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2563 – Mulika Piriven Final Examination – 2019 December

(New Syllabus)

NEW

11 E I, II

(11) General Science – Paper I, II

Three hours

2019.12.27 / 08.30–11.40

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 answer sheet provided.**
* Further instructions are given on the back of the answer sheet. Follow them carefully.

1. Which of the following is a mammal?
   (1) hawk (2) tortoise (3) deer (4) frog

2. Which of the following is a seed-producing non-flowering plant?
   (1) coconut (2) cycas (3) na tree (4) mango

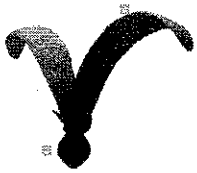
3. In which following industry is the activity of micro-organisms made use of?
   (1) salt production (2) bleaching power production
   (3) essential oil production (4) alcohol production

4. A humar eclipose can take place on a
   (1) First quarter day (*Pura atawaka*) (2) Third quarter day (*Awa atawaka*)
   (3) new moon day (4) full moon day

5. Which celestial object is the one that was considered a planet for a long time but is considered a dwarf planet from 2006?
   (1) Pluto (2) Mars (3) Venus (4) Mercury

6. Which nutrient contained in food is fundamental for the growth of the body?
   (1) carbohydrate (2) protein (3) lipid (4) vitamin

7. A fruit of a certain plant is indicated below. By which following method is this dispersed?



   (1) by wind
   (2) by animal
   (3) by water
   (4) by explosive mechanism

[See page two.

8. What is the biological interaction taking place in the root nodules of legumes?
   (1) parasitism (2) predatism (3) commensalism (4) mutual symbiosis

9. Solid, liquid and gas are the physical states in which matter can exist. Which of the following statements is true about the liquid state?
   (1) has a fixed shape and a fixed volume
   (2) has a fixed shape but not a fixed volume
   (3) has a fixed volume but not a fixed shape
   (4) has neither a fixed shape nor a fixed volume

10. Associating which following natural disaster could there be a danger of happening a state of tsunami?
    (1) floods (2) whirl winds (3) earthquakes (4) landslides

11. Which of the following is **not** an environmental problem?
    (1) increase in global warming (2) degradation of biodiversity
    (3) photosynthesis (4) eutrophication

12. To create which of the following disasters does the indiscriminate or insensible activities of man contribute most?
    (1) floods (2) whirl winds (3) lightening (4) tsunami

13. The international standard unit of measuring density is
    (1) kg m^{-3} (2) g cm^{-3} (3) g m^{-3} (4) kg cm^{-3}

14. Which of the following is a vector quantity?
    (1) distance (2) displacement (3) time (4) speed

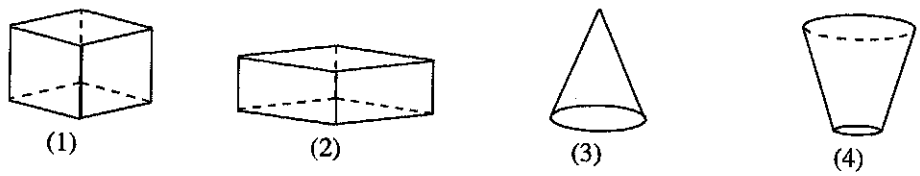
15. A closed wire coil becomes an electromagnet when an electric current flows through it. Suggestions made by a student to increase the strengthen of an electromagnet are given below

    A – increasing the number of turns of the coil
    B – increasing the strength of the current flowing through the coil
    C – introducing a soft iron core into the coil.

    Of the above what is correct are,
    (1) only *A* and *B*. (2) only *A* and *C*. (3) only *B* and *C*. (4) All *A*, *B* and *C*.

16. Through which of the following is heat transmitted by convection?
    (1) copper (2) air (3) vacuum (4) plastic

17. The figures indicate how four objects of equal weight but of different shapes are placed on a horizontal plane. Which object exerts the greatest pressure on the surface?



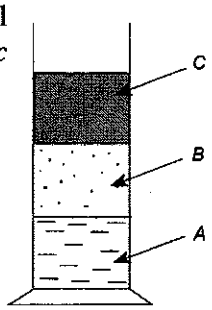
[*See page three.*

18. Common part to both the digestive system and the respiratory system is
(1) larynx (2) pharynx (3) oesophagus (4) stomach

19. The characteristics of a component in blood are as follows.
* cells are biconvex and disc shaped
* contain the pigment haemoglobin
* general life span is about 120 days

The blood component with above characteristics is
(1) blood plasma (2) red blood cells (3) white blood cells (4) blood platelets

20. Three liquids *A*, *B* and *C* immiscible with one another are contained in a cylindrical container as shown in the figure. If the densities of those liquids are *a*, *b* and *c* respectively, which answer indicates the relationship among them correctly?



(1) $a = b = c$
(2) $a < b < c$
(3) $a > b > c$
(4) $a < b > c$

21. According to the solar model of the atom, in the atom
(1) negatively charged electrons are embedded here and there
(2) electrons revolve in space around the nucleus
(3) a larger part of the volume is occupied by the nucleus
(4) protons and electrons are tightly clustered in the nucleus

22. What is the answer that indicates a stable electronic configuration?
(1) 1, 2 (2) 2, 1 (3) 2, 8, 8 (4) 2, 8, 9

23. What is the number of neutrons in the istope $^{18}_{8}O$?
(1) 8 (2) 10 (3) 18 (4) 26

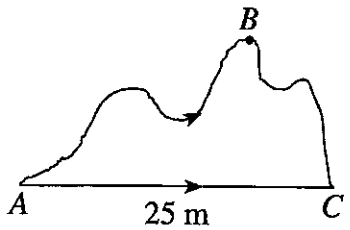
24. What is the relative molecular mass of H_2SO_4 (H = 1, O = 16, S = 32)
(1) 7 (2) 49 (3) 98 (4) 146

25. What is the common equation which indicates a chemical decomposition reaction?
(1) $A + B \longrightarrow C$ (2) $A \longrightarrow B + C$
(3) $A + BC \longrightarrow AC + B$ (4) $AB + CD \longrightarrow AD + BC$

26. Element *X* shows following characteristics
* Reacts slowly with hot water liberating gas bubbles
* Reacts fast with dilute acids liberating gas bubbles

Element *X* places itself in the activity series
(1) above hydrogen (2) below hydrogen
(3) between hydrogen and aluminium (4) between hydrogen and platinum

27. A child took 10 seconds to travel a distance of 50 m from *A* to *C* in the path *ABC*. The shortest distance from *A* to *C* is 25 m. By what velocity did the child move?



(1) $\frac{50}{10}$ m s^{-1} (2) $\frac{10}{50}$ m s^{-1}
(3) $\frac{25}{10}$ m s^{-1} (4) $\frac{10}{25}$ m s^{-1}

[See page four.

28. Consider the following physical quantities related to a moving object.

A – mass

B – velocity

C – volume

Which of the above quantities affect the momentum of that object?

(1) *A* (2) *B* (3) *A* and *B* (4) *B* and *C*

29. In order to obtain a virtual image from a concave mirror, the object should be placed

(1) between the mirror and the focus.
(2) on the focus
(3) between the focus and the centre of curvature
(4) on the centre of curvature

30. Which fire extinguisher can be used to extinguish a greater number of fire types?

(1) water fire extinguisher (2) foam fire extinguisher
(3) dry chemical powder fire extinguisher (4) carbon dioxide fire extinguisher

31. Which of the following phenomenon contributes to the chemical weathering of rocks?

(1) growth of lichens on the rocks
(2) entering of plant roots into the crevices of rocks followed by their gradual growth
(3) freezing of water in the crevices of rocks
(4) long term impact of animal hooves and horns on rocks

32. Which diagram illustrates the arrangement of particles in a mixture of gases?

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

33. When incense sticks are burnt their pleasant smell is felt by persons staying far. By what name is this process by which the pleasant smell of particles travel through air known?

(1) diffusion (2) osmosis (3) vapurisation (4) transpiration

34. Which is the disease **not** associating the respiratory system?

(1) tuberculosis (2) pneumonia (3) bronchitis (4) dengue

35. Of the following select the correct statement.

(1) Dolomite is abundant in the coastal belt from Puttalam to Jaffna.
(2) Calcite limestone occur in the regions of Kandy and Matale.
(3) Shell limestone contains the lowest percentage of impurities.
(4) Dolomite is mostly used in ceramic industry

36. What is the gas that is used as a rocket fuel?

(1) hydrogen (2) carbon dioxide (3) oxygen (4) nitrogen

37. What is **not** a feature of a flame produced by incomplete combustion is that the flame

(1) is composed of red-hot carbon particles
(2) is yellow in colour
(3) produces relatively a low amount of heat
(4) produces only carbon dioxide

[See page five.

38. What is the pair of hormones that is important in maintaining the glucose level of the blood constant?

(1) thyroxine and calcitomin
(2) insulin and glucagon
(3) adrenaline and cortisol
(4) oestrogen and progesterone

39. Specific only for plant cells are,

(1) nucleus and plasma membrane
(2) mitochondria and vacuoles
(3) chloroplasts and the cell wall
(4) Golgi body and ribosomes

40. Some theories on the origin of living beings on the Earth are given below

A – All objects and living beings were created by an all mighty individual

B – Living beings were spontaneously born from non-living substances

C – Living beings were originated as a result of chemical reactions.

Of these the theory /theories accepted at present is/are

(1) only *A* (2) only *C*. (3) only *A* and *B*. (4) only *B* and *C*.

(01 × 40 = 40 Marks)

* *

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Department of Examinations, Sri Lanka

2563 – Mulika Piriven Final Examination – 2019 December

NEW (New Syllabus) **11 E I, II**

(11) General Science – Paper I, II

General Science – Paper II

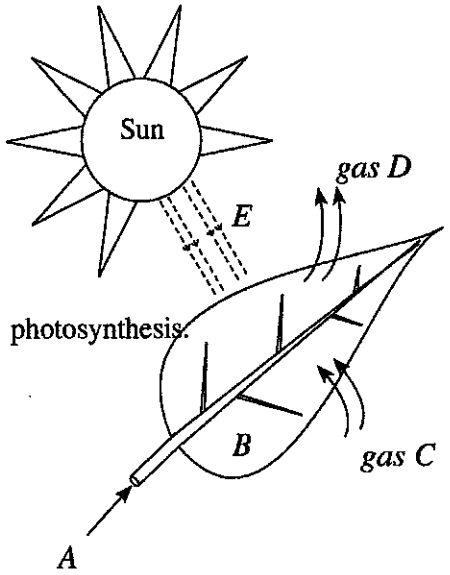
Question. No.	Marks
1(i)	
1(ii)	
1(iii)	
1(iv)	
Total	

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.

Part A

1. (i) The natural method of storing solar energy is photosynthesis. In the figure, *A*, *C* and *E* represent the factors externally supplied for photosynthesis while *B* and *D* represent the products produced.



(a) Name the **three** external factors required for photosynthesis.

A – .....

C – .....

E – .....

(03 Marks)

(b) In addition to the above factors, what is the factor necessary for photosynthesis which the leaf contains itself? *(01 Marks)*

.....

(c) Name the products produced during photosynthesis? *(02 Marks)*

B – ..... *D* – .....

(d) Complete the following chart which indicates the energy conversion occurring during photosynthesis *(02 Marks)*

..... → .....

(e) State a global importance of photosynthesis. *(02 Marks)*

.....

.....

[See page seven.

(ii) (a) Delete one word each printed in bold so that a correct idea is expressed about characteristics of the image of an object placed in front of a plane mirror. *(04 Marks)*

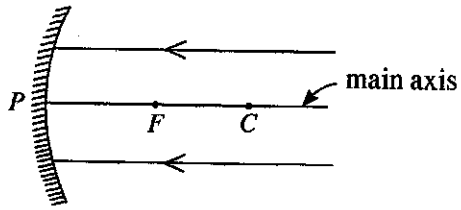
(I) The size of the image **is equal / not equal** related to the object

(II) The image is **erect / inverted.**

(III) The image is **real / virtual**

(IV) Lateral inversion **occurs / does not occur**

(b) The following diagram shows two rays falling on a concave mirror parallel to its main axis. Draw on this diagram the path of these two rays after reflection. *(02 Marks)*



(c) State an instance where concave mirrors are used in day-to-day life. *(02 Marks)*

.....

(d) What type of mirrors are used by dentists when examining teeth? *(02 Marks)*

.....

(iii) (a) Given below are the symbols of the elements belonging to the third period of the Periodic table in respective order

Na, Mg, Al, Si, P, S, Cl, Ar

Of the above elements, select the element that matches with each of the following statement and write its symbol **on the dotted line** given opposite. *(05 Marks)*

(I) Occurs as a coloured gas .....

(II) Burns with a luminous flame .....

(III) Called 'gendagam' in common usage .....

(IV) Has a stable electronic configuration .....

(V) Protected from corrosion because of the oxide film formed on the surface .....

(b) Fill in the blanks with suitable words. *(05 Marks)*

Rusting is a (I) ..... change. (II) ..... and (III) ..... are the factors necessary for the rusting of iron. Iron is galvanized to protect it from rusting. Here, iron is coated with (IV) ..... metal. Salts and (V) ..... increase the rate of rusting.

[See page eight.

(iv) The problem that the modern man faces with regard to some natural disasters is that those disastrous situations are more devastating related to the past. The main reason for this is various human activities.

(a) Write **two** human activities that cause flood, a natural disaster. *(02 Marks)*

(I) .....

(II) .....

(b) Write **two** diseases which have a greater danger of spreading more after a flood. *(02 Marks)*

(I) .....

(II) .....

(c) State **two** premonitions of a landslide *(02 Marks)*

(I) .....

(II) .....

(d) State **two** course of action that should be taken to ensure protection from the dangers of lightening. *(02 Marks)*

(I) .....

(II) .....

(e) State **two** features that could be seen in an area subjected to a long-standing drought. *(02 Marks)*

(I) .....

(II) .....

**

[*See page nine.*

Part B

2. When a force is applied on an object and if the object moves in the direction of the force applied, work is done. Energy is spent when work is done. Various machines are used to facilitate work.

(i) State the standard international (SI) units of measuring force and work respectively. *(04 Marks)*

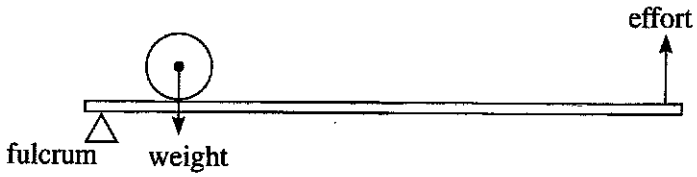
(ii) (a) What form of energy is stored in a compressed helical spring? *(02 Marks)*

(b) When the compressed helical spring is released, to what form of energy is the energy stored in it converted? *(02 Marks)*

(iii) Energy cannot be created or destroyed." As what law related to energy is this statement known? *(02 Marks)*

(iv) An electric bulb has been marked 60W. Describe briefly what is meant by this. *(02 Marks)*

(v) The following figure is a rough sketch of a certain class of levers.



(a) What class of a lever is this? *(02 Marks)*

(b) State **two** examples for the levers of this class. *(02 Marks)*

(vi) To what type of simple machines is the steering wheel of vehicles an example? *(02 Marks)*

(vii) Drawing a bucket filled with water directly from a well is difficult. Name suitable simple machine that could be used to facilitate this task. *(02 Marks)*

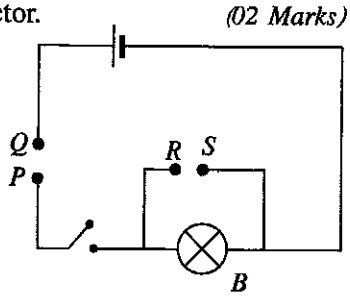
3. (i) Electricity is very useful for our day-to-day tasks.

(a) What device of an electric circuit is indicated by each of the following symbols? *(04 Marks)*

(I) (II) (III) (IV)

(b) State **two** factors that affect the resistance of an electric conductor. *(02 Marks)*

(c) The figure illustrates a simple electrical circuit. Answer the following questions relating to the measurement of the current following through the device *B* and the potential difference across the device *B*.



(I) (1) What is the equipment that should be connected between the terminals *P* and *Q*. *(01 Marks)*

(2) What physical quantity is measured by that equipment? *(02 Marks)*

(II) (1) What is the equipment that should be connected between the terminals *R* and *S*? *(01 Marks)*

(2) What is the unit which expresses the physical quantity that is measured by that equipment? *(02 Marks)*

(ii) (a) What will happen if two PVC rods rubbed with a polythene sheet are brought closer to each other? (without bringing into contact) *(02 Marks)*

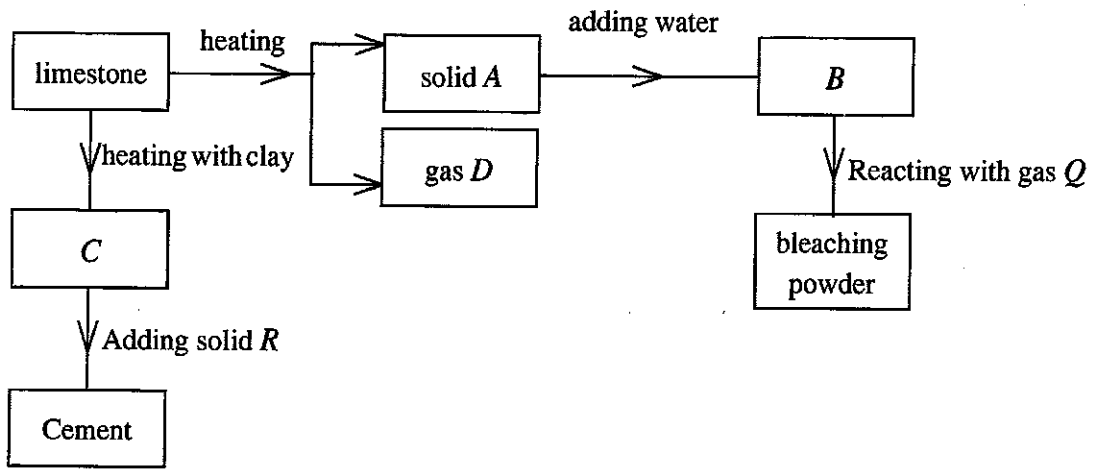
(b) For what purpose that capacitors are connected in electronic circuits ? *(02 Marks)*

[*See page ten.*

(iii) (a) When an alternating current is passed through a rectifier diode, to what kind of current is it converted? *(02 Marks)*

(b) What is the electronic device that should be used to amplify at the output circuit, a small electrical signal supplied to the input circuit? *(02 Marks)*

4. In several chemical industries carried out in Sri Lanka, limestone is used as the main raw material. Given below is a flow chart relevant to several products produced using limestone.



(i) Identify *A*, *B* and *C* in relation to the above chart and name them. *(06 Marks)*

(ii) Identify *Q* and solid *R* on arrows and name them. *(02 Marks)*

(iii) What is the chemical component most abundantly present in limestone? *(02 Marks)*

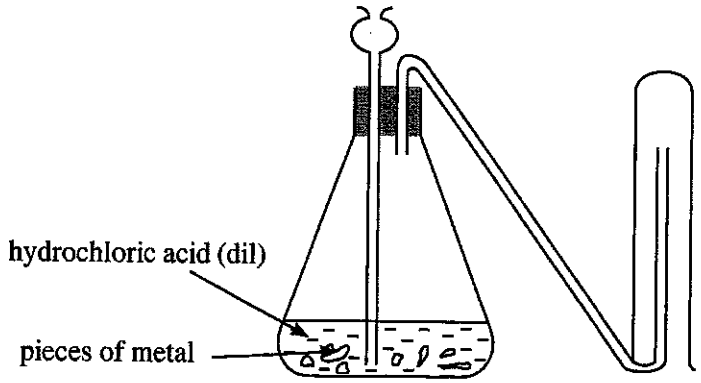
(iv) (a) Name gas *D* obtained as a product when heating limestone. *(02 Marks)*

(b) Give a test that can be performed in the laboratory to identify that gas and its observations. *(04 Marks)*

(v) What is the reason for adding the solid R in the production of cement? *(02 Marks)*

(vi) Write two uses of bleaching powder. *(02 Marks)*

5. (A) A diagram of an apparatus set up to produce hydrogen gas in the laboratory is given below.



(i) Name **two** types of metal that can be used here. *(02 Marks)*

(ii) (a) What is the method shown in the diagram to collect hydrogen gas? *(02 Marks)*

(b) What property of hydrogen gas is based to collect hydrogen gas by the above method? *(02 Marks)*

(iii) State **two** measures that can be taken to increase the rate of the reaction taking place in the above set up. *(04 Marks)*

[See page eleven.

(B) Nitrogen, oxygen and acetylene are three types of gasses commonly used in industry.

(i) State **two** physical properties of nitrogen gas. *(02 Marks)*

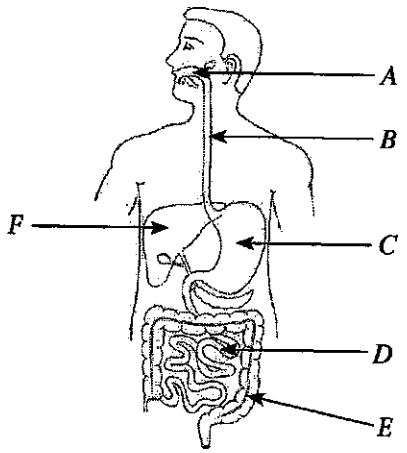
(ii) What is the method that produces nitrogen gas industrially? *(02 Marks)*

(iii) Write **two** uses of oxygen gas. *(02 Marks)*

(iv) State a method used to produce acetylene gas industrially. *(02 Marks)*

(v) Write **two** uses of acetylene gas. *(02 Marks)*

6. A diagram of the digestive system of man is shown below.



(A) (i) Name the parts labelled *A*, *B* and *F* in the diagram. *(03 Marks)*

(ii) State a special adaptation of *D* to absorb the end products of digestion efficiently. *(02 Marks)*

(iii) Write a function of *E* in the digestion of food. *(02 Marks)*

(iv) Name the ailing condition resulted by the infection of the mucous membrane in C. Write one symptom relevant to it. *(03 Marks)*

(B) (i) Name the **six** main components in a balanced diet. *(06 Marks)*

(ii) Name the enzyme in saliva which helps to digestion of foods. *(02 Marks)*

(iii) The main reason for diseases related to digestive systems is lack of fibers in the food. Write **two** functions of fibrous foods. *(02 Marks)*

7. **(A)** Blood transfusion is done to a person who met with an accident.

(i) In blood transfusion, what is the other factor that should match in addition to the blood group? *(02 Marks)*

(ii) Which blood group is considered the universal doner? *(02 Marks)*

(iii) Which blood group is considered the universal recipient? *(02 Marks)*

(iv) What are the blood groups that can be given to a person with blood group B who met with an accident? *(02 Marks)*

[See page twelve.

(B) Increasing in global warming, ozone layer depletion and acid rains are some impacts of environmental pollution.

(i) (a) What is the role played by the ozone layer? *(02 Marks)*

(b) Name a gaseous pollutant that depletes the ozone layer. *(01 Marks)*

(ii) (a) The group of gases that contributes to global warming is known by a common name. What is that name? *(02 Marks)*

(b) Of those gases, which gas contributes most to increase global warming? *(01 Marks)*

(c) Write **two** unfavourable effects caused by the increase in global warming. *(02 Marks)*

(iii) (a) Name **two** gases that contribute to cause acid rains. *(02 Marks)*

(b) State **two** measures that can be taken to minimize acid rains. *(02 Marks)*

***