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Department of Education, Southern Province

පළමු වාර පරීක්ෂණය 2019 මාර්තු
First Term Test, March 2019

| II ශ්‍රේණිය **Grade 11** | SCIENCE - I විද්‍යාව - I | පැය එකයි **One hour** |

Name / Index No. :

- **Answer all the questions.**
- Select the most correct or most appropriate answer from the given answers (1), (2), (3), (4) from question No. 1 to 40.
- Put (x) mark on the relevant answer in front of the question number in the answer sheet provided.

01. Relevant to which of the following plant does water act as the pollinating agent?
    (1) Lotus　　　　(2) Kekatiya　　　　(3) Olu　　　　(4) Valisnaria

02. An aquatic, predaceous animal which shows the radial symmetry is,
    (1) Frog　　　　(2) Tuna　　　　(3) Sea anemone　　　　(4) Cuttle fish

03. The SI unit of work done using the fundamental units is,
    (1) $kg\,m\,s^{-2}$　　　(2) $kg\,m^{2}\,s^{-2}$　　　(3) $kg\,m^{-2}\,s^{2}$　　　(4) $kg\,m^{2}\,s^{2}$

04. A solution of $250\,cm^{3}$ was prepared by adding distilled water to $50\,cm^{3}$ of pure ethyl alcohol. What is the Volume fraction of ethyl alcohol in this solution ?
    (1) $\dfrac{50}{200}$　　(2) $\dfrac{50}{250}$　　(3) $\dfrac{50}{300}$　　(4) $\dfrac{250}{50}$

05. The reaction takes place making a precipitation when Zn is added to aquous $FeSO_4$ solution. To which type of reaction does it belong?
    (1) chemical combination　　　　(2) chemical decomposition
    (3) single displacement　　　　(4) double displacement

06. The diagram below shows a root system taken from a certain plant. Which of the following feature cannot be seen in this plant?
    (1) locating leaves with parallel venation
    (2) having a stem with the cambium tissue
    (3) having lateral buds
    (4) having 5 petals in flowers

07. The pair of substance X and Y react in living cells and produce energy, carbondioxide gas and water. X and Y respectively are,
    (1) Minerals and Oxygen　　　　(2) Nucleic acids and Oxygen
    (3) Simple foods and Oxygen　　　　(4) Vitamins and Oxygen

08. An object with the mass of 3kg is accelerated under the system of forces shown below. Which of the following is the acceleration?
    (1) $9\,m\,s^{-2}$　　　(2) $13\,m\,s^{-2}$
    (3) $21\,m\,s^{-2}$　　　(4) $60\,m\,s^{-2}$

09. The graph below shows how the current flowing through the resistor R changes with the potential difference at the two ends of it. What is the value of R?
    (1) $2.4\,\Omega$　　　(2) $5.6\,\Omega$
    (3) $15\,\Omega$　　　(4) $24\,\Omega$
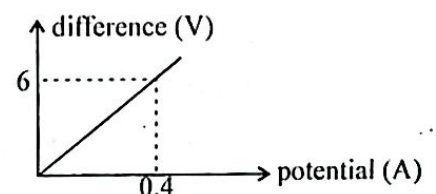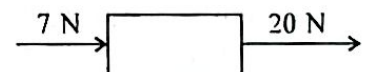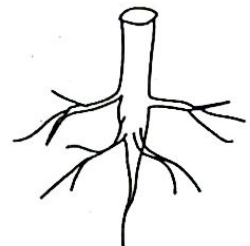
- Representations of four ions are shown below as A, B, C and D.

  $A = {}^{23}_{11}Na^+$ $B = {}^{16}_{x}O^{2-}$ $C = {}^{35}_{17}Cl^-$ $D = {}^{32}_{16}S^{2-}$
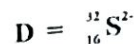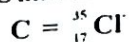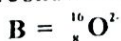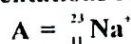
  Questions No. 10 and 11 are based on A, B, C and D.

10. The two ions with similar number of electrons are,
    (1) A and B   (2) A and C   (3) B and C   (4) B and D

11. The number of electrons and neutrons present in the ion represented as B are respectively,
    (1) 8 and 8   (2) 16 and 8   (3) 8 and 16   (4) 10 and 8

12. Four plants are shown as A, B, C and D.
    A - Cycas   B - Paddy   C - Ferns   D - Peanut

    In which plants out of A, B, C and D can seeds be observed?
    (1) A, B and C   (2) A, C and D   (3) A, B and D   (4) B, C and D

13. The features shown below can be observed in animal tissue,
    - Made out of long cylindrical cells.
    - Many nuclei can be seen in a cell.
    - Mitochondria are abundant in a cell.

    The animal cell that the above features contained is,
    (1) Nervous tissue   (2) Smooth muscle tissue
    (3) Skeletal muscle tissue   (4) Epithelial tissue

14. A, B, C and D are four places that the same force is applied when tightening a bolt using a spanner.
    (1) A   (2) B   (3) C   (4) D

15. A motor vehicle is travelling along a straight-line with a uniform velocity of 20 m s⁻¹. The overall force of resistance acting on the vehicle 10^4 N. What is the force applied by the engine on the vehicle for the motion of it?
    (1) 10^4 N   (2) 10^3 N   (3) 10^2 N   (4) 10^1 N

16. The mass of glucose needed to prepare 100 cm³ of glucose solution with the concentration of 1 mol dm⁻³ is, (The relative molecular mass of glucose is 180)
    (1) 10 g   (2) 18 g   (3) 90 g   (4) 180 g

17. What is the answer that classifies 4 solvents A - ether, B - water, C - carbondisulphide, D - acetone correctly?

	Polar organic	non polar organic	Polar inorganic	Non polar inorganic
(1)	B	C	A	D
(2)	A	C	B	D
(3)	A	D	C	B
(4)	D	A	B	C

18. The epithelial tissue,
    (1) Covers surfaces.   (2) Does the absorptive function in certain instances.
    (3) Perceives stimuli in certain instances.   (4) Does all these functions.

19. It is allowed self pollination to be taken place between pea plants with the genotype Tt. The ratio of genotype obtained by the new plants is,
    (1) 1 : 1 : 1   (2) 1 : 2 : 1   (3) 2 : 1 : 1   (4) 1 : 1 : 2

20. The diagram below shows a piece of iron with plane surfaces. Its A, B, and C surfaces are placed in contact on a plane horizontal surface. Then the pressure created on these surfaces are P_A, P_B and P_C.
    Which of the following is correct regarding P_A, P_B and P_C?
    (1) $P_A = P_B = P_C$ (2) $P_A > P_B > P_C$
    (3) $P_A < P_B < P_C$ (4) $P_A < P_C < P_B$

02
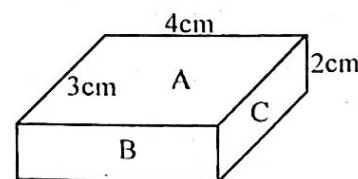
21. These four diagrams show how a light ray that falls parallel to the principle axis of a convex mirror behaves. What is the correct diagram?

    (1)   (2)   (3)   (4)

22. A light rod is pivoted at the centre and balanced horizontally. Two balloons filled with A and B gases are hung either sides of it. The diagram below shows how the rod is balanced after it. A and B gases respectively can be,

    (1) O_2 and H_2 (2) H_2 and CO_2
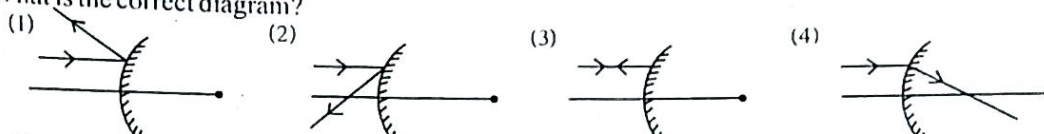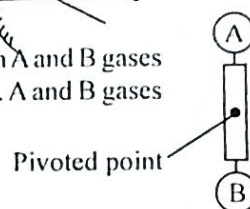   (3) O_2 and N_2 (4) CO_2 and H_2

    Pivoted point

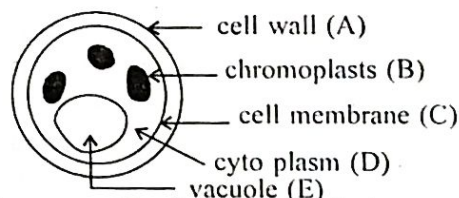23. The volume of gases collected with the time in a chemical reaction is tabulated. The table below shows it.

time (min)	0	2	4	6	8	10
the volume of gas collected (cm^3)	0	15	25	30	30	30

    According to this table, the reaction should be ended,
    (1) during the fourth minute   (2) during the fifth minute
    (3) during the sixth minute   (4) during the tenth minute

24. 10 g of $Ca(OH)_2$ is added little by little to 100 g of distilled water at the temperature of 30^0C and stirred by a glass rod. In one instance, it can be observed that the amount added is not dissolved and deposited at the bottom of the beaker. The mass of the remained $Ca(OH)_2$ is measured. It is 8 g. According to it, the solubility of $Ca(OH)_2$ in water at the temperature of 30^0C is,
    (1) 2 g   (2) 5 g   (3) 8 g   (4) 10 g

25. The mass of a block of wood is 10kg. It is placed on a horizontal table. What is the reactant force applied by the table on the block of wood?
    (1) 1000 N   (2) 100 N   (3) 10 N   (4) 1 N

26. (a) H_2 + (b) N_2 → (c) NH_3 is a balanced chemical reaction. Which of the following answers show the relevant values for (a), (b) and (c)?
    (1) 2, 3, 2   (2) 2, 1, 3   (3) 3, 1, 2   (4) 3, 2, 2

27. According to the reaction $CaCO_3$ → $CaO + CO_2$ the maximum mass of CaO that can be obtained by 200g of $CaCO_3$ is.   (Ca = 40, C = 12, O = 16)
    (1) 56 g   (2) 112 g   (3) 144 g   (4) 560 g

28. A diagram of a plant cell is shown below. What are the parts shown here that cannot be seen in animal cells?
    (1) only A and B
    (2) only A and C
    (3) only B and C
    (4) only A, B and E

    cell wall (A)
    chromoplasts (B)
    cell membrane (C)
    cyto plasm (D)
    vacuole (E)

29. Two plant specimens A and B are observed under the compound microscope. The tissues present in them are identified as parenchyma and sclerenchyma respectively. Which of the following plant parts can be the specimens A and B respectively?
    (1) A yam of potato, a yam of carrot
    (2) A yam of potato, a date seed
    (3) mid vein of a leaf of bitter gourd, a yam of carrot
    (4) a coffee seed, a yam of carrot

30. A paper on which the letter 'F' is printed is placed in between the pole and the focus of a concave mirror to the left side of it. The image observed through the mirror is,
    (1) an enlarged one which is seen as F.   (2) an enlarged one which is seen as Ⅎ
    (3) a diminished one which is seen as F.   (4) a diminished one which is seen as Ⅎ

31. This diagram shows how a boat in which the item A is loaded floats on water. In this instance an upthrust force of 10^6 N is acting on the boat. The upthrust force on the boat when the item A is removed is 10^5 N. Which of the following is the mass of the object?
    (1) 10^2 kg   (2) 10^3 kg
    (3) 10^4 kg   (4) 10^5 kg

03
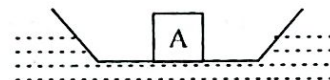
32. 5 ml of an extraction taken by grinding a food in water is taken to a test tube. It was shaken by adding excess amount of NaOH. Later few drops of $CuSO_4$ was added to it. Then pinkish purple colour was observed. The conclusion that can be attained by this is that,
    (1) food contains carbohydrates
    (2) food contains nucleic acids
    (3) food contains protiens
    (4) food contains lipids

33. The mean mass of a bunch of bananas obtained from a plantation grown in a normal sunlight is 20 kg. When they are allowed to grow in the same environment by covering the bunch of bananas by blue polythene, the mean mass is 30kg. What is the conclusion that can be attained by this?
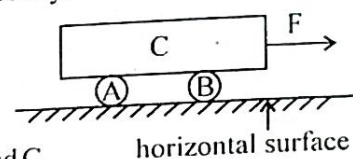   (1) Photosynthesis is faster in normal light.
    (2) Photosynthesis is more faster in normal light rather than in the blue light.
    (3) Photosynthesis is faster in blue light.
    (4) Photosynthesis is faster in blue light rather than in normal light.

34. A clean iron nail is put into an acidic $KMnO_4$ solution. Which of the following is the significant observation obtained from it?
    (1) Solution become colourless.
    (2) Surface of the iron nail gets brown coloured.
    (3) Surface of the iron nail gets colourless.
    (4) Emitting gas bubbles speedily.

35. A very heavy beam of iron C is placed perpendicularly on 2 cylindrical blocks of wood A and B which are kept broad - wise. When a force of F is applied in the horizontal direction, it moves forward slowly on A and B. P, Q and R are four statements relevant to this phenomena.

    (P) - A and B decrease the frictional force between the horizontal force and C.
    (Q)- C does not move when F force is applied removing A and B.
    (R)- The static frictional force between C and the horizontal force is F when the force F is applied removing A and B.

    Out of these statements,
    (1) only P and Q are true.
    (2) only Q and R are true.
    (3) all P, Q and R are true.
    (4) all P, Q and R are false.

• **The diagram below shows a load of 100 N which is hung by 2 light strings. Question No. 36 and 37 are based on this diagram.**

36. Which of the following is the correct statement regarding the resultant force exerted by strings?
    (1) It is 100 N and acts vertically upwards.
    (2) It is 100 N and acts vertically upwards along the centre of gravity of the load.
    (3) It is 100 N and acts vertically down.
    (4) It is 100 N and acts vertically down along the centre of gravity of the load.
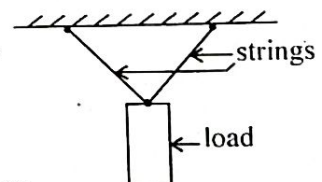
37. If one string is broken and the load is hung by the other, the tension of it is,
    (1) 100 N   (2) less than 100 N   (3) higher than 100 N   (4) 200 N

38. The value of A and B resistors are 6Ω and 4Ω respectively. Four ways of connecting two A resistors and two B resistors are shown below. In which diagram is the equivalent resistance 5Ω?
    (1)
    (2)
    (3)
    (4)
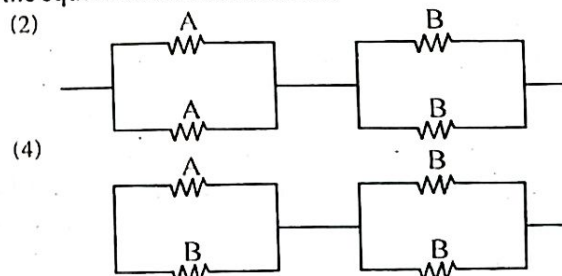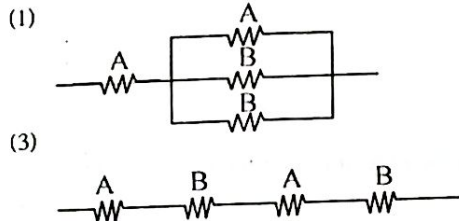
39. The environmental disequilibrium which became the massive outburst in 2019 in Sri Lanka is,
    (1) The north east areas getting under water.
    (2) Falling hoar frost (mal thuhina) to Nuwara eliya area.
    (3) Decreasing the price of pumpkin rapidly.
    (4) Threat created by "sena" caterpillar to agricultural crops.

40. Which of the following characteristic of CO_2 is the reason for its ability to extinguish fire?
    (1) less density than that of air.
    (2) property of not supporting combustion.
    (3) being a colourless gas.
    (4) dissolving in water to a certain extent.

04

දකුණු පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව
Department of Education, Southern Province

පළමු වාර පරීක්ෂණය 2019 මාර්තු
First Term Test, March 2019

| II ශ්‍රේණිය **Grade 11** | **SCIENCE - II** විද්‍යාව - II | පැය තුනයි **Three hours** |

Name / Index No. :

Instructions :- • Write answers in neat handwriting.
• Answer the four questions in Part A, in the space provided.
• Of the five questions in Part B answer the questions only. After answering, tie Part A and the answer script of Part B together and hand over.

Part - A (Structured essay)

(01) Two newspaper headlines are shown below.

• About 250 elephants are killed each year in Sri Lanka due to the elephant - human conflict. Around 50 people die due to this.

• On average six people die each day in Sri Lanka due to road accidents.

(A) (i) What is the main reason for the elephant - human conflict?

....

(ii) Put forward an effective suggestion to reduce the elephant human conflict.

....

(iii) (a) According to the given two headlines, what is the reason for the highest number of deaths in Sri Lanka?. ....

(b) Mention the reason for your answer. ....

(iv) (a) A wild elephant walks about 20km per day to fulfill its food requirement.

What is the mode of nutrition of elephants?

....

(b) What is the structure that contributes more to the pattern of nutrition of the elephant?

....

(B) (i) Write two reasons for increasing road accidents.

....

....

....

....

(ii) Running motor vehicles is the main reason for environmental pollution. Write 3 points to explain how it happens.

....

....

....

01

(iii) Petrol is used as the fuel in certain vehicles. The main constituent of petrol is Octane C_8H_{18}. (The molecular mass of octane is 114 and the relative molecular mass of CO_2 is 44).

(a) If an octane molecule produces only CO_2 and H_2O in the complete combustion, write the balanced equation for the total combustion of an octane molecule.

....

(b) Find the mass of CO_2 released to the environment by subjecting 228g of Octane for the total combustion?

....

....

....

(02) (A) The note below shows two processes taken place in the bodies of woman and man. Answer the following questions using it.

```
    man                          woman
     │ meiosis                    │ meiosis
     ▼                            ▼
  P cells                      Q cells
     │        joining together    │
     └──────►  R cells  ◄─────────┘
                  │ differentiation and development
                  ▼
         female or male infant
```
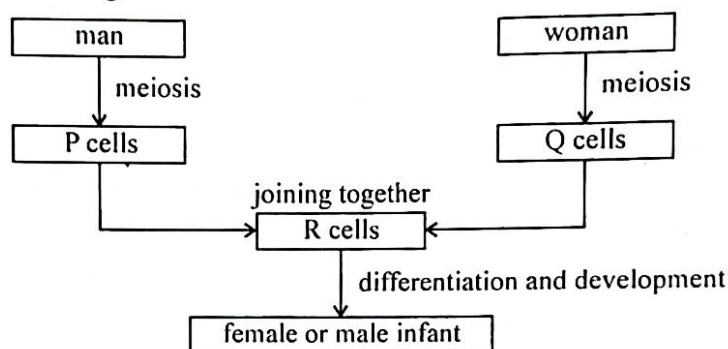
(i) (a) Write separately the kinds of cells represented as P and Q.

P - .... Q - ....

(b) Write separately the organs that produce them.

P - .... Q - ....

(c) How many chrosomes are there in the nucleus of P or Q ?

....

(d) Out of the above chromosomes,

(1) What are the two types of sex chromosomes present in P ?

....

(2) What is the type of sex chromosome present in Q?

....

(ii) (a) What is the scientific word used for joining together shown in note ?

....

(b) In which structure that belongs to the female reproductive system does it take place?

....

(iii) (a) What is the type of cell division taken place in the differentiation process in R?

....

(b) Represent the above mentioned method of cell division in a suitable diagram.

....

....

(B)   Reproduction of developed plants take place in two main methods.

    (i)   Name the above 2 methods.

    ....

    (ii)   Out of the above 2 methods, what is the method of reproduction that takes place without the participation of gametes?

    ....

(03) (A)   The diagrams (1), (2) and (3) show Lewis dot and cross diagrams of 3 molecules made by X, Y and Z atoms. X, Y and Z are not standard symbols.

$$X : Y :^{x\,x}_{x\,x} \qquad X : Z : X \qquad : Y : Y :$$

$$\text{(1)} \qquad\qquad \text{(2)} \qquad\qquad \text{(3)}$$
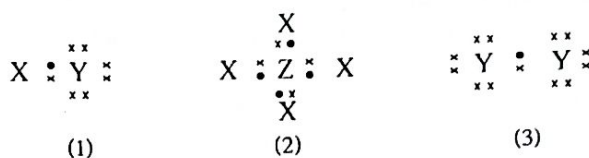
Study the diagrams above and answer the questions below.

    (i)   What is the valency of the atom Z ?

    ....

    (ii)   What is the diagram that shows a homoatomic molecule?

    ....

    (iii)   What is the type of bond present in molecules shown in the above diagrams?

    ....

    (iv)   Write the molecular formula of the molecule shown in the diagram (1).

    ....

    (v)   If the atomic numbers of X, Y and Z atoms are less than 10, identify each atom.

    X - ....   Y - ....   Z - ....

(B)   A, B, C and D below show several activities done in the laboratory.

    A - Adding pieces of zinc into a test tube with aquous solution of $CuSO_4$.

    B - Adding aquous solution of $BaCl_2$ to a test tube with aquous solution of Na_2SO_4.

    C - Adding diluted HCl to a test tube with pieces of Zinc.

    D - Heating the bottom of a boiling tube with some amount of $KMnO_4$ by a bunsen burner.

    (i)   (a)   In which tube can gas bubbles be observed?

    ....

    (b)   In which tube can reddish brown precipitation be observed?

    ....

    (c)   In which tube can white colour precipitation be obtained?

    ....

    (d)   Which tube emits Oxygen gas?

    ....

(ii) (a) Show in a balanced chemical equation the reaction taken place in tube C.

....

(b) What type of reaction is it?

....

(c) After the reaction, what is the metalic ion present in the solution in tube C?

....

(04) (A) An object is vertically projected upwards from the earth surface with the initial velocity of 30 m s^{-1}. (acceleration due to gravity is 10 m s^{-2}). An incomplete table below shows how the velocity changes with time relevant for the motion of this object.

Time (s)	0	1	2	3	4	5	6
Velocity (ms^{-1})	30	(a)	(b)	(c)	-10	(d)	(e)

(i) Mention the velocities relevant for (a), (b), (c), (d) and (e) places in the table.

(a) .... (b) .... (c) .... (d) .... (e) ....

(ii) Why is the velocity shown as -10 ms^{-1} at the 4th second after starting the motion?

....

(iii) Will the change of displacement take place in equal amounts during 0s - 3s ?

....

(iv) One instance that shows 25m displacement relative to the earth surface is 1s after starting the motion. What is the other instance?

....

(B) The glass ball is released keeping at A in the curved surface shown in the diagram. It goes to C passing B and again moves to the opposite direction.
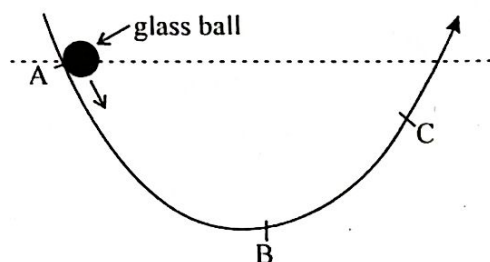
glass ball

(i) Out of kinetic energy and potential energy, mention which energy is maximum and zero when the glass ball is at A position.

Maximum - ....

Zero - ....

(ii) What is the energy transformation taken place when the glass ball is moving from B to C?

....

(iii) What is the reason for A and B not being at the some height ?

....

(iv) At which point during the movement from A to C does the ball's momentum maximize?

....

(05) (A)   Several specimens of organisms studied in a field trip are shown below.

     A   B   C   D
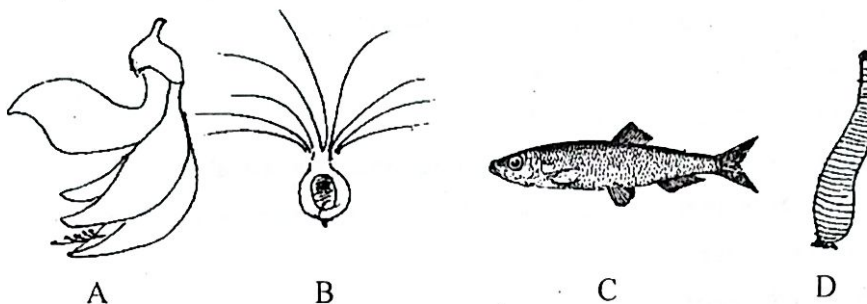
(i)   Mention the letters which show vertebrate and invertebrate separately from the specimens A, B, C and D.

(ii)   (a)   Mention the pollinating agent of the flower A.

     (b)   Mention a structural adaptation present in the flower for it.

     (c)   The flower A is born in a dicotyledonous plant. Mention a feature present in the flower A belonging to the group of dicotyledonous plants.

(iii)   (a)   What is the living environment of organism C.

     (b)   Write two structural adaptations possessed by the organism C to live in this environment.

(iv)   (a)   What is the dispersal agent of specimen B?

     (b)   Mention a structural adaptation seen in B to disperse it in that way.

(v)   (a)   The organism D belongs to the phylum annelida. Write a common feature that can be seen in the phylum annelida.

     (b)   Name another organism belonging to the group of annelida group other than D.

(vi)   What is the main difference of the body cover of the two organisms C and D?

(vii)   If the organism C is taken completely as the food of man,

     (a)   What is the main nutrient obtained by him?

     (b)   What is the main mineral obtained by him?

     (c)   Name the four main elements present in the nutrient, you mentioned in part (a) above.

     (d)   Mention the deficiency symptom that occurs in the body due to lack of the mineral you mentioned in part (b) above.

(06) (A)   (i)   A 100 g of solution is prepared by dissolving 30 g of $MgCl_2$ in pure water at 25^0C.

     (a)   What is the reason for selecting water to prepare the solution of $MgCl_2$? Explain it.

     (b)   What is the mass fraction of $MgCl_2$ in the above $MgCl_2$ solution?

     (ii)   (a)   Another 20 g of $MgCl_2$ is added to the solution prepared in part (1) and stirred well. After some time it was observed that a small amount of $MgCl_2$ is left at the bottom of the beaker. What is the special name used to identify this type of solutions?

     (b)   The above solution is heated up to 60^0C.

         (1)   Mention an important observation that can be seen here.

         (2)   Explain the reason for it.

(B) The order of steps of a laboratory activity are shown below.

    A - Removing the outer coating of sugar cane.

    B - Grinding the remaining part well.

    C - Filtering the mixture.

    D - Purifying the mixture.

    E - Heating the purified mixture putting into a beaker.

(i) Name the laboratory apparatus used in steps shown below in the above activity.

    (a) For the step B.

    (b) For the step C.

(ii) Mention the specific observation obtained at the end of the step E.

(iii) What is the separating technique based for the activity in the step E?

(iv) The relative molecular mass of the solute separated in the step E is 342 g.

    (a) What is meant by the expression the relative molecular mass of the solute separated is 342 g?

    (b) Calculate the number of moles present in 176 g of the solute separated.

(C) In Sri Lanka, salt extraction is taken place is salterns.

(i) Mention the chemical name of salt.

(ii) Mention 2 environmental factors that make the salt extraction efficient.

(iii) Name the chemical compounds precipitated in the tanks mentioned below in the salt extraction.

    (a) In large shallow tanks.

    (b) In medium tanks.

(07) (A) A, B, C and D diagrams below show how wave patterns relevant for four sounds are observed through the cathode ray oscilloscope.

(i) (a) Mention the letters for the two waves that represent two sounds emitted by the same instrument.

    (b) What is the characteristic of sound that helps to identify the two sounds separately?

(ii) (a) Mention the characteristic of sound that differs the two sounds relevant for the two wave patterns A and C.

   (b) On what feature of the wave does the above characteristic of sound depend?

(iii) What is the letter that represents the wave pattern relevant for a noise?

(iv) The time taken to form the wave part B is 0.003 s

    (a) If so what is the period of the wave B?

    (b) What is the wavelength of this wave, if it is travelling in air with the velocity of 340 m s^{-1}?

    (c) When the temperature of air is lower than the temperature at which the wave travelled initially, will its velocity be high or less?

06
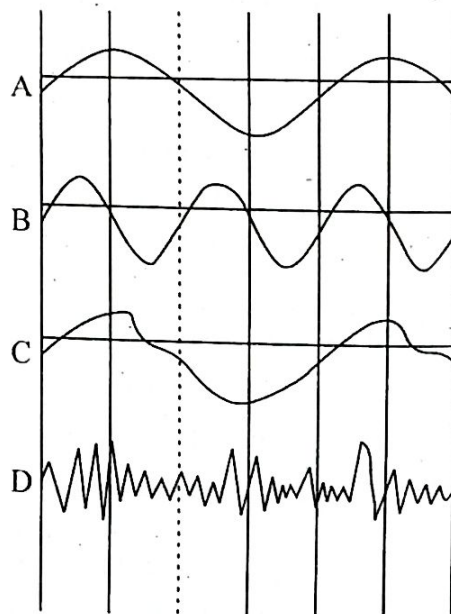
(B) The diagram below shows how parallel light rays are manipulated by the optical instruments X and Y.

(i) (a) What are the optical instruments X and Y?

(b) Name the phenomena that light is subjected by X and Y instruments respectively.

(ii) The setup shown below is prepared by using the instrument Y.
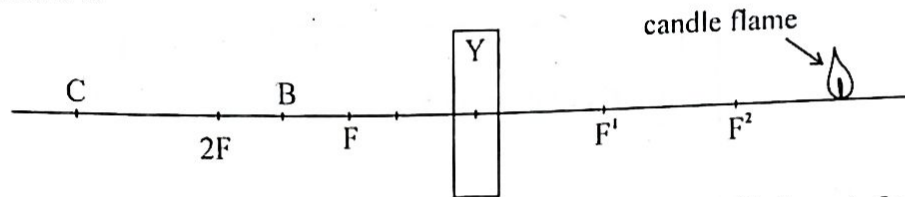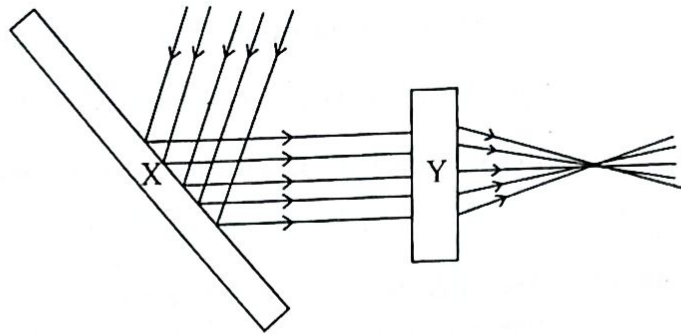
(a) At which point out of A, B, C can you expect the image of the candle flame to form?

(b) Mention two characteristics of the image formed.

(iii) Write 2 uses of the instrument X.

(08) (A) A slice of bread was placed in a glass vessel after sprinkling some water on it and the lid of the vessel was kept closed. It was observed after two days. Then it was able to see a species of organisms with a network of fibres there. When the slice of bread is taken out and kept away, it was observed that a house fly was lying there.

(i) (a) What is the type of carbohydrate present in starch?

(b) What is the laboratory reagent used to identify it?

(ii) (a) What is the group of organisms which was seen as a network of fibre?

(b) Write two inherited characteristics of this group of organisms.

(c) What is the reproductive structure of this group of organisms?

(ii) (a) What is the group of invertebrate that the housefly belongs?

(b) Mention 2 characteristics that can be seen only in this group.

(c) When the diversity is considered, what is the speciality of the invertebrate group that the housefly belongs?

(B) The voltage of domestic supply of electricity is 230V. A motor connected to the domestic supply draws 2kg of water in 1 second and is removed though the exhaust pipe. The end of the pipe that draws water upwards in located 5 m lower than the place where the motor is fixed. The resistance of the circuit present in the motor is 46Ω. (acceleration due to gravity is 1.0 ms⁻²)
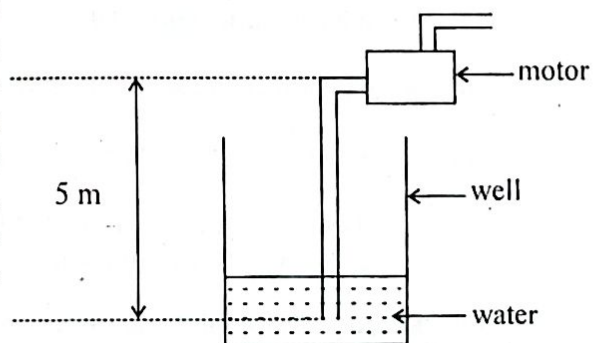
(i) Calculate the current flowing through the electric circuit in the motor when it is operated.

(ii) Mention the two ways of wastage of energy when the motor is operating.

(iii) What is the weight of water removed in 1 second by the motor?

(iv) Calculate the amount of work done in 1 second when the motor is operating.

(09) (A) The table below shows electronic configurations of 5 elements. The symbols used for representing elements are not true symbols. Use only these symbols to answer the questions.

element	A	D	E	G	J
electronic configuration	2,1	2,4	2,8,1	2,8,7	2,8,8

(i) Out of the above elements,

   (a) Mention the two elements that belong to the same group.

   (b) Name the elements that belong to the third period.

   (c) What is the element that represents the noble gas?

(ii) A chemical compound is formed by joining E and G.

   (a) Write the formula of it.

   (b) Mention the type of bond present in it.

   (c) Write a physical property of it.

(iii) The products of the reaction of the metal E and water are EOH and H_2. Show this reaction in a balanced chemical equation.

(B) The table below shows an object which is kept in equilibrium under three inclined forces. The magnitudes of 3 forces are x, y and z. The mass of the object which is in equilibrium is 0.5 kg.
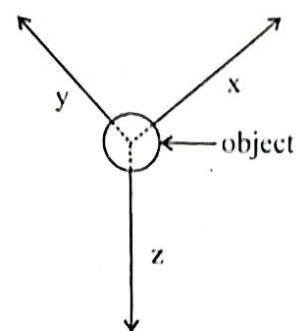
   (i) (a) What is the magnitude of the resultant force of the x and z forces?

      (b) What is the direction of it?

   (ii) What is the magnitude of all the three forces x, y and z?

   (iii) (a) Which force should be removed to move the object to the opposite direction of x?

      (b) Then the object is accelerated by 2 m s^{-2}. Calculate the resultant force created by the remaining 2 forces on the object.

   (iv) Mention an example for an object which is in equilibrium under 3 parallel forces.

08