

Year End Examination 2015 Science I

Grade 10

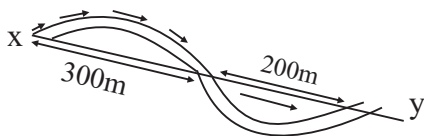
විද්‍යාව I

Time: 1 hour

Name/ Index No.

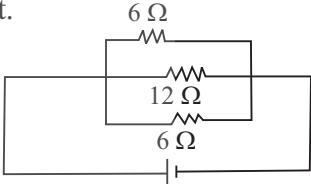
• Answer all questions.

01. Select the Disaccharide from the given below.
(1) Fructose (2) Glycogen (3) Galactose (4) Sucrose
02. What compound can be identified by doing the biurette test?
(1) Carbohydrate (2) Fat (3) Sugars (4) Proteins
03. Select the correct way of writing the scientific name of the peacock.
(1) *Pavo cristatus* (2) Pavo Cristatus (3) pavo cristatus (4) pavo Cristatus
04. Few statements about viruses are given below.
A - Virus is a species of organism.
B - Virus possess DNA or RNA
C - Virus multiply only within living cells
Correct statements are,
(1) A and B (2) B and C (3) C and A (4) All above
05. Which group of animals have the following characters.
A - Three chambered heart
B - Posses a soft, moist skin with glands.
(1) Fish (2) Amphibians (3) Reptilian (4) Birds
- Use the following diagram to answer the question 06 and 07.



The path of a bicycle travels from x to y is shown by arrows. The distance travelled by the bicycle is 800 m with 20 S.

06. What is the displacement from x to y?
(1) 800 m (2) 600 m (3) 500 m (4) 700 m
07. What is the mean speed of the bicycle?
(1) 40 ms^{-1} (2) 10 ms^{-1} (3) 15 ms^{-1} (4) 35 ms^{-1}
08. Find the molar mass of $(\text{Na}_2\text{C}_2\text{O}_4)$ (Sodium Oxalate) (Na - 23, C - 12, O - 16)
(1) 13.4 g (2) 130 g (3) 134 g (4) 153 g
09. Electronic configuration of certain element is 2, 8, 3. The period and group of this element in periodic table,
(1) 3 and III (2) 2 and III (3) 3 and II (4) 2 and II

10. Common parts to both plant and animal cell
- (1) Nucleus, Cell plasma, Plasma membrane
 - (2) Nucleus, Cell plasma, Central vacuole
 - (3) Central vacuole, Nucleus, Chlotoplast
 - (4) Cell wall, Plasma membrane, Central vacuole
11. The depth of a reservoir is 1.2 m. Calculate the pressure exerted on a fish who lives in the bottom ($g = 10\text{ms}^{-2}$, density of water = 1000kgm^{-3})
- (1) 15000 pa
 - (2) 12000 pa
 - (3) 10000 pa
 - (4) 100 pa
12. Consider the following statements about rate of reactions. Select the correct statements.
- A - Rate of reaction increases when the surface area of the reactants is increased.
- B - Rate of reaction increases while the decrease of temperature.
- C - There is no connection between rate of reaction with the presence of catalysts.
- (1) A and B
 - (2) Only A
 - (3) B and C
 - (4) A and C
13. The mass of an object is 8 Kg. calculate the kinetic energy when it is moving at a velocity of 5ms^{-1} .
- (1) 50J
 - (2) 40J
 - (3) 100J
 - (4) 80J
14. Find the total resistance (equivalent resistance) of the circuit.
- (1) $1.6\ \Omega$
 - (2) $3\ \Omega$
 - (3) $2.4\ \Omega$
 - (4) $20\ \Omega$
- 
15. Hemophilia is a inherited disease. Select the correct genotype of a carrier female.
- (1) $X^H X^h$
 - (2) $X^H X^H$
 - (3) $X^h X^h$
 - (4) $X^H Y$
16. $A + BC \rightarrow AC + B$
- The above reaction is a,
- (1) Double displacement reaction
 - (2) Combination reaction
 - (3) Decomposition reaction
 - (4) Single displacement reaction
17. Select the wrong statement about the grafting and budding.
- (1) Can propagate plants that do not produce seeds successfully.
 - (2) Can obtain disease resistant plants.
 - (3) always successful with every plant
 - (4) Can produce off springs with characteristics of the scion.

18. Human reproduction process is completely regulated by hormones. Which hormone stimulates the development of primary follicles in the ovary to form a graafian follicle,
 (1) FSH (2) Oestrogen (3) LH (4) Progesterone
19. Which one of the following metals can exist as an element in nature ?
 (1) Sodium (2) Iron (3) Silver (4) Zinc
20. A certain metal when heated in air burns with a bright white flame and leaves a white powder. This metal can be,
 (1) Al (2) Fe (3) Pb (4) Mg
21. Select the in-correct statement about fractional force, frictional force
 (1) fractional force depends on the nature of the surface.
 (2) fractional force depends on the surface area of the object.
 (3) Fractional force increases when the normal reaction between the two forces increase.
 (4) There are both advantages and disadvantages of fraction.
22. An object with the weight of 200 kg moves with the velocity of 20 ms^{-1} . Find the momentum.
 (1) 2000 kgms^{-1} (2) 200 kgms^{-1} (3) 5000 kgms^{-1} (4) 4000 kgms^{-1}
23. Select the answer which contains the compound only with covalent bonds,
 (1) $\text{CH}_4, \text{H}_2\text{O}, \text{NaCl}$ (2) $\text{NaCl}, \text{CaCl}_2, \text{Kf}$
 (3) $\text{H}_2\text{O}, \text{CH}_4, \text{NH}_3$ (4) $\text{NH}_3, \text{NaCl}, \text{H}_2\text{O}$
24. In order to maintain equilibriums under the action of three parallel forces, an object must satisfied some condions. Given below are some statements about that.
 A - The three forces must be coplanar.
 B - One force must have a direction opposite to the other two forces.
 C - The resultant of any two forces must be equal in magnitude and opposite in direction to the third force.
- The correct statements are,
 (1) A and B (2) B and C (3) A and C (4) All the above
25. What is the compound which is not used to produce oxygen gas ?
 (1) Potassium Nitrate (2) Potassium Permanganate
 (3) Calcium Carbonate (4) Potassium Chlorate
- 26.
- The diagram shows a horizontal bar AB pivoted at its center. A weight 'X' is suspended from the left end A. A 4 N weight is suspended from the right end B. The distance from the pivot to A is 0.4 m, and the distance from the pivot to B is 0.5 m.
- According to the diagram, to balance the bar what should be the weight of "X" ?
 (1) 4 N (2) 5 N (3) 8 N (4) 2 N
27. Organism that chlorophyll is absent,
 (1) Chlamidomonas (2) Brown algae (3) Yeast (4) Green algae
28. Which organ does not act as an excretory organ ?
 (1) Kidney (2) Stomach (3) Lungs (4) Skin

29. Select the incorrect statement about light dependent resistors.
- (1) They are fabricated using chemicals such as cadmium sulfide.
 - (2) Value of the resistance depends on the intensity of light.
 - (3) Used in control circuits of instruments that need to operate based on the amount of light falling on them.
 - (4) When light intensity is low, these resistors have lower resistance.
30. Time taken to lift a mass of 10 kg to a height of 3 m is 3s. Calculate the rate of doing work (power).
- (1) 100 W
 - (2) 300 N
 - (3) 30 W
 - (4) 360 W
31. An experiment is done in order to identify a nutrient which contains in a food sample. The observation was that solution became pinkish purple. The nutrient is,
- (1) Lipids
 - (2) Proteins
 - (3) Carbohydrates
 - (4) Fat
32. What is the chemical formulae for Magnesium Nitrate?
- (1) $Mg(NO_3)_2$
 - (2) $MgNO_3$
 - (3) Mg_2NO_3
 - (4) Mg_3NO_2
33. Number of lone pairs that present in water molecule is,
- (1) 1
 - (2) 2
 - (3) 3
 - (4) 0
34. Organizational levels of an organism is shown in order is,
- (1) Cell → tissues → organs → system → organism
 - (2) Cell → organs → tissues → system → organism
 - (3) Cell → system → tissues → organs → organism
 - (4) Cell → tissues → system → organs → organism
35. Which answer shows the correct number of Hydrogen, Nitrogen, Oxygen and Sulphur atoms in a molecule of Ammonium Sulphate in order? $[(NH_4)_2SO_4]$
- (1) 4, 1, 2 and 1
 - (2) 8, 2, 4 and 1
 - (3) 4, 2, 4 and 1
 - (4) 8, 4, 4 and 2
36. Molar mass of Carbon is 12 gmol^{-1} . Find the number of atoms in 0.1 mol of Carbon,
- (1) $6.022 \times 10^{23} \times 0.1$
 - (2) 6.022×10^{23}
 - (3) $\frac{6.022 \times 10^{23}}{0.1}$
 - (4) 6.022×10^{24}
37. Which organelle of the cell does contribute to the function of releasing energy by respiration,
- (1) Golgi bodies
 - (2) Nucleus
 - (3) Mitochondrion
 - (4) Endoplasmic Reticulum
38. Which equations are balanced?
- A - $CaCO_3 \rightarrow CaO + CO_2$
- B - $2H_2 + O_2 \rightarrow H_2O$
- C - $HCl + NaOH \rightarrow NaCl + H_2O$
- D - $H_2SO_4 + 2NaOH \rightarrow Na_2SO_4 + H_2O$
- (1) A and B
 - (2) A and C
 - (3) B and C
 - (4) B and D
39. What is the virus flue spreaded through African countries recently.
- (1) Ebola
 - (2) Sars
 - (3) Dengue
 - (4) Bird flue
40. What is the suitable chemical formula for the Lewis structure given by the diagram ?



- (1) $N \equiv N$
- (2) $O = O$
- (3) $Na - Cl$
- (4) $Cl - Cl$

Year End Examination 2015 Science II

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Grade 10

Time: 3 hours

Name/ Index No.

- Answer all questions.
- Use the space given in the question paper for answer.

Part - A

Structured Essay Questions

01. A (i) Give two differences between natural and artificial classification.

a.

b.

(ii) State the 03 domains.

a.

b.

c.

(iii) How can you classify bacterias according to their shapes?

a.

b.

c.

d.

(iv) Give two other Kingdoms which contain micro - organisms.

a.

b.

(v) Give two benefits of micro - organisms.

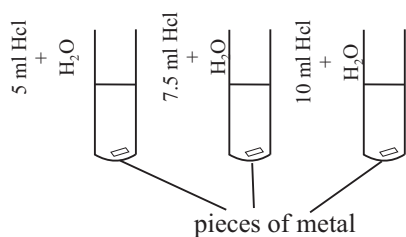
a.

b.

B. (i) Fill the table given below.

Group of animals	Environment they live	Main features of the group which use to identify.
a. Fish	①	② ③
b. Reptiles	④	⑤ ⑥
c. Amphibia	⑦ ⑧	⑨ ⑩

02. A.



This diagram shows a set-up arranged to find out how concentration of reactants affects the rate of reaction.

(1) What is the suitable metal to use in this experiment?

.....

(2) What is the gas evolves near the metal?

.....

(3) Write the balanced chemical equation for the reaction of the metal with HCl acid.

.....

(4) What is the expected observation of this experiment?

.....

(5) Give two other factors affects the rate of reaction.

a.

b.

B. (1) Separate the following compounds into compounds with ionic bonds and compounds with covalent bonds

CaCl₂, Li₂O, H₂O, NaCl, NH₃, CH₄

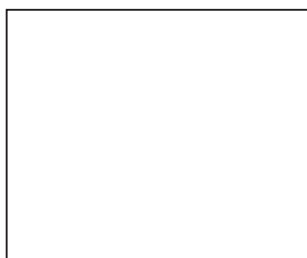
Compounds with ionic bonds	Compounds with covalent bonds
1.	1.
2.	2.
3.	3.

(2) Draw dot and cross diagrams for the following molecules.

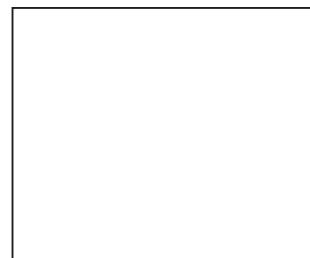
(1) CO₂



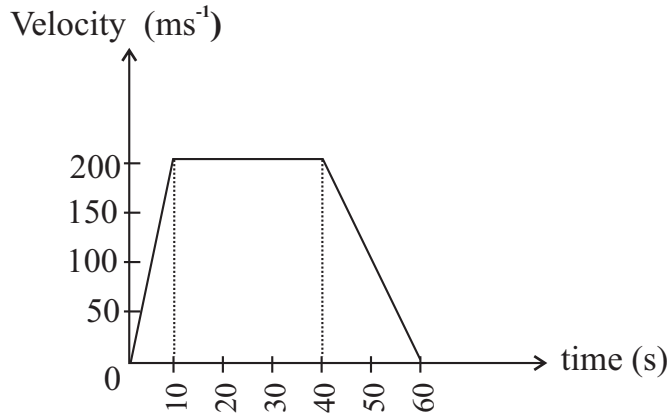
(2) N₂



(3) O₂



03. A. Given here is a velocity - time graph for a motion along a straight path.



(1) Find the acceleration during the first 10 s.

.....
.....
.....

(2) What is the displacement during the first 10 s?

.....
.....
.....

(3) Explain the motion of the object from 10 s to 40 s.

.....
.....
.....

(4) What is the deceleration during the last 20 s?

.....
.....
.....

(5) What is the distance travelled during the last 20 s?

.....
.....
.....

B. (1) Briefly state what is meant by friction?

.....
.....
.....

(2) Give two benefits of friction.

.....
.....
.....

(3) Give two disadvantages of friction.

.....
.....
.....

04. A. (1) What are the elements which build up a nucleotide ?

.....
.....

(2) Name the three components of a nucleotide.

a.

b.

c.

(3) Name the two main types of Nucleic acids.

a.

b.

B. (1) State the three main contents of the cell theory.

a.

b.

c.

(2) Compare two main differences between Animal cell and Plant cell.

	Plant Cell	Animal Cell
01.
02.

C. (1) Fill the table given below.

Organelle	Structure	Function
(1) Nucleus
(2) Mitochondria
(3) Endo plasmic reticulum

Year End Examination 2015

Science II - (Continuation)

Grade 10

- Answer three questions in part B selecting one question from each section Biology, Chemistry and Physics

Part B

Biology.

01. A. Vegetative propagation is a good method to propagate plants that do not produce seeds successfully.
- Name the two main parts of vegetative propagation.
 - Tissue culture is a modern technology that used to propagate plants.
 - Name the substances added to the culture medium used for tissue culture.
 - Write the participle steps followed in tissue culture.
 - Give three advantages of tissue culture.
- B. (i) Write do you understand by pollination.
- (a) Some flowers are adapted to avoid self-pollination and promote cross-pollination. Why is it?
 - Give 03 such adaptations.
- C. (i) Name the main parts of female reproductive system.
- Human reproduction is totally controlled by hormones. Give the function of each hormones below.
 - FSH -
 - LH -
 - Oestrogen -
02. A. (i) What are the three main groups of carbohydrates?
- (a) Write down the names of the tests that you can carry out to identify each group of Carbohydrates.
 - Write down the step of one such experiment.
 - Give 3 significances of Carbohydrates.
- B. (i) What are vitamins ?
- According to what basis you classify vitamins into 2 groups ?
 - Complete the following table.

Type of Vitamin	Use	Deficiency symptoms
Vitamin A		
Vitamin B		

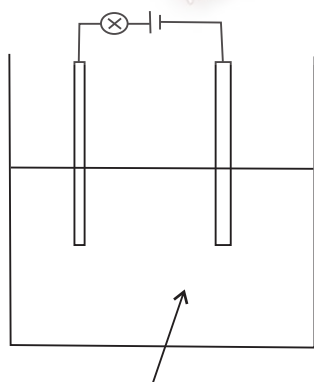
- C. (i) What do you understand by genetic engineering.
- Name 3 field genetic engineering is applied on.
 - State 2 applications of genetic engineering for the betterment of humans.

Chemistry

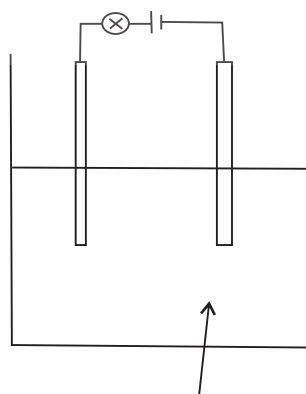
01. A. Below shows a part of periodic table. Here given symbols are not standard symbols.

A							
			D		O		B
C	E						

- (i) To which period does element A belong ?
 - (ii) What is the noble gas of this ?
 - (iii) To which group does element D belong?
 - (iv) What are the two elements that belong to same group?
 - (v) If number of neutrons of element C is 12, what is the mass number?
 - (vi) Write the electronic configuration of element "D".
- B.
- (i) Write separately the raw materials, used in iron extraction.
 - (ii) There are two reactions producing CO_2 which happening inside the blast furnace. Write the balanced chemical equations for that.
 - (iii) Name the two components in slag.
- C. Followings are two set-ups formed by a student.



NaCl Solution



Glucose Solution

- (i) What will be your observations on that ?
- (ii) What is the conclusions you come at the end?
- (iii) According to this experiment you have identify two types of compounds. Give 03 properties of each compound.

02. A. (i) Write down the Newton's second law.
 (ii) Fill the table given.

Force (N)	Mass (kg)	Acceleration (ms^{-2})
.....	3 kg	4 ms^{-2}
80 N	2 kg
.....	1.5kg	100 ms^{-2}
4 N	1000 kg
60 N	1.5 ms^{-2}

- B. (i) A mass of 400 g was projected vertically upwards at a velocity of 40 ms^{-1} .
 (a) What is the kinetic energy of the object just as it is projected?
 (b) How long will it take to reach the maximum height?
 (c) Find the maximum height it would reach.
 (d) What is its potential energy at the maximum height?
- C. (i) Explain the connection between. Area of cross - section of the conductor and resistance.
 (ii) Write the steps of an activity you can plan to test this.

