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 மேல் மாகாணக் கல்வித் திணைக்களம்
 Department of Education - Western Province

වර්ෂ අවසාන ඇගයීම - 2023 (2024) N° 006637
 ஆண்டிறுதி மதிப்பீடு - 2023 (2024)
 Year End Evaluation - 2023 (2024)

ශ්‍රේණිය தரம் Grade } 09	විෂය பாடம் Subject } SCIENCE	පත්‍රය வினாத்தாள் Paper } I, II	කාලය காலம் Time } 2 hours
නම பெயர் Name }	විභාග අංකය சுட்டிலக்கம் Index No. }		

Select the most suitable answer from question 1 to 20.

- Choose the correct statement about protozoa.
 - The reproductive structures are clearly visible in some protozoa.
 - There are cilia, pseudopodia or flagella for locomotion in protozoan.
 - The causative agent of cholera is a protozoan.
 - All protozoans are capable of carrying out photosynthesis.
- Which structure helps to change the curvature of the eye lens when necessary?
 - Eye muscles
 - Iris
 - Pupil
 - Ciliary muscles
- The figure shows an instance in which a concave lens is placed in front of the lens in order to make it clear.



The image shown in the figure 2 is used as a remedy to correct a defect in the human eye. The defect of the given eye is,

- Short sight
 - Cataract
 - Long sight
 - Glaucoma
- Below given are some mixtures made by a student.
 - Mixture of water and coconut oil
 - Mixture of rice and sand
 - Mixture of lime juice and sugar
 Among the above mixtures, homogeneous mixtures/mixture are,
 - Only A
 - Only B
 - Only C
 - A,B and C all
 - The process used to separate different fuels from crude oil is known as,
 - Evaporation.
 - Fractional distillation.
 - Steam distillation.
 - Simple distillation.
 - When a certain object was hung on a Newton's spring balance, the reading on the balance was 6 N. The mass of that object is,
 - 6 g
 - 60 g
 - 600 g
 - 6000 g
 - Choose the action that can be taken to increase the pressure exerted by an object on a surface.
 - Cutting with a sharp knife
 - Making the foundation wider than the wall of a building.
 - Adding more wheels to heavy vehicle
 - Making the strap of a bag wider
 - A certain patient had to undergo a blood transfusion. The doctor said that the patient can only receive blood group, 'O'. The patient's blood group is,
 - Blood group 'A'
 - Blood group 'B'
 - Blood group 'AB'
 - Blood group 'O'

9. Below given are some comments made by a student about movements of plants.

- A. Plant movements occur as a response to a stimulus in the environment.
- B. A plant stem growing away from the ground is a positive geotropic movement.
- C. Shrinking of leaves of Mimosa is a nastic movement.

Out of the above statements, the incorrect statement/statements are,

- i. Only A
- ii. Only B
- iii. Only C
- iv. Only B and C

10. According to the theory of biochemical evolution, there has been a gradual evolution of organisms on the Earth over a long period time. Given below are some groups of living things that have evolved on the Earth.

- A. Mammals
- B. Reptiles
- C. Cnidarians
- D. Birds
- E. Arthropods

What is the order of evolution of the above organisms?

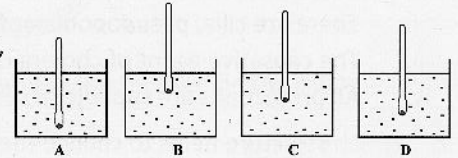
- i. C, E, A, D, B
- ii. E, D, C, B, A
- iii. C, E, B, D, A
- iv. A, C, D, B, E

11. The observation during the electrolysis of a copper sulphate solution using carbon electrodes is,

- i. Liberation of gas bubbles at the negative electrode.
- ii. Deposition of brown color substance on the negative electrode.
- iii. No change in the blue color of the solution.
- iv. Liberation of gas bubbles at the positive electrode.

12. The figure below shows four similar hydrometers floating in four types of liquids, Out of those, the liquid that has the lowest density is;

- i. A
- ii. B
- iii. C
- iv. D



13. Consider the following statements about an ecosystem.

- A. There are interactions between living-living and also living- nonliving.
- B. It is an independent unit due to its resilience.
- C. Energy flows unidirectionally and materials are recycled.

Of these, the true statement/ statements are,

- i. Only A and C
- ii. Only A and B
- iii. Only B and C
- iv. All A, B and C.

14. Images formed by objects kept in front of a plane mirrors are always,

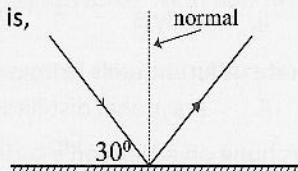
- A. Inverted and real.
- B. Equal to the size of the object.
- C. Distance to the object is equal to the distance to the image.

Of the above statements which is/ are true?

- i. Only A
- ii. Only A and B
- iii. Only B and C
- iv. A, B, C all.

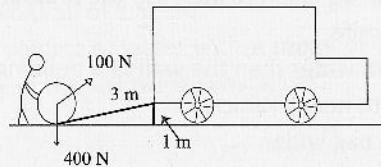
15. According to the ray diagram given below, the angle of reflection is,

- i. 30°
- ii. 45°
- iii. 60°
- iv. 90°



16. As shown in the figure, using an inclined plane of 3 m long, a barrel of oil weighing 400 N is moved to the deck of a lorry that is 1 m high from the ground. If the force required to push is 100 N, the mechanical advantage of the inclined plane is,

- i. 2
- ii. 3
- iii. 4
- iv. None of the above



17. The size of the particles used in Nanotechnology is,

- i. Particles with the scale of 1 nm
- ii. Particles with the scale of 1 - 10 nm
- iii. Particles with the scale of 1- 100 nm
- iv. Particles with the scale of 1 - 1000 nm

18. The correct statement regarding lightning accidents,
- It is not suitable to be stay under a tall tree in an occasion where there is risk of lightning.
 - During lightning bolt, both light and sound are produced at the same time.
 - Lightning bolt occurs only between two clouds.
 - Lightning accidents do not happen, while staying in an open vehicle.
19. In which of the following, minerals such as Graphite, Gems, and Quartz are arranged in the ascending order of hardness.
- Quartz, Graphite, Gems
 - Gems, Graphite, Quartz
 - Gems, Quarts, Graphite
 - Graphite, Quarts, Gems
20. The factor/ factors causing a tsunami is/are?
- Earthquakes that take place in the seafloor.
 - Volcanic eruptions that take place in the seafloor.
 - Fall of meteorite into the ocean
 - All of the above

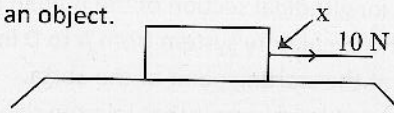
(Total: 40 marks)

Part II

- Answer **only** 5 questions including the first question

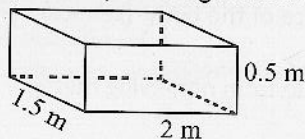
01. A. You may have studied the basic concepts of force in school. Answer the following questions using that knowledge.

- What is known as force? (M: 01)
- Name two changes that can be made to the motion of an object by applying a force. (M: 02)
- a. What is the instrument used to measure force? (M: 01)
b. What is the standard unit of measurement of force? (M: 01)
- The figure shows the way in which a force is applied to an object.
 - Which point is marked as 'X' in the figure? (M: 01)
 - What happens to the object due to the applied force of 10 N on the object? (M: 01)



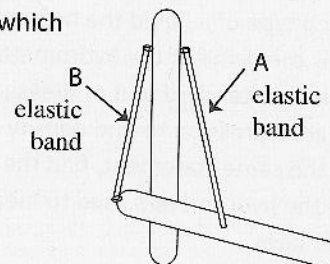
B. Due to the perpendicular force acting on a solid surface on which an object is kept, a pressure is exerted by the object on the solid surface.

- What is known as pressure? (M: 01)
- The length, breadth and height of the cuboid -shape concrete slab, shown in the figure are 2 m, 1.5 m and 0.5 m respectively. Its weight is 30 N.



- Which surface of the cuboid exerts the greatest pressure on the solid surface, while it touches the floor? (M: 01)
- Calculate the maximum pressure exerted by the concrete slab. (M: 02)

C. A model prepared by a student for school exhibition showing the way in which the human elbow joint works, is shown in the figure.



- Name the two muscles shown here by 'A' and 'B' elastic bands. (M: 02)
- When the elbow is extended, what is the change in the muscle indicated by 'A'? (M: 01)
- Mention two special characteristics of muscle cells. (M: 02)

(Total: 16 marks)

02. A. Almost every country in the world uses internationally accepted symbols to indicate elements. Below given are the atomic numbers and mass numbers of some elements.

Element	H	C	O	Na	Cl
Atomic number	1	6	8	11	17
Mass number	1	12	16	23	35

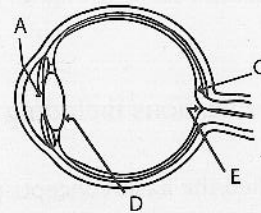
Answer the following questions using the above data.

- Represent the element Na in the standard form. (M: 01)
- State the number of electrons, protons and neutrons in an atom of C separately. (M: 03)
- Draw the structure of a molecule of the compound formed between H and O. (M: 02)
- What elements does glucose ($C_6H_{12}O_6$) molecule contain? (M: 01)

B. A cross-section of a human eye is shown on the side.

- Write the letter corresponding to the structure that is responsible for the following characteristics of a human eye.

- Supplies blood to the eye.
- Focuses images onto the retina.
- Controls the amount of light entering the eye.
- The part in which sharp images are formed on the retina.

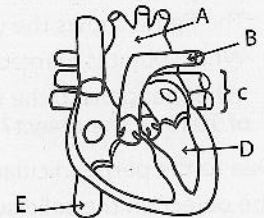


- Draw a ray diagram to show the way in which light rays coming from a distant object is focused on the retina of a healthy eye. (M: 02)

(Total: 11 marks)

03. A. The circulatory system transports substances throughout the human body. The heart pumps blood into the blood vessels. A longitudinal section of the human heart is shown on the figure.

- Name parts of the circulatory system from A to D in the figure.
- Name the valve at the starting point of the aorta.
- Name the two main blood vessels that join the right ventricle.
- Compare and write two differences between veins and arteries.
- Name two substances that are transported through the blood plasma.



- B. Fill in the blanks of the following sentences by using the correct words given within brackets.
- The _____ keeps the pressure equal on both sides of the tympanic membrane. (eustachian tube/ ossicles) (M: 04)
 - The _____ are important for body balance of the body. (semicircular canals/ cochlea) (M: 01)
 - _____ theory states that living things arose from non-living matter. (Spontaneous generation/ Cosmozoic) (M: 01)
 - Tuberculosis is caused by a _____. (bacteria/ virus) (M: 02)

(Total: 11 marks)

04. A. A hydrometer can be used to measure the density of a liquid easily.

- In which type of a liquid the hydrometer sink more? In a less dense liquid or in a denser liquid. (M: 01)
- What is the name of the hydrometer specially used to measure the density of milk? (M: 01)
- What is the standard unit of measuring density? (M: 01)
- Write an expression to find density using mass and volume of a liquid. (M: 02)
- Using the same statement, find the density of 4 m^3 volume of water with a mass of 3600 kg. (M: 02)

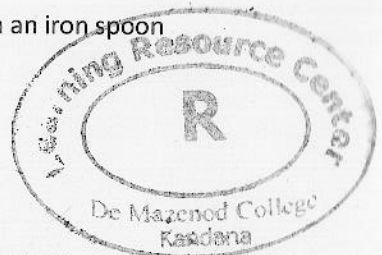
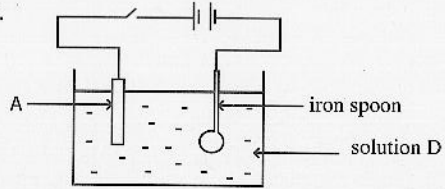


B. Name the hydrometers used to measure the density of the following substances.

- Rubber latex (M: 01)
- Sea water (M: 01)
- Alcohol such as wine and beer (M: 01)
- Composition of soil (M: 01)

(Total: 11 marks)

05. A. A student had prepared the following setup as an exhibit. The method of coating copper on an iron spoon was demonstrated in the event.



- i. What is the observation that can be seen within short period of time after turning on the switch? (M: 01)
- ii. What is the solution referred as 'D' here? (M: 01)
- iii. What is the common name given to the solution 'D' used in the demonstration? (M: 01)
- iv. Due to an error in this setup, copper was not fully coated on the surface of the spoon. What is the error? (M: 01)
- v. What should be used as the electrode 'E'? (M: 01)

B. The light rays are get reflected after falling on objects and let us to observe our surrounding. Choose and write the appropriate answer in the blanks given below by using words given within brackets.

(incidence, reflection, equal, refraction, raised, normal line)

_____ is bouncing back of light rays into the same medium when strikes on a surface, and _____ is change of direction of light when traveling from one transparent medium to another. The first law of reflection states that the incident ray, the reflecting ray and the _____ drawn at the point of incidence are in the same plane. The second law of reflection states that value of the angle of _____ is _____ to the value of the angle of reflection.

The bottom of a reservoir appears to be _____ due refraction of light. (M: 06)
 (Total: 11 marks)

06. A. Instead of the earth covered in green in the past, the environment left today is an artificial environment filled with buildings.

- i. Explain what this symbol represents. (M: 01)
- ii. What is known as organic farming?
- iii. Write two traditional agricultural practices used for pest control. (M: 02)
- iv. Write two disaster that brought by current agriculture characterized by unlimited use of fertilizer. (M: 02)
- v. Write two highly productive methods of cultivation. (M: 02)
- vi. Write two substances that were used by our ancients to kill germs in the past. (M: 02)



Concept Green

(Total: 11 marks)

07. A. Various ecosystems can be found on the Earth.

- i. What is known as an Ecosystem? (M: 02)
- ii. What is meant by ecosystem diversity? (M: 01)
- iii. What is the common term used for ecosystem diversity, species diversity and diversity among their genes? (M: 02)

B. Put 'v' if the following statements are true and 'x' if they are false.

- i. Biodiversity increases competition between organisms. ()
- ii. Natural processes within the Earth affect biodiversity loss. ()
- iii. Areas with relatively high density of organisms are called biodiversity hotspots. ()
- iv. Introducing organisms with modified genes into the environment is not harmful. ()
- v. Climatic changes effect on loss of biodiversity. ()
- vi. Sri Lanka is included in the area of biodiversity hotspot. () (M: 06)

(Total: 11 marks)