11 E I, II

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2568 – Piriven Ordinary Level Examination – 2024 (2025)

(11) General Science – I, II

Three hours

Additional Reading Time - 10 minutes

Use **additional reading time** to go through the question paper, select the questions and decide on the questions that you give priority in answering.

General Science – Paper I

Note :

* Answer **all** questions. This paper carries **40** marks.
* In each of the questions from No. **1** to **40**, pick one of the alternatives (1), (2), (3), (4) which is **correct or most appropriate**.
* **Mark a cross (x) on the number corresponding to your choice in the sheet provided for answering.** Further, follow the instructions given on the back of the sheet carefully.

1. What is the symbol of the international standard unit of measuring pressure?
   (1) kg m^{-3} (2) N m (3) N m^{-2} (4) m s^{-2}

2. What is the organelle that has a direct relationship to the synthesis of protein in a cell?
   (1) Mitochondrion (2) Ribosome (3) Golgi body (4) Vacuole

3. What is the blood group of a person who is known as a universal donor?
   (1) A (2) B (3) AB (4) O

4. Of these, what is the energy transformation that occurs during photosynthesis?
   (1) Thermal energy ⟶ Chemical energy
   (2) Chemical energy ⟶ Thermal energy
   (3) Light energy ⟶ Chemical energy
   (4) Light energy ⟶ Thermal energy

5. What is the star, that is always directed to the north pole of the Earth?
   (1) Polaris (2) Sirius (3) Canopus (4) Aldebaran

6. What equipment mentioned below can be used by a person in a submarine to observe things on the surface of water?
   (1) Periscope (2) Microscope (3) Kaleidoscope (4) Telescope

7. Who is the scientist mentioned below, who initially forwarded a theory based on experimental evidence on the atom, which is the fundamental unit of matter?
   (1) Aristotle (2) Mendeleev (3) Dalton (4) Democretes

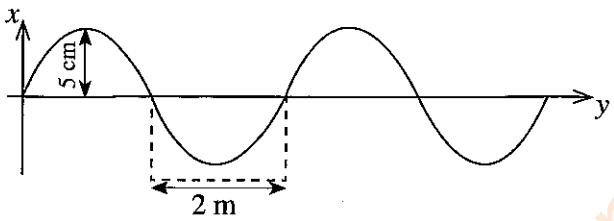
8. What is the plant below that has an underground stem known as stem tuber?
   (1) Ginger (2) Potato (3) Colocasia (4) Manioc

9. Which option gives the chemical symbols of carbon, calcium and sodium respectively?
   (1) C, Ca and Sa (2) C, Ca and Na
   (3) K, C and Na (4) K, C and Sa

[*See page two.*

10. Of the isotope of carbon $^{14}_{6}C$, the numbers 6 and 14 respectively denote,
    (1) the number of protons and the atomic number.
    (2) the atomic number and the number of neutrons.
    (3) the mass number and the number of neutrons.
    (4) the number of protons and the mass number.

11. How much are the amplitude and the wave length of the wave shown in the figure, respectively?
    (1) 5 cm and 2 m
    (2) 5 cm and 4 m
    (3) 10 cm and 2 m
    (4) 10 cm and 4 m



12. What is the choice that correctly shows how the intercostal muscles and the muscles of diaphragm behave during exhalation?

Choice	Intercostal muscles	Muscles of diaphragm
(1)	Contract	Contract
(2)	Contract	Relax
(3)	Relax	Contract
(4)	Relax	Relax

13. Of these, what is the option that gives a pair of vector quantities?
    (1) Force and Speed
    (2) Displacement and Velocity
    (3) Distance and Weight
    (4) Time and Speed

14. Of those given below, what is the correct statement about the wheel and axle?
    (1) When wheel takes one turn, axle takes several turns.
    (2) The load can be lifted easily when the radius of axle is greater than that of the wheel.
    (3) The effort is applied to the axle, while the load is applied to the wheel.
    (4) The steering wheel of a vehicle is an example for the simple machine type, wheel and axle.

15. According to Ohm's law, which ratio given below is constant for a conductor at constant temperature?
    (1) $\frac{I}{R}$ (2) $\frac{R}{I}$ (3) $\frac{V}{I}$ (4) $\frac{R}{V}$

16. The seriousness of the damage that occurs during a collision of vehicles is due to their,
    (1) mass. (2) weight. (3) velocity. (4) momentum.

17. Consider the following statements associated with the human blood circulatory system.
    A – The chamber with thickest walls is the left ventricle.
    B – Valves in the veins are opened towards the direction of the heart.
    C – The tricuspid value is located between right atrium and right ventricle.
    Of the above, the true statements are,
    (1) *A* and *B* only.
    (2) *A* and *C* only.
    (3) *B* and *C* only.
    (4) all *A*, *B* and *C*.

18. To which period of the periodic table does the element having the electron configuration 2, 8, 7 belong?
    (1) 1 (2) 2 (3) 3 (4) 4

19. Digestion of carbohydrates in food starts in the,
    (1) mouth. (2) stomach. (3) duodenum. (4) small intestine.

20. What is the ratio of tall plants to short plants in F_2 generation, when pure breeding tall and pure breeding short pea plants are crossed?
    (1) 1 : 1 (2) 1 : 2 (3) 1 : 3 (4) 3 : 1

[*See page three.*

21. The function of semi-circular canals in human ear is
    (1) to increase the intensity of sound waves.
    (2) to help maintain the balance of the body.
    (3) to transmit sound waves from middle ear to inner ear.
    (4) to convey the vibrations of auditory ossicles to cochlea.

22. Which hormone is secreted by adrenal glands?
    (1) Adrenaline (2) Oxytocin (3) TSH (4) FSH

23. What statement given below can be described by Newton's first law of motion?
    (1) No force is acting on a block of wood which is on a table at rest.
    (2) No unbalanced force is acting on a block of wood which is on a table at rest.
    (3) Acceleration of a vehicle is directly proportional to the unbalanced force acting on it.
    (4) Any action has a reaction which is equal in magnitude and opposite in direction.

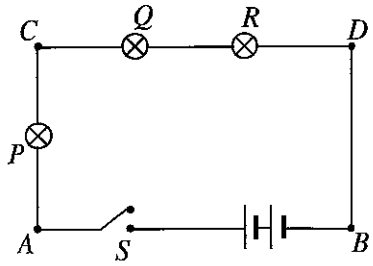
24. Of those given below, select the **false** statement about the chemical compound NaCl.
    (1) There are ionic bonds.
    (2) Boiling point and melting point assume high values.
    (3) Soluble in water.
    (4) Contain Na atoms and Cl atoms.

25. What is the **false** statement given below on red-green colour blindness?
    (1) Cause for this is a dominant gene.
    (2) Vulnerable to this disorder are mostly males.
    (3) Gene responsible for this disorder is on the X chromosome.
    (4) Carriers of this disorder are females.

26. Consider the following statements relating to skin.
    A – Regulates body temperature.
    B – Synthesises vitamin A.
    C – Functions as an excretory organ.
    Of these, the true statements are,
    (1) only *A* and *B*. (2) only *A* and *C*. (3) only *B* and *C*. (4) all *A*, *B* and *C*.

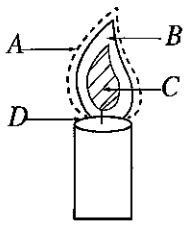
27. Common equation that represents a chemical reaction is given below.
    $A + BC \longrightarrow AC + B$
    What is the type of reactions represented by it?
    (1) Combination (2) Dissociation
    (3) Single displacement (4) Double displacement

28. To measure the voltage across the bulbs *Q* and *R* of the circuit shown in the figure, a voltmeter should be connected
    (1) between *A* and *B* parallelly.
    (2) between *A* and *B* in series.
    (3) between *C* and *D* parallelly.
    (4) between *C* and *D* in series.



29. What is the **false** statement given below on electromagnetic waves?
    (1) They are longitudinal waves.
    (2) They travel even through a vacuum.
    (3) Electric and magnetic fields are in perpendicular planes to each other.
    (4) They travel in a constant speed in vacuum.

30. In the figure given, what is the letter that shows the dark zone of a candle flame?
    (1) *A* (2) *B* (3) *C* (4) *D*



[*See page four.*

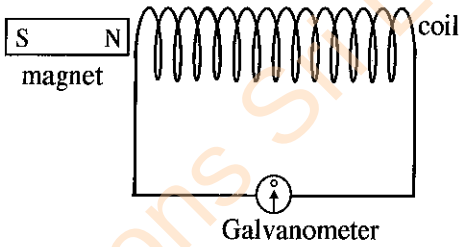
31. What are the changes that can be made on the string of a string instrument to increase its pitch?
    (1) Decreasing the length and increasing the tension
    (2) Decreasing the length and decreasing the tension
    (3) Increasing the length and increasing the tension
    (4) Increasing the length and decreasing the tension

32. What is the gas produced by adding water to calcium carbide?
    (1) Methane (2) Acetylene
    (3) Carbon dioxide (4) Carbon monoxide

33. What is the example for a seed-bearing non-flowering plant given here?
    (1) *Pinus* (2) *Selaginella* (3) *Drynaria* (4) *Salvinia*

34. An animal that shows incomplete metamorphosis is,
    (1) butterfly. (2) mosquito. (3) housefly. (4) cockroach.

35. Shown here is a figure associated with an activity related to electromagnetic induction. What is the instance mentioned below, where the indicator of the galvanometer is **not** deflected?

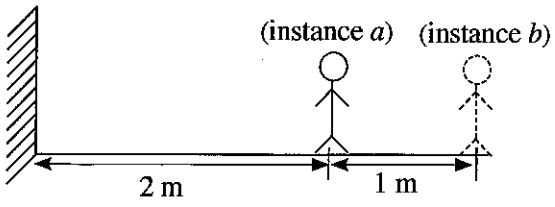


    (1) Magnet being moved into the coil
    (2) Magnet being drawn out of the coil
    (3) Coil being moved towards the magnet
    (4) Magnet kept in the coil and both are moved at the same time (at once)

36. Consider the statements given below about rubber.
    A – Rubber latex contains isoprene.
    B – Ammonia is used to coagulate rubber latex.
    C – Sulphur is used to vulcanize rubber.
    Of the above true statements are,
    (1) only *A*. (2) only *B*.
    (3) only *A* and *C*. (4) only *B* and *C*.

37. Of the following, what is the correct sequential order of a reflex arc?
    (1) Receptor → Spinal cord → Sensory neuron → Motor neuron → Effector
    (2) Receptor → Sensory neuron → Motor neuron → Spinal cord → Effector
    (3) Receptor → Sensory neuron → Spinal cord → Motor neuron → Effector
    (2) Receptor → Motor neuron → Spinal cord → Sensory neuron → Effector

38. A man standing 2 m in front of a plane mirror (instance *a*) moved 1 m away from the mirror (instance *b*). What is the distance between the man in instance *b* and his image?
    (1) 3 m (2) 4 m
    (3) 5 m (4) 6 m



39. Which phenomenon is light subjected to, when it travels through an optic fibre?
    (1) Regular reflection (2) Diffuse reflection
    (3) Total internal reflection (4) Refraction

40. Of those given below, what is the **false** statement in connection with domestic electric circuits?
    (1) The set that contains the residual current circuit breaker and miniature circuit breakers is known as the consumer unit.
    (2) The neutral wire is divided into several circuits through miniature circuit breakers.
    (3) The Earth wire is not connected to the consumer unit that contains miniature circuit breakers.
    (4) The live wire is connected to a socket through a switch.

* *

[*See page five.*

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Question No.	Marks
1 (i)	
1 (ii)	
1 (iii)	
1 (iv)	
Total	

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Department of Examinations, Sri Lanka

2568 – Piriven Ordinary Level Examination – 2024 (2025)

(11) General Science – I, II

General Science – Paper II

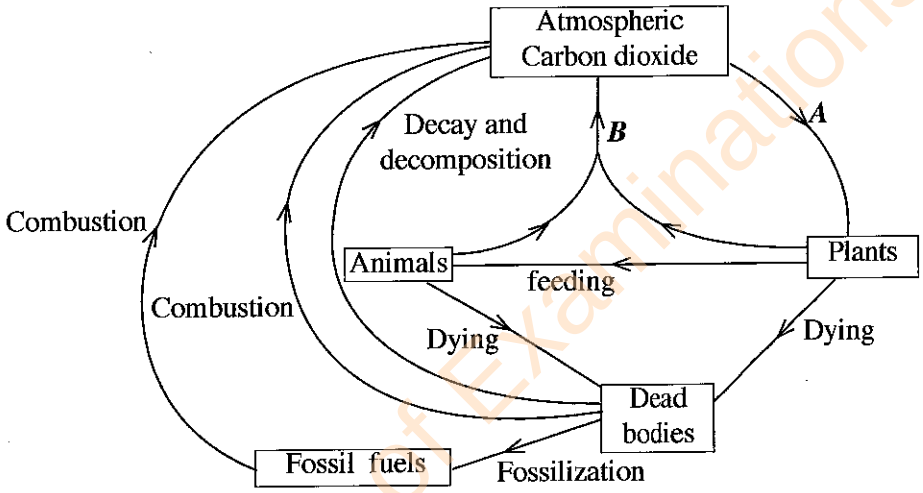
Index No: .....

* Answer **all** questions in part **A** and **four** questions in part **B**.
* Answer part A in this paper itself and attach with the answer script of part B and handover.

..... Invigilator's Signature

Part A

1. (i) (a) Shown below is a part of the carbon cycle.



I. Here, what is the process shown as ***A***? *(01 mark)*

.....

II. What is the process shown as ***B***? *(01 mark)*

.....

III. Name **two** fossil fuels formed by fossilization of dead bodies of plants and animals. *(02 marks)*

(1) .....

(2) .....

IV. Rate of burning of fossil fuels is higher than the rate of fossilization of dead bodies of organisms. Mention an adverse environmental condition that can occur due to this. *(02 marks)*

.....

[*See page six.*

(b) Vertebrates are divided into five main groups. Of these, write **two** structural characteristics by which mammals can be identified externally. *(02 marks)*

(I) .....

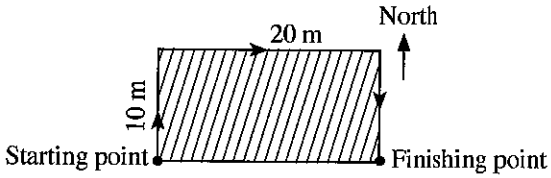
(II) .....

(c) Mention **two** characteristics of monocotyledonous plants. *(02 marks)*

(I) .....

(II) .....

(ii) Shown below is how a student travelled around a rectangular pond.



(a) What is the total distance that the student travelled? *(02 marks)*

.....

(b) Mention the magnitude and the direction of his displacement. *(02 marks)*

(I) Magnitude : .....

(II) Direction : .....

(c) If the student took 40 seconds to travel the total distance, calculate his average speed. (No need to simplify the answer) *(02 marks)*

.....

.....

.....

(d) Mention briefly what velocity is. *(02 marks)*

.....

.....

(e) A ball thrown vertically up, rises to a maximum height and falls down. Considering the two stages of the motion of the ball separately, state the instance of its motion in acceleration and its instance of motion in deceleration. *(02 marks)*

(I) In acceleration : .....

(II) In deceleration : .....

(iii) (a) Fill in the blanks using suitable words. *(05 marks)*

Atom is the basic building block of matter. Protons and ..... are included in the nucleus of an atom. Protons are ..... charged. Number of protons in an atom is equal to the number of ..... in it. Number of protons in the nucleus of a given element is known as the ..... number of that element. The planetary model of the atom was forwarded by the scientist ..... .

[*See page seven.*

(b) Write correct answers for the questions given below, related to the rusting of iron. *(05 marks)*

(I) Write the chemical symbol of iron. .....

(II) Is rusting of iron a physical change or a chemical change?

.....

(III) Mention the two essential factors for rusting of iron.

(1) ..... (2) .....

(IV) Mention a measure that can be taken to prevent rusting of iron.

.....

(iv) Natural disasters and conditions of danger are more frequent today than in the past.

(a) Mention **three** possible causes for the occurrence of tsunami. *(03 marks)*

(I) .....

(II) .....

(II) .....

(b) What is the reason for the fact that the ships sailing in deep seas are less affected by tsunami waves? *(02 marks)*

.....

.....

(c) Name **two** green house gases. *(02 marks)*

(I) .....

(II) .....

(d) What is the adverse environmental condition that occurs due to green house effect? *(01 mark)*

.....

(e) Mention **two** ill-consequences that would be caused by the environmental condition you mentioned in part (d) above. *(02 marks)*

(I) .....

(II) .....

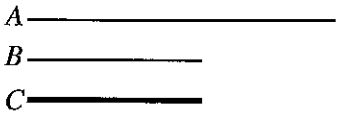
* *

[*See page eight.*

Department of Examinations Sri Lanka

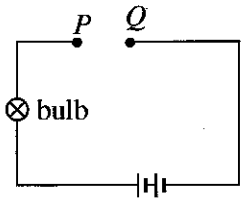
Part B

2. (i) Figure below shows three electrical conductors made of the same metal.
Cross sectional area of *A* and *B* are equal but *A* is longer than *B*,
Length of *B* and *C* are equal but cross sectional area of *C* is larger than that of *B*.

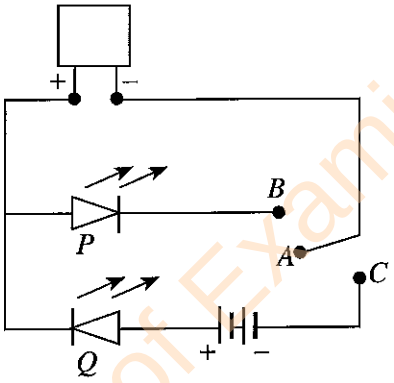


(a) Name *A*, *B* and *C* according to the ascending order of their resistances. *(03 marks)*

(b) Of the wires *A*, *B* and *C*, which causes the bulb of the following circuit glow brightest when connected between the points *P* and *Q*? *(02 marks)*



(ii) Consider the following electronic circuit.



(a) Here, what is the component labelled *P* as well as *Q*? *(02 marks)*

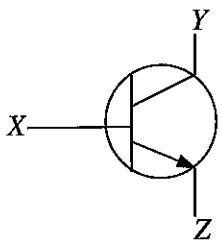
(b) What is the observation that can be made when *A*, *C* of the switch are closed? *(02 marks)*

(c) Subsequently when *A*, *B* of the switch is closed, what is the observation that can be made? *(02 marks)*

(d) Mention separately the phenomena that occurred in the capacitor in the instances (b) and (c) above, *(04 marks)*

(iii) (a) What are the **two** main types of transistors? *(02 marks)*

(b) Write the names of the terminals labelled *X*, *Y* and *Z* of the transistor shown in this figure. *(03 marks)*



[*See page nine.*

3. (i) (a) Mention **two** kinds of rays that can be used in drawing ray diagrams for images formed by concave mirrors and how they travel after reflection. *(02 marks)*

(b) What is the radius of curvature of a concave mirror, if its focal length is 15 cm? *(01 mark)*

(c) Draw a rough ray diagram to show the formation of the image of an object kept 20 cm away from the pole of a concave mirror whose focal length is 15 cm, on its principal axis. *(03 marks)*

(d) Mention **three** properties of the image formed in part (c). *(03 marks)*

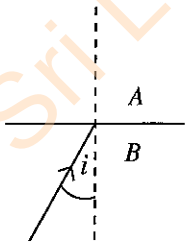
(e) Write **three** instances where concave mirrors are used in day-to-day life. *(03 marks)*

(ii) *A* and *B* shown in the following diagram are two transparent media. Speed of light in medium *B* is less than the speed of light in medium *A*.

(a) What is the denser medium of *A* and *B*? *(02 marks)*

(b) Copy the given figure on your answer script and draw the path of the light ray after refraction.

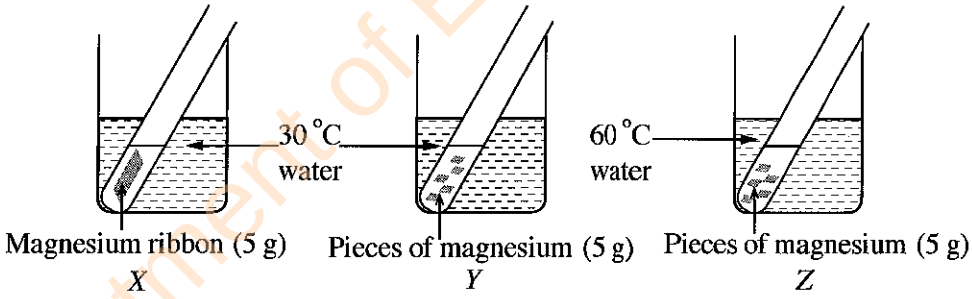
(Angle *i* is less than the critical angle of medium *B*). *(02 marks)*



(iii) (a) When white light falls at an inclination on the surface of a glass prism, the light separates into colours. What is the term used for this phenomenon? *(02 marks)*

(b) Difference of which property of light rays relevant to each colour causes the phenomenon you mentioned in part (a) above? *(02 marks)*

4. (i) Given below are figures of three set-ups arranged to study the factors affecting the rate of reactions. Equal volumes of hydrochloric acid in same concentration are added to the test tubes in these set-ups.



(a) What factor affecting the rate of reactions was studied in each set-up mentioned below?

(I) *X* and *Y* *(01 mark)*

(II) *Y* and *Z* *(01 mark)*

(b) (I) Mention an observation that can be used to compare the rates of reactions taking place in these set-ups. *(02 marks)*

(II) Of the set-ups *X*, *Y* and *Z*, in which set-up does observation you mentioned above, occurs at the highest rate. *(02 marks)*

(c) Name another metal that can be used for this test instead of magnesium (Mg). *(02 marks)*

(d) Name another factor that affects the rate of reactions, other than the two factors tested in set-ups *X*, *Y* and *Z*. *(02 marks)*

[*See page ten.*

(ii) Given below respectively are the elements that belong to the second period of the periodic table. Answer the following questions accordingly.

Li Be B C N O F Ne

(a) What is the element that belongs to the second group of the periodic table? *(01 mark)*

(b) What is the element that has the highest electronegativity? *(02 marks)*

(c) Name **two** elements that exist as diatomic molecules. *(02 marks)*

(d) What is the element that has a stable electron configuration? *(01 mark)*

(e) How does the metallic property of elements change in this period when moving from left to right? *(02 marks)*

(f) Write the formula of the chemical compound formed by the combination of Li and O. *(02 marks)*

5. (i) Production of salt can be identified as a chemical industry in Sri Lanka.

(a) Name the chemical compound contained in salt. *(02 marks)*

(b) Mention **two** environmental factors that should be considered when selecting a place for a saltern. *(02 marks)*

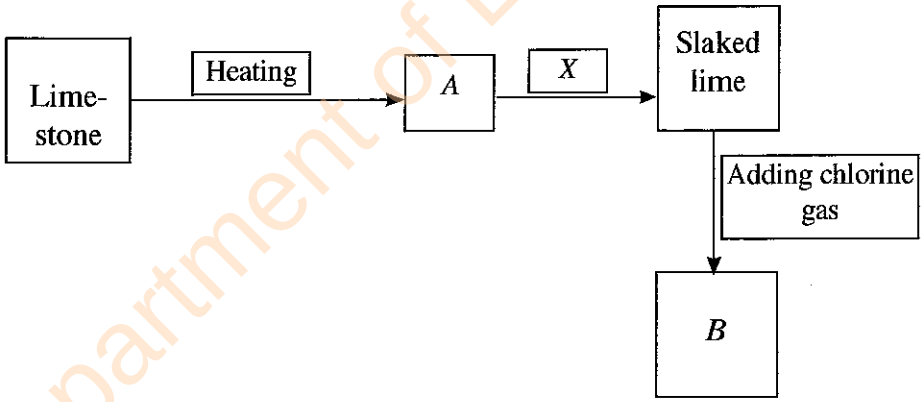
(c) One of the two main processes that occur in a saltern is evaporation. What is the other main process? *(02 marks)*

(d) Name **two** places where salterns are located in Sri Lanka. *(02 marks)*

(e) About 40 - 50 mg of potassium iodate is added to each 1kg of salt manufactured in Sri Lanka. What is the purpose of this addition? *(01 mark)*

(f) Mention another use of salt, other than using it as a taste enhancer of food. *(01 mark)*

(ii) In the following flow chart, compounds are included in squares and processes are included in rectangles. Study the chart and answer the following questions.



(a) Mention the **two** chemical compounds relating to *A* and *B*. *(02 marks)*

(b) Name the process relevant to *X*. *(02 marks)*

(c) Mention a use of slaked-lime. *(01 mark)*

(d) What is the chemical compound contained in limestone? *(02 marks)*

(e) Name the gas evolved to the environment when heating limestone. *(01 mark)*

(f) Name the chemical industry, in which limestone, clay and gypsum are used as raw materials. *(02 marks)*

[*See page eleven.*

6. (i) Haemophilia is a hereditary disease caused by a sex-linked recessive gene (h). This gene is located only on the X chromosome.

(a) Draw the pairs of chromosomes of a carrier mother and a healthy father in relation to haemophilia. *(02 marks)*

(b) Draw a chart to show how the pairs of chromosomes of a carrier mother and a healthy father are separated when gametes are formed and how they combine when fertilization of gametes takes place. *(06 marks)*

(c) Mention as a percentage, the probability of having a diseased male child as a result of a marriage between a carrier female and a healthy male. *(02 marks)*

(d) What is the natural law (*Niyāmaya*) in Buddhism that is related to the inheritance of hereditary characteristics? *(02 marks)*

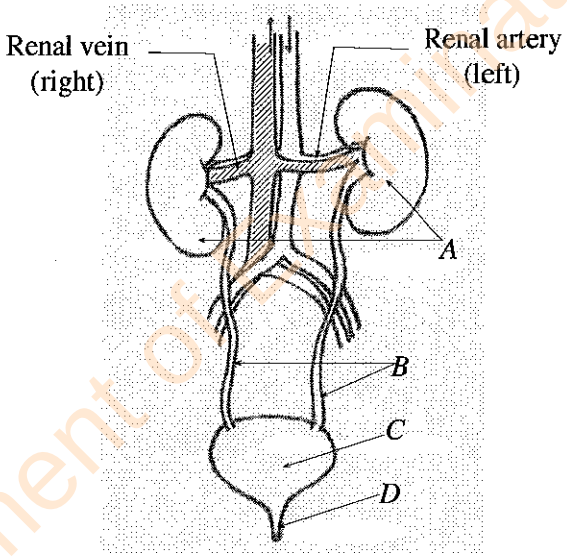
(e) Knowledge of genetics it applied in artificial breeding. Mention **two** advantages and **two** disadvantages of artificial breeding. *(04 marks)*

(ii) Theory of natural selection is one of the theories that clarifies how organic evolution had occurred.

(a) Mention the **two** basic observations that Charles Darwin based to build up this theory. *(02 marks)*

(b) What are the **two** hypotheses that he built up using those observations? *(02 marks)*

7. (i) Shown below is a rough sketch of a human urinary system.



(a) Name the parts labelled *A*, *B*, *C* and *D* of the figure. *(04 marks)*

(b) Mention **two** nitrogenous excretory products in urine. *(02 marks)*

(c) What is the name of the structural and functional unit that form the organ labelled *A* in the figure? *(02 marks)*

(d) Name a compound that is a principal constituent in renal calculi. *(01 mark)*

(e) Mention **two** practices that should be followed to prevent formation of renal calculi. *(02 marks)*

(ii) (a) What is the part of the digestive system in which bile is added to the food we consume? *(02 marks)*

(b) What is the function of bile in digestion of food? *(02 marks)*

(c) Mention **two** main symptoms of gastritis. *(02 marks)*

(d) Write **three** measures that can be taken to prevent gastritis. *(03 marks)*

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