G.C.E. (O/L) Practice Test - 2019

| | | | 34 | E | I |

| **Grade 11** | Science | **1 Hour** |

Note:
- Answer all questions.
- In each of the questions 1 - 40, pick one of the alternative (i), (ii), (iii), (iv) which you consider as correct or most appropriate.
- Mark a cross (x) on the number corresponding to your choice in the answer sheet provided.

01. Standard International unit of moment of force is,
    (1) J   (2) W   (3) Nm   (4) J s^{-1}

02. Which of the following adaptation shown by the "Nagadarana" seed to disperse by animals?
    (1) Presence of hairs   (2) Presence of hooks
    (3) Presence of fibre like structures   (4) Presence of wing like structures

03. The derivative of Ethene that use in PVC Production is,
    (1) Tetrachloroethene   (2) Carbon Tetrachloride   (3) Chloroethene   (4) Ethene

04. A disease caused by infection of inner mucous layer of stomach is,
    (1) Bronchitis   (2) Atherosclerosis   (3) Gastritis   (4) Hepatitis

05. An electron microscopic diagram of a cell is given below. Which organelles repesent by X and Y?

    (1) Ribosome, Nucleus
    (2) Mitochondria, Golgibodies
    (3) Nucleus, Chloroplast
    (4) Mitochondria, Endoplasmic reticulum
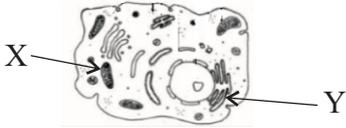
06. An artificial polymer with cross links is,
    (1) Polyvinyl chloride   (2) Polystyrene
    (3) Polytetrachloro ethene   (4) Vulcanised rubber

07. What is the momentum of an object of mass 500 g, moving at a velocity of 10 ms^{-1}?
    (1) 5 kgms^{-1} (2) 10 kg ms^{-1} (3) 20 kgms^{-1} (4) 30 kgms^{-1}

08. Which graph represent a motion of positive acceleration.
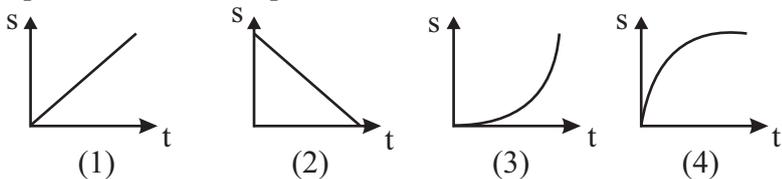
09. A – B: AB is a molecule with co-valent bonds. According to given Lewis structure, Which statement is correct regarding the electro negativity of A and B?
    (1) Electro negativity is equal in A and B   (2) Electro negativity in A is greater then B
    (3) Electro negativity in B is greater then A   (4) Data is not sufficient to predict about Electro negativity.

10. Part of energy is released as heat during respiration. The rest is stored as ATP. Which of the following is not a function of ATP?
    (1) Store energy   (2) Produce energy   (3) Release energy   (4) Act as an energy source

11. A wooden block of 200 kg floats on water. What is the upthrust force act on the block? (g = 10ms^{-2})
    (1) 20 N   (2) 200 N   (3) 2000 N   (4) 20000 N

12. Longitudinal section (L. S) of a flower is given below. Which letters represent the place of pollen production and the place of ovule production in respectively.
   (1) a and b   (2) b and d   (3) c and a   (4) b and c
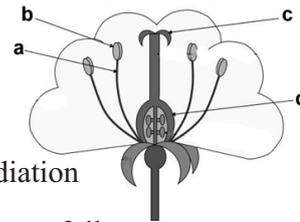
13. Main heat exchange methods in solar water heater are,
    (1) Convection, radiations   (2) Conduction, radiation
    (3) Conduction, convection   (4) Conduction, convection, radiation

14. If an ovum is not fertilized, the changes in uterus can divided in to 3 phases as follows.

Day 0	4	14	28
Menstrual phase	Proliferation phase	Secretory phase	
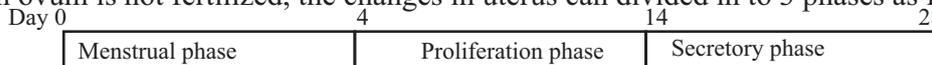
Which of the above phase/phases can be affected by progesterone level in blood?
    (1) Secretary phase and proliferation phase   (2) Menstrual phase and secretory phase
    (3) Only in proliferation phase   (4) Only in menstrual phase

15. The element "P" is in group III and 3rd period in the periodic table. It has following properties,
    A - electronic configuration of P is 2, 8, 3   B- "P" element removes electrons and from P^{3+} ion
    C - P, is more affinity to form acidic oxides
    The correct statements about 'P' are,
    (1) A and B   (2) B and C   (3) A and C   (4) A, B, C all

16. Resistant of a domestic electric appliance is 200 Ω. If 2A current passes through it, what is the power of that electrical appliance?
    (1) 200 W   (2) 300 W   (3) 400 W   (4) 800 W

17. Some oxides formed by the elements in 3rd period of the periodic table are given below.

| A	B	C
SiO_2	MgO	Al_2O_3

Which answer contains the ascending order of the acidity of above oxides?
    (1) A, B, C   (2) C, A, B   (3) B, A, C   (4) B, C, A

18. AB is a light weighted rod. The minimum moment of force to rotate the rod at C is 20 Nm
    If the rod used as couple of forces, what is the minimum force that should be given at one end of the rod?
    (1) 10 N   (2) 20 N   (3) 25 N   (4) 30 N
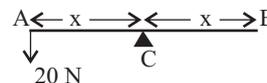
19. Salt production and cinnamon oil extraction are some of the main productions in Sri Lanka. Which answer contains accurate separation methods?

	Cinnamon	Salt
(i)	Evaporation	Crystallization
(ii)	Steam distillation	Crystallization
(iii)	Fractional distillation	Evaporation
(iv)	Simple distillation	Steam distillation

20. An object moves 100 m in a straight path and turns back and move 30m along the same path. Total distance and displacement of that object in respectively are,
    (1) 100 m, 30 m   (2) 130 m, 70 m   (3) 70 m, 30 m   (4) 130 m, 130 m

21. Frequency of this wave is,
    (1) 10 Hz   (2) 20 Hz
    (3) 30 Hz   (4) 40 Hz
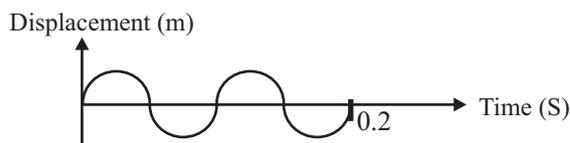
22. Not a specific property of water for the contribution of maintaining the life,
    (1) Act as a solvent   (2) Act as a respiratory medium
    (3) Act as non - polar solvent   (4) Act as a transport medium

23. In case of current leakage in domestic circuit, which device should be turned off, to disconnect power supply.
    (1) Overload Circuit Breaker (2) Isolator (3) Miniature Circuit Breaker (4) Residual Current Circuit Breaker

24. Following features are belong to several groups of kingdom Animalia.
    A. - 4 chambered heart, complete double circulation
    B - Triploblastic, Coelomic, has a water vascular system
    C - Body cover is moistened by mucous, body is not divide into segments
    D - Triploblastic, Coelomic, Some species possess wings
    ABCD groups in respectively are,
    (1) Aves, Echinodermata, Mammalia, Arthropoda
    (2) Echinodermata, Arthropoda, Mollusca, Mammalia
    (3) Mammalia, Echinodermata, Mollusca, Arthropoda
    (4) Arthropoda, Mollusca, Echinodermata, Mammalia

25. Correct statement regarding the setup given in the diagram is,
    (1) Cu electrode is the Anode
    (2) Oxidation takes place at the Zn electrode
    (3) Zn electrode is the positive terminal
    (4) Oxygen gas releases at Cu electrode

   Zn →   ← Cu
    Diluted H$_2$SO$_4$ Acid
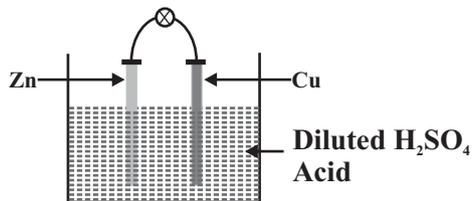
26. Force acting on an object and the frictional force against it is plotted in a graph as follows.
    A, B, C in respectively are,
    (1) Dynamic friction, static friction, limiting friction
    (2) Limiting friction, dynamic friction, static friction
    (3) Static friction, Limiting friction, dynamic friction
    (4) Dynamic friction, Limiting friction, static friction

    Frictional force
    A→   B   C
    The force applied (N)
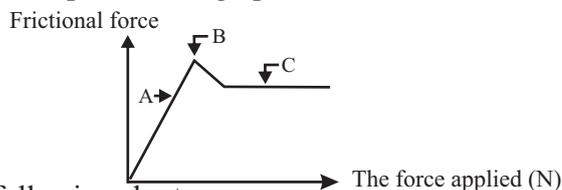
27. Four main types of chemical reactions are stated in the following chart.

    A + B → C ←   → AB + CD → AC + BD
         Chemical
         Reactions
    .... ←   → AB + C → BC + A
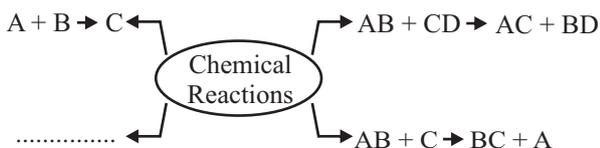
    Which type of chemical reaction is suitable for the blank?
    (1) Double displacement reaction
    (2) Single displacement reaction
    (3) Chemical combination reaction
    (4) Chemical decomposition reaction

28. Skin, lungs, kidney are main excretory organs of human body. Which excretory substance is released by all excretory organs mostly ?
    (1) Water   (2) Urea   (3) Uric acid   (4) Carbondioxide

29. An object is in equilibrium under the action of 3 forces 10N, 20N and 5N. What is the resultant force on the object at the equilibrium state?
    (1) 20 N   (2) 10 N   (3) 5 N   (4) 0 N

30. 100 ml of NaOH solution contains 10% mass of NaOH. Find the number of NaOH moles contain in the solution. (Na = 23, O = 16, H = 1, density of solution is 1 gcm^{-3})
    (1) 0.1 mol   (2) 0.20 mol   (3) 0.25 mol   (4) 0.32 mol

31. Function of the given neuron is,
    (1) Carry impulses from sensory organ to central nervous system
    (2) Carry impulses from central nervous system to effector
    (3) Maintain the co-ordination between sensory neuron and motor neuron
    (4) Send impulses from spinal cord to brain
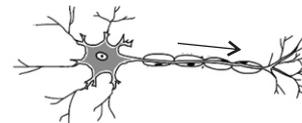
32. Which of the following can be demonstrated by the given circuit?
    (1) action of light sensitive switch   (2) action of heat sensitive switch
    (3) action of signal amplifier   (4) action of a switch sensitive to dark
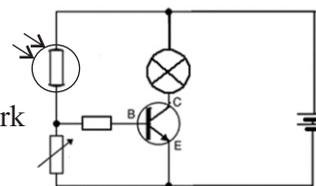
33. Some features of bio chemical substances are given below,
    A. They are inorganic compounds   B. They transport through blood
    C. They need in small concentrations   D. They stimulate target organs
    Which are correct regarding hormones?

    1) A, B, C, D all   (2) A, B, C only   (3) A, C, D only   (4) B, C, and D only.

34. Given below is an illustrated diagram of an ionic compound. Name of the compound is,
    (1) NaCl
    (2) $MgCl_2$
    (3) $CaCl_2$
    (4) Na_2O
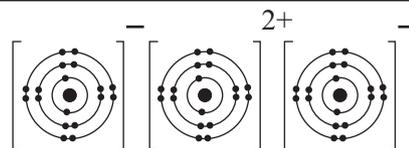
35. Following graphs shows the typical population growth curve and growth curve of human population Select the incorrect statement about A and B.
    (1) B shows the changing patten in growth curve of human population
    (2) A shows the changing pattern in growth curve of typical population
    (3) In A, constant number of organisms can be seen after a definite time period
    (4) First phase of A and first phase of B shows different growth patterns
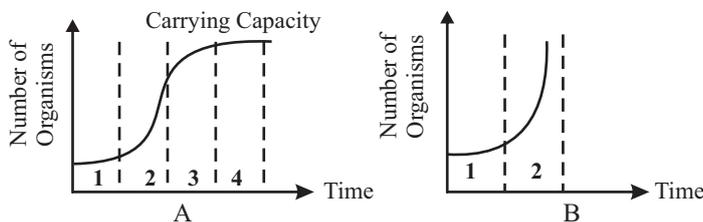
36. Select the correct graph, that can be obtained by the Cathode Ray Oscilloscopes in the given circuit,
   Cathode Ray Oscilloscopes
    (1)   (2)   (3)   (4)
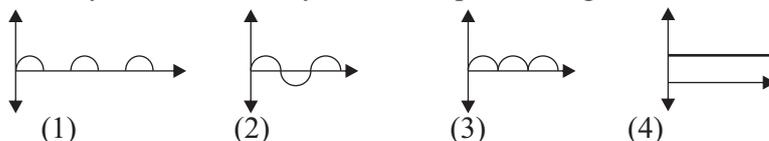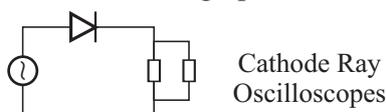
37. Consider the following statement and the reason regarding aerobic respiration and anaerobic respiration.
    Statement   -   Organisms receive more energy by aerobic respiration then anaerobic respiration
    Reason   -   Glucose molecules breakdown partially during anaerobic respiration while glucose molecules breakdown completely during aerobic respiration
    Which of the following is correct regarding statement and reason?
    (1) Statement is correct, reason is incorrect   (2) Statement is incorrect but reason is correct
    (3) Statement is correct, reason explains it   (4) Statement is correct, but reason does not explain it

38. By using electroplating method, B metal is protected as the cathode by using the metal A.
    (Cathodic protection) Select the correct setup for that.
    (1)   (2)   (3)   (4)
    B A   A B   A B   B A
    Solution of the salt of A   Solution of the salt of B
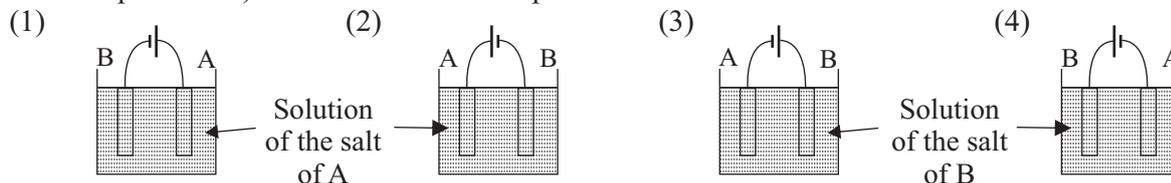
39. X and Y are two identical balloons. X filled with air and tied up with a thread. X balloon is connected to Y using a tube, When the knot at X releases, some statements regarding pressure in X and Y balloons are given below.
    A.   Air flows from X to Y, until the pressure at both balloons become equal
    B.   Pressure inside the balloons are greater than the atmospheric pressure.
    C.   If X is dipped in a water container, air flows further to Y balloon.
          The correct statements are,
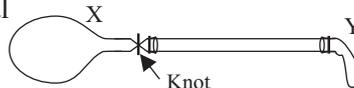
    (1) Only A, B   (2) Only B, C   (3) Only A, C   (4) A, B, C All

40. Consider the following statements on environmental pollution.
    A. All types of environmental pollutants are hazardous
    B. Pollution of one natural resource interconnected with pollution of another natural resource
    C. All influences affect on human society are depend only on the environmental pollution.
    Correct statements are,
    (1) A and B   (2) B and C
    (3) A and C   (4) A, B, C All

* * * * * *

G.C.E. (O/L) Practice Test - 2019

| 34 | E | II |

| **Grade 11** | Science | 3 Hours |

Note:
- This Paper consists of 2 parts, A and B.
- Part A contains structured essay questions. Answer them on the given space.

Part A - Structural Essay

01. A. Following picture shows a man-made environment according to the concept of sustainable development and environmental management.
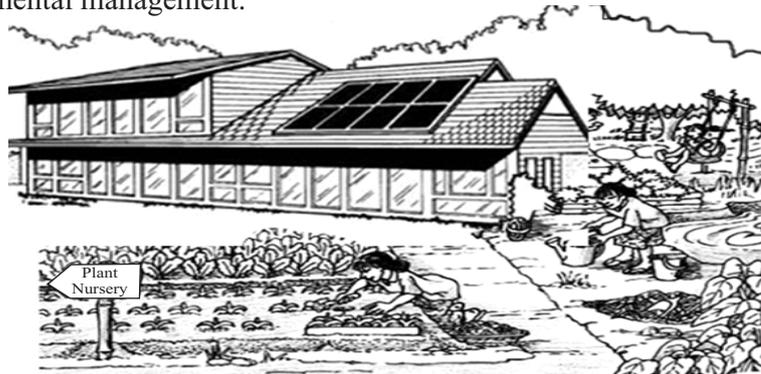
(I)   What is the meaning of sustainable development?..
....
....

(ii)   According to the picture, write 2 instances where the sustainable development concept is applied.
1. ....
2. ....

(iii)   It is expected to minimize carbon foot print and food milage under the sustainable development.
a.   What is carbon foot print?
....
....

b.   Write a strategy used to minimize food milage in the above picture.
....

iv)   Write an action that has been taken in this building for energy management.
....
....

B. Some factors affect for non contagious diseases are given in following chart.
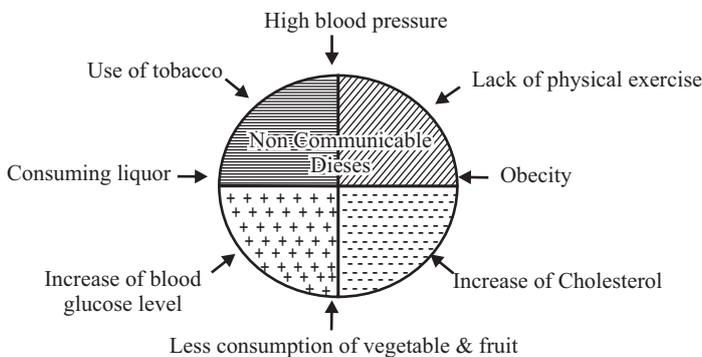
(I) What are non-contageous diseases?

....
....

(ii) Name a non-contagious disease caused by increasing of blood cholesterol level.

....

(iii) Write 2 risk factors from the chart, that can cause cancer.
1. ....
2. ....

C. Rough diagram of N₂ cycle is given below. Answer the questions using the diagram.

$$(N_2)$$

Plants & Animals

Denitrification

Fecal matter & excretory products of animals & plants

Y   X

Z

NH_4^+

NO_2^-

NO_3^-
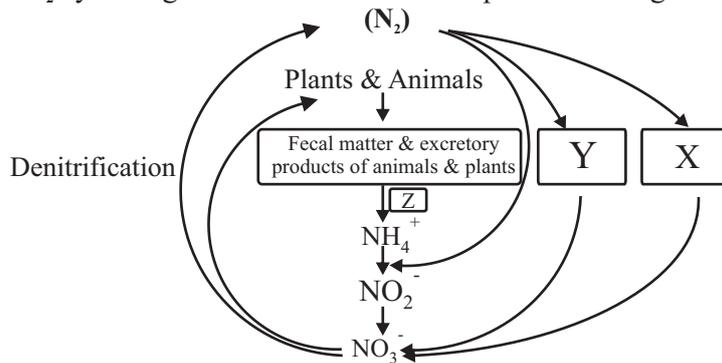
(i) What is the process denoted by Z ?
....

(ii) Write the processes denoted by X and Y
X...
Y...

(iii) Mention the main human activity that affect the Nitrogen cycle.
....

(iv) Write a step to minimize environmental pollution as a student.
....

02. A. Student observed an onion peel, through light microscope and sketch the cells as follows
(i) Name an organelle that he could identify in the tissue
....

(ii) a) A friend of the student said that the cells in the diagram cannot considered as a typical cell. Do you agree with that idea?
....

b) Write the reason for your answer.
....
....
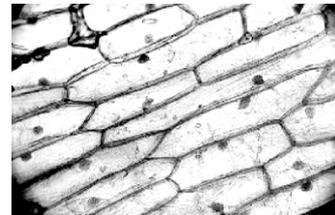
(iii) Chromosomes of a species undergoes meiosis cell division. Each daughter cell receives 12 chromosomes.
a) Write a main difference between meiosis cell division and mitosis cell division.
....
....

b) Fill in the blanks according to the cell division in (iii)

Step 1 .... division

Step 2 .... division

12   12
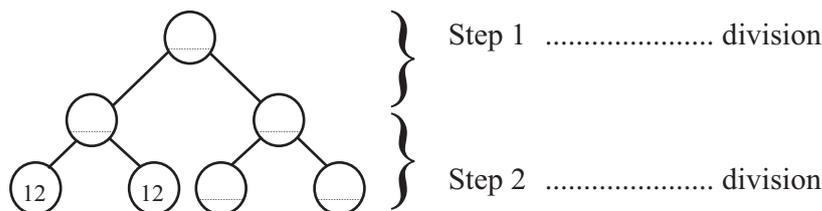
c) Name a type of cell that undergoes meiosis cell division in living organisms.
....

B. Some of the inherited characteristics of human population are given below.
ability to fold the tongue   Fused or free ear lobes   Polydactyly   Syndactyly
     (a)   (b)   (c)   (d)
(i) Write the letters which denotes common inherited characters, out of above characters.
....

(ii) Information about one of the Mendal's experiment using garden pea plants is given below.
Pure breeding inflated pod plants crossed with pure breeding constricted pod plant of garden pea plant and obtained F₁ generation. Then the plants in F₁ generation self pollinated to obtain F₂ generation. The results are given below.

Constricted pod plants 246

Nature of the pods and the number obtained

Inflated pod plants 741
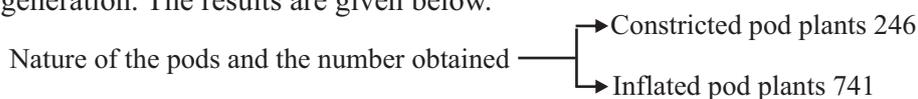
a) What is meant by gene expression?
....
....

b) Write the gene expression of F₁ generation using R inflated pods and r for constricted pods.

....

(iv) How do you show that the above results (ii) are agree with Mendal's monohybrid cross?

....

....

(v) Write diseases caused due to sex linked recessive gene and gene mutation respectively.

....

03. X and Y are two metals. Observations of their reactions are given bellow.
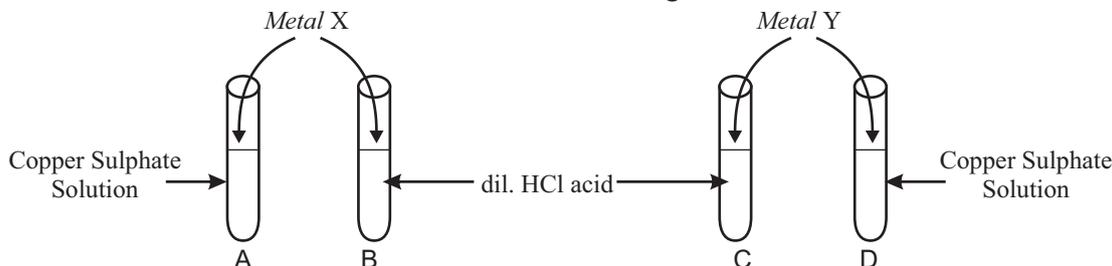
Test tube   **Observation**

A. ⟶ Reduces the blue colour of the solution.

B. ⟶ A precipitate occur at the bottom of test tube.

C. ⟶ No observable reaction.

D. ⟶ Reduces the blue colour of solution, Formation of a precipitate.

(i) Arrange the metals (copper) Cu, X and y according to their reactivity in descending order.

....

(ii) Out of B, C, D in which test tube a reaction does not occur?

....

(iii) Write the balanced chemical equation for the reaction take place in A by considering the valency of x as 1.

....

(iv) You are given Hydrogen Peroxide and Potassium Permanganate chemicals. Which gas can produce by decomposition of above chemicals?

...

(v) How do you identify the above mentioned gas?

....

....

B. A mass of 29.26g of NaCl dissolved in water to make a solution of 200*ml* volume. Following activity was conducted by using the above solution.

(i) Name the A and B gasses collected in the setup.

....

....

(ii) Name the substance that can be used as anode and cathode respectively.

....

....

(iii) Write the overall cell reaction of the above setup.

...
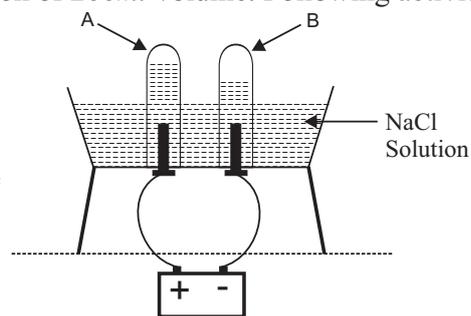
C. (i) Calculate the amount of moles of NaCl that used to make the above NaCl solution.
(Na = 23, Cl = 35.5, O = 16, H = 1)

....

....

(ii)If all amount of NaCl spent for electrolysis, calculate the amount of moles of A produced during the reaction.

....

(iii)What is the SI unit of measuring amount of matter in chemical calculations.

....

04. A. A and B figures shows the activities done by 3 students with equal masses (m) to prove Newton laws.

Instance A   Instance B
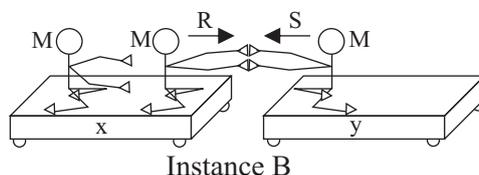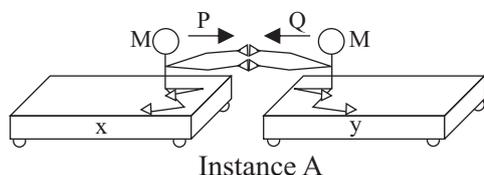
Trolleys are moving by exerting forces by the hands of students.

(i)   a) What can you say about the forces P and Q in instance A?

....

   b) What can you say about the forces R and S in instance B?

....

(ii) Compare the distances traveled by x and y trolleys in figure B.

....

(iii)Write the relevant Newton's law to explain the motion of A and B figures.

....

(iv)Initial velocity of an object is $40 ms^{-1}$. It was at a higher elevation. Draw the velocity time graph for the motion, when it is falling down.

B. (i) Write the type of waves used to operate in the given apparatus / equipments.

Equipment	Type of wave used
a. Solar water heater	....
b. Solar panel	....
c. Remote controller	....
d. SONAR	....

(ii) Write a specific feature of the wave type that used in solar panel.

....

(iii)Given below is a graph of a wave formed on water.

a)Mark the amplitude (a) and wave length (λ) in the given diagram.

....
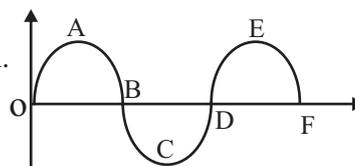
b) Write another instance where this type of wave motion occurs in day to day life.

....

C. A person drown a bucket of water with 2 kg to a height of 6m. ($g = 10 ms^{-2}$)

(i) Write a suitable expression for the work done by a force.

....

(ii) Calculate the work done by man in the above instance.

....

(iii)Calulate the energy consumed by man, when 20 such buckets of water lifted up.

....

(iv) Write the power in standard unite, if he spend 4 seconds to lift up a bucket of water.

Part - B

- **Answer 3 questions only.**

05. A. Some of the plant functions including photosynthesis is given in the diagram.
   * Answer the questions using the diagram.
  (i) (a) Explain the process of photosynthesis .
      (b) Write the process in (a) using a balanced chemical equation.
  (ii) Write the steps of an experiment to identify the starch stored in leaves.
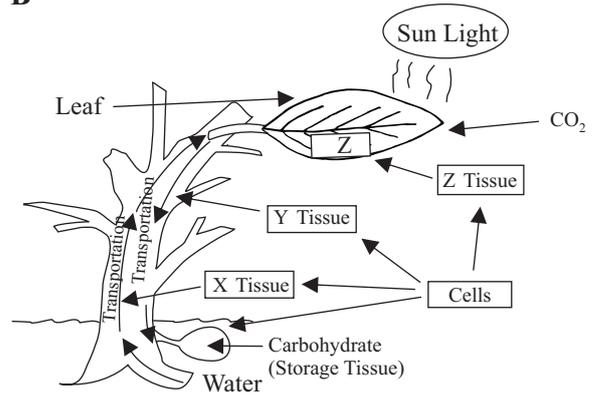
  B.(i) Name the Z tissue in which the photosynthesis takes place.
  (ii) According to the ability of cell division, what is the common name given to x and y tissues?
  (iii) Name the non-living cells in x and y tissue.
  (iv) Write a deference between cells mentioned in answers (i) and (iii).
  (v) It was observed chlorosis in some mature leaves of the above plant. What can be the mineral deficiency responsible for above symptoms?

  C. Following diagram shows the structure of blood circulatory system.
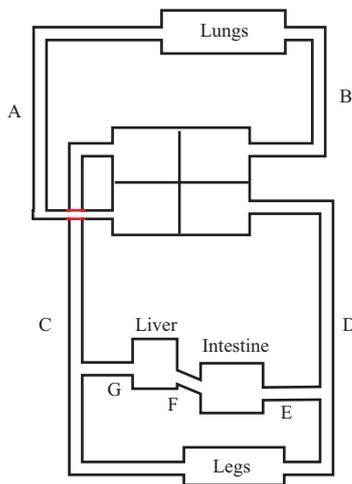
  (i) Which vein contains highest oxygen concentration?
  (ii) Write a difference between the composition of F and G blood vessels
  (iii) Name the valve at the beginning of the vessel 'A' that start from heart.
  (iv) Lymphatic system is a part of blood circulatory system.
      (a) Name a blood cell, that present in lymphatic system.
      (b) Write the main function of lymphatic system.

  D. Maintenance of constant internal environment is important for efficient biological functions.
     (i) What is the name given for the above process.
     (ii)(a) One of the factors to maintain constant internal environment is temperature. Write 2 other factors.
     (b) Following chart shows, how the human body temperature maintain constantly. Write one suitable mechanism to the blanks A and B.

  When Temperature of internal environment decreases   A - - - - - - - - - -

  Normal Body Temperature 37⁰C   Normal Body Temperature 37⁰C

  When Temperature of internal environment increases   B - - - - - - - - - -
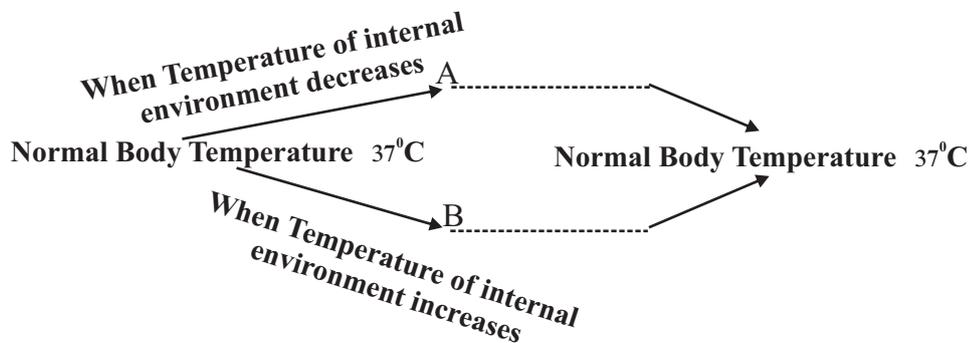
  (iii) (a) What is the main bio molecule , that helps to maintain body temperature constantly?
        (b) Name the constituent elements of above mentioned bio molecule.

06. A.

A, D, E, G, I, J are 6 elements belong to 2nd and 3rd periods. They are not in order and given letters are not their standard symbols. Atomic number of those elements are given in the following table.

Element	A	D	E	G	I	J
Atomic number	n-5	n-2	n-1	n	n+1	n+2

*Element 'E' belongs group III. When making P - type semiconductors, 'E' is used as a doping element.

  (i) (a) Write the electronic configuration of element 'E'
        (b) What is the stranded symbol of element 'E' ?
  (ii) (a) Explain electro negativity.
       (b) Draw a rough graph to show the variations of electro negativity values of A, D, E, G, J elements with atomic numbers.
  (iii) Properties of a compound that formed by element I and Hydrogen are given below.
      • forms covalent compounds   • Molecule is polarized.
      Draw the bonding structure of the above molecule and mark the polarity.

B. A, B, C solutions were tried to identify using two indicators in the laboratory. The results obtained are given in the table.

Solution	colour change in Litmus	pH value
A	Red litmus changed to blue	12
B	Blue litmus changed to red	6
C	Blue litmus changed to red	2

  (i) What is the main difference between acid and a base?
  (ii) Categorize A, B, C solutions according to their strength of acidity.
  (iii) What is the name of the reaction that occurs between A and C?
  (iv) Write an instance where the above type of reaction (iii) applied in day to day life.

C. Following apparatus were arranged to identyfiy a factor that affected the rate of reaction. Equal masses of CaCO$_3$ large and small pieces, and equal volume of Dil.HCl acid in same concentration were used here.

  (i) Define the rate of reaction.
  (ii) Which factor for rate of reaction will be tested by the experiment?
  (iii) Which tube shows the highest rate of reaction, out of A and B test tubes?
 (iv) What is expected by keeping test tubes in water container?
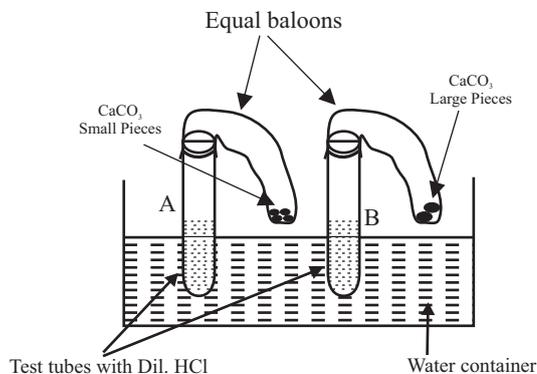
D. Energy (Enthalpy) diagram for a chemical reaction is given below. A → B + C
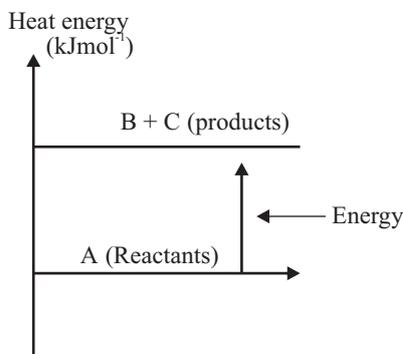
  (i) a) According to heat changes, name the type of reaction.
      b) Give reasons for your answer.
 (ii) Write an example for the above type of a reaction.

07. AB is a straight rod, which arranged to rotate at 'C' point. A 20N mass is hung at A,
   (i) What is the force exerted by the electro magnet on B piece of Iron (1N) to balance AB rod?
   (ii) (a) When the object at A dipped in water, It was observed that the force need to balance the rod, was less. What is the reason for that?
      (b) Find the pressure act on the object 'A' by water when it is dipped in water at 2m depth.
         (density of water = $1000kg/m^3$, g = $10ms^{-2}$)
      (c) Explain how the upthrust changes when the dipped object moved further down towards the bottom of the vessel.
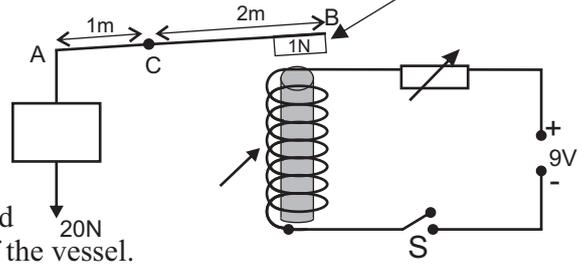
   B. (i) Write a strategy to increase the strength of the electromagnet.
      (ii) The picture shows the way of current flows through an electric conductor which placed in a magnetic field. Copy the diagram on your answer script and mark the direction of the motion of the conductor.
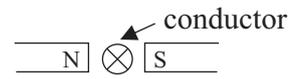
   C. Following diagram shows a transformer,
      (i) Name the type of transformer given in the diagram.
      (ii) Write the ratio between turns in primary coil and turns in secondary coil.
      (iii) Write an instance where the above type of transformer is used in day to day life.
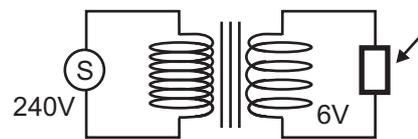
   D. Mass of 1kg of a metallic ball heated from 25^0C to 275^0C.
      (i) When heating what change could be expected in the ball, other then heating.
      (ii) The heated ball put into a container with 500g of water. Initial temperature of water was 25^0C and final Temperature was 75^0C
      (a) Calculate the amount of heat absorbed by the water.
      (b) Calculate the loss of heat at that time (Specific heat capacity of water = 4200 $Jkg^{-1o}C^{-1}$)
         (Specific heat capacity of metal = 600 $Jkg^{-1o}C^{-1}$)

08. A. Given below are some optical instruments. Answer the questions using them.

   Concave mirror   Bi-convex lens   Plain mirror

   Convex mirror   Bi-concave lens   Glass block

   (i) Name the relevant optical instrument that can be used to get images in following instances.

| Instance	Optical Instrument/ Instruments
(a). Real, inverted, magnified image formed on the same side of the object	
(b). Virtual, upright, magnified image formed on the same side of the object	
(c). Always Virtual, upright, diminished images formed on the side of the object	
(d). Virtual, upright, images formed equal to the same size of the object	

   (ii) Draw the ray diagram for the image forming in (i)(a) instance.
   (iii) Following diagram shows how a light ray refracted from air to glass .
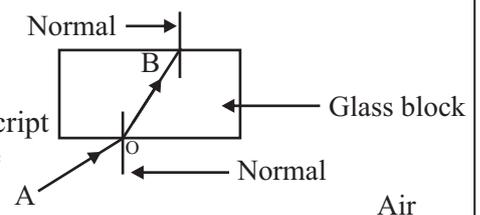
   (a) Draw the ray diagram to show how the OB ray refracted to air at the point B by copying the diagram on to your answer script
   (b) Which property of glass and air is used in drawing the above ray diagram.
   (iv) Write the refractive laws of light.

B. A rough sketch of 3 Domain classification which was introduced by Carl Woese is given below.

Domain   [Bacteria]   [Archaea]   [Eukarya]

Kingdom Protista   [A]   [Plante]   Animalia

Flowering plants   Non-Flowering plants

[B]   [C]   [D]   [E]

Eg: Coconut   Eg:Jack   Eg:Cycus

[F]   [G]
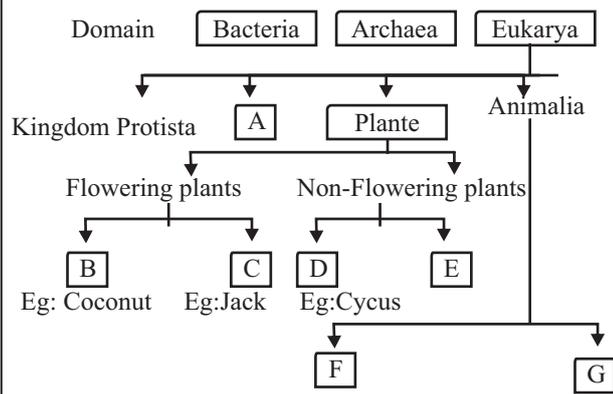
(a)   Name the suitable kingdom or classification levels to the places A, B, D, E.
(b)   Write a similarity and a dissimilarity between the Domain bacteria and Eukarya.
(c)   Write an importance of doing a classification as given in the chart.

C. (i) Cellular organization, nutrition, respiration, sensitivity growth and development are some features of living organisms. Write 2 other living features that are not mentioned above.
(ii) Explain the characteristic of Growth and Development.
(iii) Some living organisms cannot be identified as living or non living separately. State 2 such instances.
(iv) Write a feature that can be used to separate F and G.

09. A. When a person carrying a packet of table salt with a mass of 500 g. But the salt spread on the ground as the bag was broken. After that he collected all the salt and went home.
(i) Write 2 substances that could be mixed with collected salt.
(ii) What type of a mixture is that collected salt?
(iii) (a) Write a mechanical method that can be used to clean the salt mixture.
    (b) What is the name of the method that can be used in laboratory to extract most purified salt.
(iv) The mass of a certain substance that mixed in the above salt mixture is 10 g. Write the composition of above mixture as a mass fraction.
(v) (a) The maximum amount of salt that can dissolve in $1cm^3$ of water at 20^0C is 2 g, Calculate the solubility of salt at that time.
    (b) State whether the solubility of salt could be increase or decrease at 25^0C. Give reasons.
    (c) Write a method of dissolving salt easily at home.

B. The diagram shows a circuit that arranged using 3 dry cells with 1.5 V each. X, Y, Z are 3 identical bulbs. Assume that there is no resistance in conductors.
(i) Which bulb lights up with more brightness when the switch S is ON.
(ii) State the method of y and z bulbs are connected in the circuit.
(iii) What is the method of fixing y, z bulbs to the x bulb?
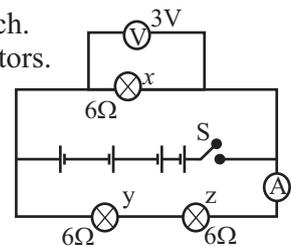
C. If x bulb is removed and 6Ω resistance is replaced. Consider the cross sectional area of the resistance in wire as (a) and length as (l)
(i) When a current passes through the circuit, potential difference across the x bulb was 3V, although 4 dry cells with 1.5V were connected.(Total voltage is not equal to 6V) Explain your answer.
(ii) What change should be done in the circuit to obtain 6V supply using the same apparatus given in the diagram.
(iii) Calculate the current flow through x resistor when 6V voltage is supplied.
(iv) (a) Calculate the current flows through resistor when the length of it increases twice.
    (b) Explain the brightness of the bulbs with reference to the resistance.
(v) Calculate the power of bulb 'y' in the circuit.

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