නව නිර්දේශයපුතිය பாடத்திட்டம்/New Syllabus

NEW

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இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

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අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2016 දෙසැම්බර්
கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2016 டிசெம்பர்
General Certificate of Education (Ord. Level) Examination, December 2016

විද්‍යාව I
விஞ்ஞானம் I
Science I

පැය එකයි
ஒரு மணித்தியாலம்
One hour

**Important :**

- *Answer all questions.*
- *In each of the questions* **1** *to* **40**, *pick one of the alternatives* (1), (2), (3), (4) *which you consider as correct or most appropriate* answer.
- ***Mark a cross*** (×) ***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 vector quantity?
(1) weight (2) time (3) speed (4) distance

2. According to the standards of binomial nomenclature, select the option which gives correctly the scientific name of Jungle Fowl.
(1) Gallus Lafayetti (2) GALLUS LAFAYETTI
(3) *Gallus lafayetti* (4) *Gallus Lafayetti*

3. The gas which is used to produce margarine from vegetable oils is
(1) $O_2$ (2) $H_2$ (3) $CO_2$ (4) $N_2$

4. Which of the following seeds is adapted for dispersal by wind?
(1) Rubber (2) Epala (3) Bitter gourd (4) Wara

5. What is the colour of phenolphthalein in the basic medium?
(1) Red (2) Pink (3) Yellow (4) Blue

6. What is the acid that is used for coagulation of rubber latex?
(1) HCl (2) $H_2SO_4$ (3) $CH_3COOH$ (4) $HNO_3$

7. Which of the following is an amphoteric oxide?
(1) $Na_2O$ (2) $P_2O_5$ (3) $Al_2O_3$ (4) $Cl_2O_7$

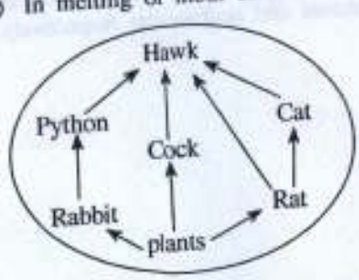
8. Which of the following can be used as a disinfectant?
(1) Chlorine (2) Iodine (3) Boric acid (4) Magnesium hydroxide

9. The catalyst which is used in the manufacture of sulphuric acid by the contact method is
(1) Copper. (2) Nickel. (3) Iron. (4) Vanadium pentoxide.

10. Monocotyledonae plants
(1) bear trimerous flowers. (2) show secondary growth.
(3) possess leaves with a reticulate venation. (4) have a tap root.

11. In which of the following instances does a chemical change occur?
(1) In vaporization of water (2) In burning of fire wood
(3) In melting of wax (4) In melting of moth balls

12. Who is the tertiary consumer in this food web?
(1) Cock
(2) Python
(3) Hawk
(4) Cat




(See page two

13. Select the option which gives a type of non-granulocytes and a type of granulocytes respectively.
(1) neutrophils, eosinophils
(2) neutrophils, monocytes
(3) lymphocytes, monocytes
(4) monocytes, basophils

14. The number of lone pair electrons around O atom in a $H_2O$ molecule is
(1) 2
(2) 4
(3) 6
(4) 8

15. On a certain day, in Nuwara Eliya town, the daytime temperature was 16 °C and night-time temperature was 4 °C. What is the temperature difference between day and night in Nuwara Eliya town on that day, in Kelvin?
(1) 12 K
(2) 277 K
(3) 285 K
(4) 289 K

16. What is the number of double bonds in an isoprene molecule?
(1) 1
(2) 2
(3) 3
(4) 4

17. Kamal works in a glass factory for a long period of time. In a medical test, it was revealed that his lung tissues are getting deteriorated gradually. Accordingly, which disease is Kamal suffering from?
(1) Asbestosis
(2) Bronchitis
(3) Gastritis
(4) Silicosis

18. In the asexual reproduction,
(1) a large number of offspring is produced in a short period of time.
(2) meiosis occurs.
(3) gametes are produced.
(4) new species with better adaptation to environment are produced.

19. The focal length of a mirror is 30 cm. When an object is kept on the principal axis of the mirror, the image formed by the mirror is real and its size is equal to the size of the object. The distance from the mirror to the object is
(1) 30 cm.
(2) 60 cm.
(3) 120 cm.
(4) 150 cm.

20. A diagram of a muscle tissue is given below. Select the option which gives correctly the name of this muscle tissue and its function.

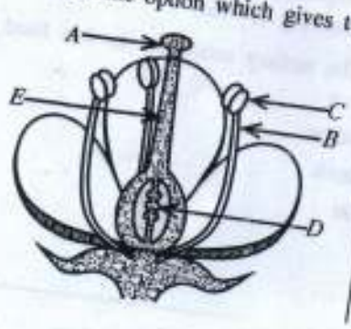
| | Muscle tissue | Function |
|---|---|---|
| (1) | Cardiac muscles | Voluntarily controlled |
| (2) | Skeletal muscles | Involuntarily controlled |
| (3) | Skeletal muscles | Voluntarily controlled |
| (4) | Cardiac muscles | Involuntarily controlled |

21. What is the pressure exerted by water at a point located 2 m vertically below the water level in a lake? (Take the density of water as 1 000 kg $m^{-3}$ and acceleration due to gravity as 10 m $s^{-2}$)
(1) 1 000 N $m^{-2}$
(2) 2 000 N $m^{-2}$
(3) 10 000 N $m^{-2}$
(4) 20 000 N $m^{-2}$

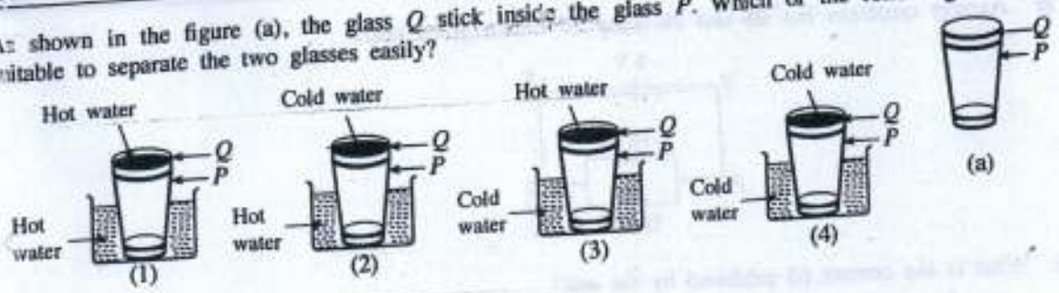
22. Amali's skin is dry and blisters have appeared on her knee and elbows. Further, Bito spots are in her eyes. From which of the following deficiencies of Vitamins is Amali suffering?
(1) Vitamin A
(2) Vitamin B
(3) Vitamin C
(4) Vitamin D

23. Which of the following statements is **false** regarding photosynthesis?
(1) Photosynthesis can be done artificially.
(2) Solar energy is converted into chemical energy during photosynthesis.
(3) $O_2$ gas is produced as a by-product of photosynthesis.
(4) Glucose produced during photosynthesis is temporarily stored in plant leaves as starch.

24. A diagram of a longitudinal section of a bisexual flower is given below. Select the option which gives two parts belonging to gynoecium and androecium respectively.
(1) *A* and *C*
(2) *B* and *D*
(3) *A* and *E*
(4) *C* and *E*



25. As shown in the figure (a), the glass $Q$ stick inside the glass $P$. Which of the following strategies is suitable to separate the two glasses easily?




26. Consider the following statements made by a student.

$A$ - Cinnamon oil can be extracted from Cinnamon leaves by using steam distillation.

$B$ - Petrol can be obtained from crude oil by using fractional distillation.

$C$ - Distilled water can be obtained from well water by using simple distillation.

Of the above statements,

(1) only $A$ and $B$ are true.
(2) only $B$ and $C$ are true.
(3) only $A$ and $C$ are true.
(4) all $A$, $B$ and $C$ are true.

27. Which of the following reactions is a neutralization reaction?

(1) $CaO + H_2O \rightarrow Ca(OH)_2$
(2) $FeSO_4 + 2NaOH \rightarrow Fe(OH)_2 + Na_2SO_4$
(3) $NaOH + HCl \rightarrow NaCl + H_2O$
(4) $CaCl_2 + Na_2CO_3 \rightarrow CaCO_3 + 2NaCl$

28. The chemical formula of the carbonate of an element **M** is $M_2CO_3$. What is the chemical formula of the chloride of **M**?

(1) **MCl**
(2) $M_2Cl$
(3) $MCl_2$
(4) $M_3Cl_2$

29. What is the number of O atoms in 22 g of $CO_2$ gas? (C = 12, O = 16)

(1) 2
(2) $6.022 \times 10^{23}$
(3) $2 \times 6.022 \times 10^{23}$
(4) $22 \times 6.022 \times 10^{23}$

30. Three properties of a particular element are given below.

- Occurs in crystalline form as well as in amorphous form.
- Insoluble in water, but very soluble in $CS_2$ solvent.
- Burns with a blue flame in air.

Which of the following could be the element with above properties?

(1) Na
(2) Mg
(3) C
(4) S

31. The limiting frictional force between two objects with rough surfaces in contact depends on

(1) the area of the contact surfaces.
(2) the normal reaction and the nature of the contact surfaces.
(3) the nature of the contact surfaces and the area of the contact surfaces.
(4) the area of the contact surfaces and the normal reaction.

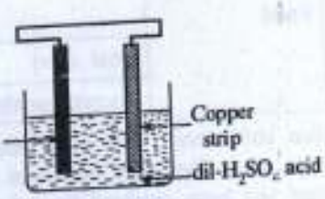
32. The gravitational acceleration on the moon is $\frac{1}{6}$ th that of the earth. If the gravitational acceleration on the earth is 10 m $s^{-2}$, what would be the weight of an astronaut of mass 60 kg, on the moon?

(1) $\frac{1}{6}$ N
(2) 10 N
(3) 100 N
(4) $\frac{1000}{6}$ N

33. The mole fraction of NaOH in a solution formed, when 2 moles of NaOH is dissolved in 10 moles of water is

(1) $\frac{1}{10}$
(2) $\frac{1}{6}$
(3) $\frac{1}{5}$
(4) $\frac{5}{6}$

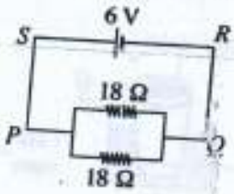
34. Which of the following statements is **false** regarding the electrochemical cell given in the figure?




(1) Iron strip acts as the anode.
(2) A reduction reaction occurs at the copper strip.
(3) Gas bubbles evolved rapidly at the iron strip.
(4) Electrons flow towards the copper strip across the external wire.

[See page four

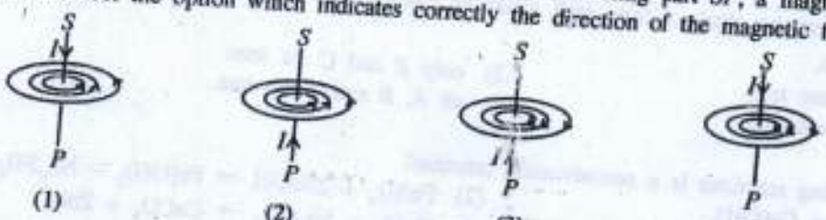
● Answer questions No. **35** and **36** using the circuit given below.




**35.** What is the current ($I$) produced by the cell?

(1) $\frac{1}{6}$ A (2) $\frac{2}{3}$ A (3) 3 A (4) 6 A

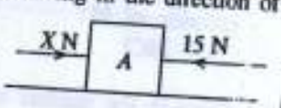
**36.** Due to the current ($I$) flows through the straight conducting part $SP$, a magnetic field is formed around $SP$. Select the option which indicates correctly the direction of the magnetic field.




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

**37.** Consider the object $A$ which is kept on a smooth horizontal surface as shown in the figure. Two horizontal forces of 15 N and $X$ N are acting on $A$ as shown in the figure. If the object is moving in the direction of the force $X$ with a resultant force of 10 N, what is the value of $X$?

(1) 15 (2) 25
(3) 35 (4) 45




**38.** Consider the following data relevant to the motion of a child in a straight line path from a certain point.

| Time (s) | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Displacement (m) | 0 | 2 | 4 | 6 | 6 | 6 | 8 | 8 | 7 | 4 | 2 | 0 |

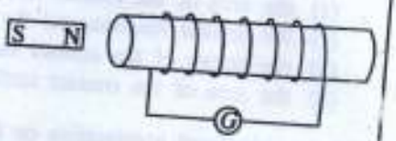
Which of the following statements is **false** regarding the motion of the child in the given time?

(1) The child has moved at a uniform velocity in the first three seconds.
(2) The total time that the child remained at rest is 5 seconds.
(3) The child has returned to the starting point.
(4) The total distance that the child has moved is 16 m.

**39.** A figure of an arrangement to demonstrate the electromagnetic induction is given here.

In which of the following instances the galvanometer $G$ does **not** indicate a deflection?

(1) When moving the magnet towards the coil while keeping the coil stationary.
(2) When keeping both the magnet and the coil stationary.
(3) When moving the magnet away from the coil while keeping the coil stationary.
(4) When moving the coil away from the magnet while keeping the magnet stationary.




**40.** Anil, Jagath, Sujith and Namal living in Kurunegala town have had their breakfast on a certain day as shown in the following table.

| Name | Anil | Jagath | Sujith | Namal |
|---|---|---|---|---|
| Food | Rice | String hoppers (made up of rice flour) | Bread (made up of wheat flour) | Rotti (made up of wheat flour) |
| | Dhal curry | Dhal curry | Dhal curry | Potato curry |
| | Coconut sambol | Fish curry | Coconut sambol | Coconut sambol |

Rice and coconut had been obtained from Kurunegala area and potatoes had been obtained from Nuwara Eliya area. Rice flour had been obtained from Polonnaruwa area and fish from Negambo. Dahl and wheat flour had been obtained from India and America respectively.

Accordingly, who has taken the meal with the lowest food mile?

(1) Anil (2) Jagath (3) Sujith (4) Namal