be the observation in the LED, when the equipment Y is covered?

iii. Give reasons for the above observation

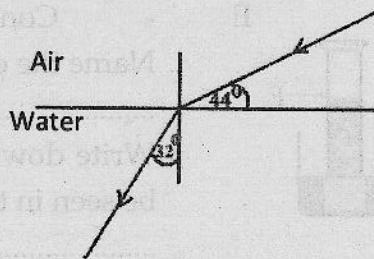
(B) A lens can be used as a simple microscope to magnify an object.

i. What is the type of lens that can be used for this purpose?

ii. Given below is the path of a ray traveling from an object through such a lens that you mentioned in questions No. I. Complete the above ray diagram to show the formation of the image



- iii. The diagram given below shows how a light ray traveling in air enters water after refraction

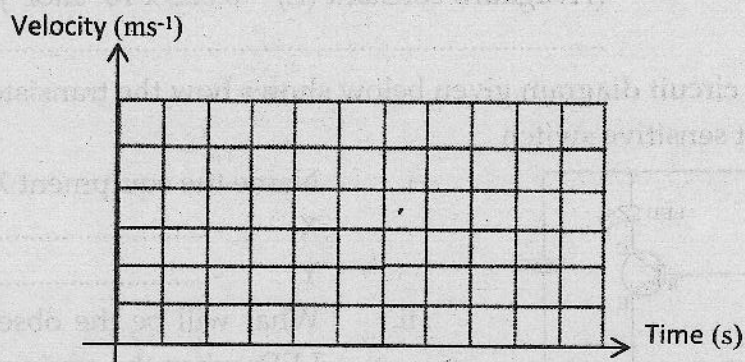


- (a) What is the value of the incident angle?.....
 (b) Write down an expression for the refractive index of water relative to the air using the above ray diagram.

.....

- (C) A train started its journey at rest moved in a straight line path for 10 seconds to acquire a velocity of 30ms^{-1}

- i. Draw the relevant velocity time graph for the above motion

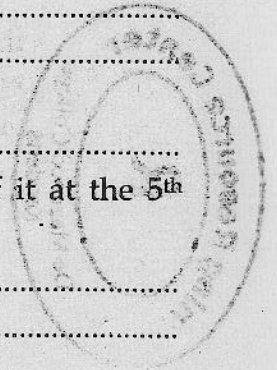


- ii. Calculate the distance travelled by the train during the first 10 seconds.

- iii. What is the nature of the motion shown by the train ?

- iv. What is the velocity of the train at the 5th second ?

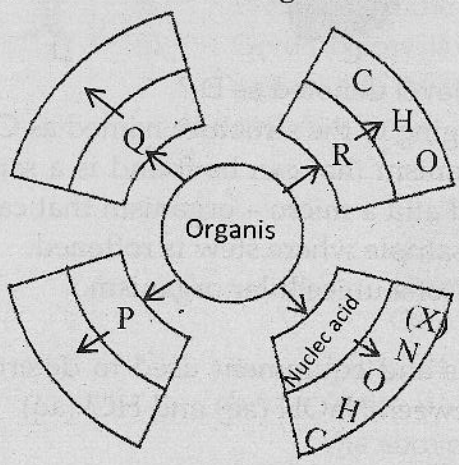
- v. If the mass of the train is 30000kg , find the momentum of it at the 5th second?



Part B

05. A) The above diagram shows a part of a concept map build up based on the chemical basis of life

- A contributes mainly for the growth of the body
- The building unit of B is monosaccharide



- i. What is the element denoted as 'X' in nucleic acids ?
- ii. What is the biological molecule denoted as A and mention it's building unit
- iii. The compounds relevant to the biological molecule B are stored in plants and animal bodies in different ways. Give one example each for such a compound present in a plant body and an animal body.

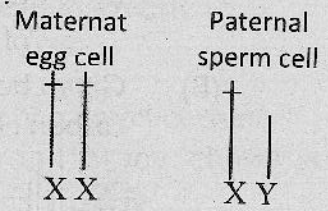
iv. Mention the reagent used in the laboratory to identify the biological compound C and write down an observation relevant to the test.

v. Copy the given table to your answer script and fill the blanks.

Vitamin / Mineral	Deficiency Symptom	Foods rich with the particular Vitamin / Mineral
Calcium		
	Scurvy	
Iodine		

(B) A human body cell has 46 chromosomes and among those, 22 pairs are autosomal chromosomes

- i. How is the 23rd pair of chromosomes known ?
- ii. Two pairs of maternal and paternal chromosomes that determine the sex of a human is given below.

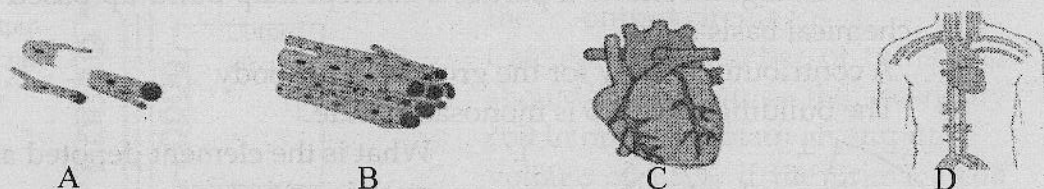


- a. What is the type of division take place during the production of egg cell and the sperm ?
- b. Illustrate how the sex is determined after the fusion of egg cell and the sperm during the above division using a diagram

- iii. What type of a hereditary disorder is hemophilia ?
- iv. What is the symptom of hemophilia ?



- (C). The diagram given below shows a sketch relevant to the blood circulatory system which is used to show the hierarchy of organizational levels of an organism

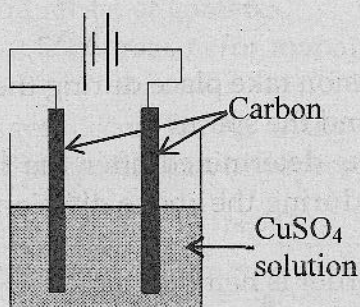


- A
 - B
 - C
 - D
- i. What is the organizational level denoted as D ?
 - ii. Write down 2 tissues belonging to the structure named as C
 - iii. Mention separately a. organism that can be found in a sample of water taken from a pond and a micro - organism that can be found in a stagnant water sample where stew is rotted.
 - iv. Briefly explain the 'Growth' of a unicellular organism.

06. (A) Given below is a list of chemicals and equipment used to determine the heat change of the reaction between NaOH (aq) and HCl (aq) experimentally.

- 50 cm³ of 1 moldm⁻³ NaOH_(aq)
 - 50 cm³ of 1 moldm⁻³ HCl_(aq)
 - A thermometer calibrated in °C
 - A vessel covered with an insulated material
 - Stirrer / Glass rod;
- i. What is the observation that can be taken from the thermometer in the above experiment ?
 - ii. What type of a reaction is this ?
 - iii. The initial temperature of reactant is 30°C. The heat change related to the reaction is 4500J. Find the final temperature of the mixture (Specific heat capacity of water = 4200 JKkg⁻¹)
 - iv. Write down a hypothesis used in the above calculation
 - v. Write down the importance of using a heat insulated vessel for this experiment
 - vi. Name 2 chemical substances remain in the solution at the end of the reaction.

- (B) Given below is set up used for the electrolysis of CuSO₄ solution using carbon electrodes.

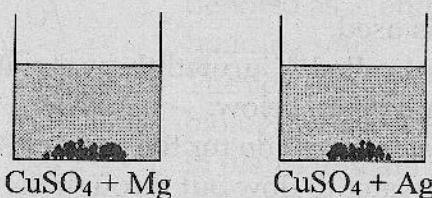


- i. Write down the ions attracted towards the cathode of the above setup
- ii. Mention the half reaction occurs near the anode
- iii. Write down an observation near the cathode
- iv. What is the colour change that can be seen in the above solution
- v. Write down 2 changes that should be done in the above set up in order to apply copper on an iron nail.

- (C) The reactivity series has been prepared by arranging the metals in the descending order of their reactivity. A part of the reactivity series is given below.

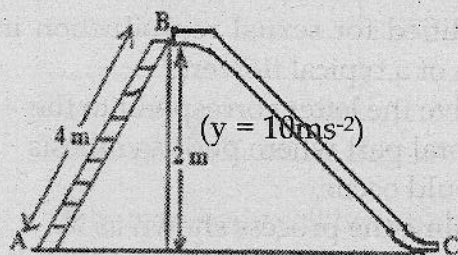
K, Na, Ca, Mg, Al, Zn, Fe, --, --, H, Cu, Hg, Ag, Pt, Au

- Write down a pair of metals from the above that do not show reactions with dilute acids
- Write down the 2 metals that should come between Fe and H
- Given below is a set up used to observe the reaction between metals and metal salts using CuSO_4 solution and pieces of Mg and Al.



- Which is the vessel that shows as colour change
 - Write down the balanced chemical equation relevant to the above reaction
 - Mentation the physical method used to extract gold metal
- iv. Mention an advantage of using coke (C) in the blast furnace during iron extraction.

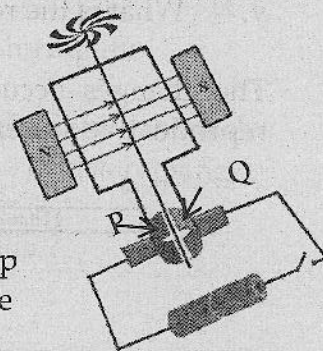
07. (A) Given below is a sketch of a playground slide found in a park. A child of mass 40kg climb the ladder from A to B and then slip up to C.



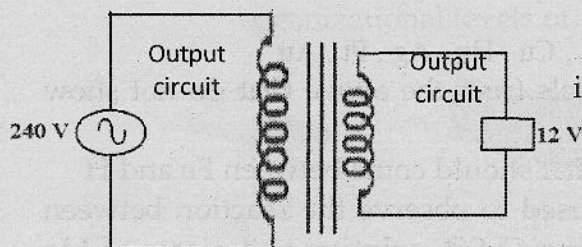
- Find the work done by the child when he climbed from A to B
 - Find the potential energy stored in the child at B. ($g = 10\text{ms}^{-2}$)
 - Calculate the velocity of the child when he passes the point C. (Consider that no energy is wasted)
- iv. What can be done to prepare the part from B to C with minimum friction?

- (B) The sketch of a set up used to demonstrate the function of a direct current motor is given below. When its' switch is closed, the wind vane shows a rotational motion.

- What is shown as pad Q in this diagram.
- Is the direction of current flow from P to Q or Q to P?
- What is the rule used to find the direction of rotation of the wind vane?
- Write down a change that can be done in the setup in order to change the direction of rotation of the wind vane.



(C) Sketch of a transformer is given below



- i. What is the phenomenon responsible for the current formed in the output circuit?
- ii. Calculate the number of turns that should be present in the secondary coil in order to obtain an output voltage of 12 V, if the primary coil has 1000 turns.

iii. Write down an example for an instance where above type of a transformer is used.

(D) A special type of pot called "Guruleththuwa" with a tap filled with water is shown in the diagram given below.

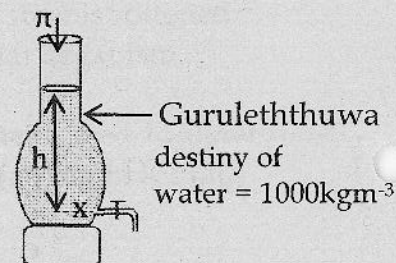
i. Write down an expression for the pressure (P) that help the water to flow out through the tap.

ii. If h is 20cm and atmospheric pressure is 1×10^5 pa, calculate the pressure at X.

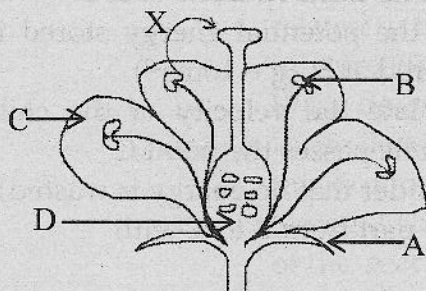
iii. How does the water following out from the tap vary with time?

iv. Mention a simple strategy that can be used to increase the speed of the water following out by filling water into the pot only up to a height of 25cm.

v. Mention an instance where a force is transmitted through a liquid in day today life.



08. (A) Flower is the special structure modified for sexual reproduction in a plant. Given below is a line diagram of a typical flower.

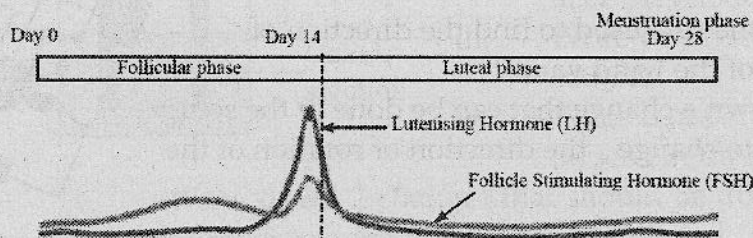


- i. Give the letter correspond to the floral part where photosynthesis could occur.
- ii. Name the process shown as X
- iii. If the above flower is a zoophilous flower, mention and adaptation shown by C for that.

iv. Give the letter relevant to the floral part that does only meiosis in the production of gametes.

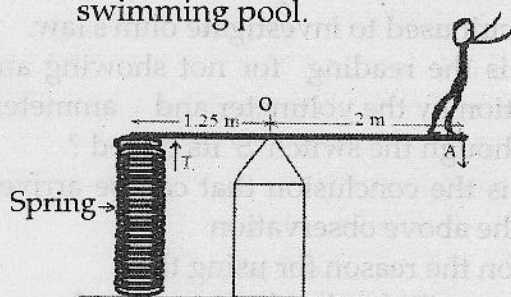
v. What is the reason for managing the above flower as a bisexual flower?

(B) The changes occur in the ovary during the menstrual cycle of a female reproductive system can be represented as shown below.



- Mention the function done by the follicular stimulating hormone during 0 -14th day
- What is the effect of LH (Lutenising hormone) during the Luteal, phase
- In which part of the female reproductive system does the egg cell released from the ovary get fertilized ?
- Mention a function done by the umbilical cord which connects the fetus with the mother
- In which month does the development of the Skelton start in fetus ?
- What is the viral infection that is transmitted sexually which has no permanent treatments and also inactivates the nervous system ?

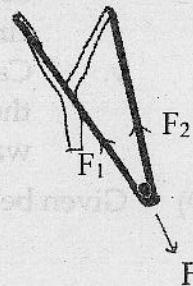
(C) Given below is a diagram of a supporter used by a gymnastic player of mass 50kg to get the initial force needed to jump down from the top of a swimming pool.



- Find the gravitational force act on the player of 50kg mass at A.
- Calculate the clock wise moment act on the point O when the above system is at equilibrium
- What is the tension on the spring when the system is at equilibrium?

(D) A sketch of a catapult used to throw a stone is given below.

- When the stone is kept on the rubber band and pushed with a force 'F' how do the three forces F₁, F₂ and F stay in equilibrium ?
- Write down 2 factors needed for an object to be in equilibrium like above under 3 forces.
- Write down an example for an instance where an object is at equilibrium under 3 parallel forces.

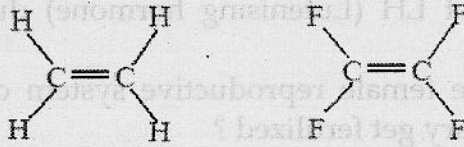


09. (A) Equal masses of CaCO₃ chips and powder are separately reacted with equal volumes of dilute hydrochloric acid. Time taken and mass of CaCO₃ used up are given in the table below.

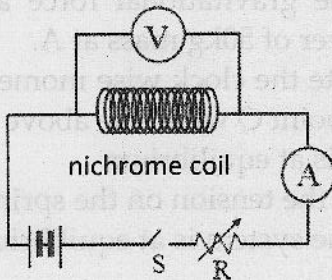
Time (Minute)		1	2	3	4	5	6	7	8	9	10
Most CaCO ₃ used up (g)	chips	2.0	2.9	3.5	3.6	3.9	4.5	4.6	4.8	4.8	4.8
	powder	3.0	4.0	4.5	4.8	4.8	4.8	4.8	4.8	4.8	4.8

- Mention the time taken for CaCO₃ chips and powder to over the reaction with dilute HCl acid separately?
- What is the conclusion that you can arrive by observing the above data ?
- Write down a relationship to calculate the rate of the above reaction if the initial mass of CaCO₃ is 5.6g.

- (B) Hydrocarbons are common among organic compounds. Given below are the structural formula of ethene and a derivative of ethene.

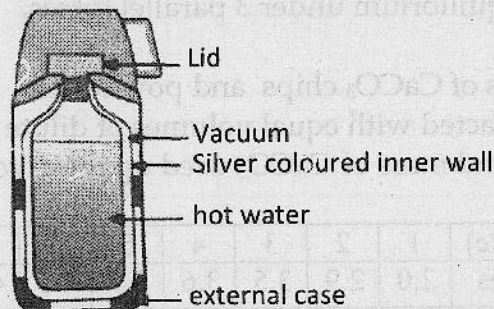


- What is the group of hydrocarbons that A belongs to?
 - What is the reason for Ethene (C_2H_4) to be more reactive than Ethane (C_2H_6)?
 - The polymer, The poly Tetra fluoro ethene (PTFE) is made by the polymerization of large number of B molecules.
 - Give the repeating unit of PTFE
 - Write down a common use of the polymer PTFE
 - Write down a problem arise due to the usage of artificial polymers.
- (C) Given below is a circuit diagram of a circuit used to investigate ohm's law.



- What is the reading for not showing any deflection by the voltmeter and ammeter even though the switch 'S' its closed?
- What is the conclusion that can be arrived from the above observation
- Mention the reason for using the equipment 'R' for the above activity?
- Draw the rough graph against I that you obtain by plotting the data obtained for V and I for several occasions after making the above circuit accurately.
- Calculate the resistance of the income wire coil for an instance where the reading of the voltmeter was 3V and the reading of the Ammeter was 0.25A.

- (D) Given below is a sketch of a thermos flasks



- The temperature of water within the thermos flask is $100^{\circ}C$. Write down 2 techniques used in the thermos flask to keep the water at this temperature preventing the heat lost.
- Mention another function of the thermos flask.
- Boiling potatoes using steam is more efficient than boiling them in water. Explain the reason for this.