# Year End Examination 2015 Science I

Gr	ade 10	විදන	<b>ଥ</b>	Time: 1 hour
Na	me/ Index No.			
•	Answer all questions.			
01.	Select the Disaccharic	le from the given belo	W.	
	(1) Fructose	(2) Glycogen	(3) Galactose	(4) Sucrose
02.	What compound can b	be identified by doing	the biurette test?	
	(1) Carbohydrate	(2) Fat	(3) Sugars	(4) Proteins
03.	Select the correct way	of writing the scienti	fic name of the peacod	ck.
	(1) Pavo cristatus	(2) Pavo Cristatus	(3) pavo cristatus	(4) pavo Cristatus
04.	Few statements about	viruses are given belo	DW.	
	A - Virus is a specie	s of organism.		
	B - Virus possess D	NA or RNA		
	C - Virus multiply o	only within living cells	Sn al Educe	
	Correct statements are			
	(1) Aand B	(2) B and C	(3) C and A	(4) All above
05.	Which group of anima	als have the following	characters.	
	A - Three chambere	ed heart		
	B - Posses a soft, me	oist skin with glands.		
	(1) Fish	(2) Amphibians	(3) Reptilian	(4) Birds
•	Use the following dia	gram to answer the	question 06 and 07.	
	x 300m	200m y	The path of a bicyc shown by arrows. T the bicycle is 800 m	le travels from x to y is The distance travelled by with 20 S.
06.	What is the displacem	ent from x to y?		
	(1) 800 m	(2) 600 m	(3) 500 m	(4) 700 m
07.	What is the mean spee	ed of the bicycle?		
	(1) $40 \mathrm{ms}^{-1}$	(2) $10 \mathrm{ms}^{-1}$	(3) $15 \mathrm{ms}^{-1}$	(4) $35 \mathrm{ms}^{-1}$
08.	Find the molar mass o	$f(Na_2C_2O_4)$ (Sodium	Oxalate) (Na - 23, C	- 12, O - 16)
	(1) 13.4 g	(2) 130 g	(3) 134 g	(4) 153 g
09.	Electronic configurat element in periodic tal	tion of certain eleme ble,	ent is 2, 8, 3. The g	roup and period of this
	(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		
	<ul> <li>(1) Nucleus, Cell plasma, Frasma memorane</li> <li>(2) Nucleus, Cell plasma, Central vacuale</li> </ul>		
	<ul><li>(2) Autorous, con plasma, contral vacuo</li><li>(3) Central vacuole Nucleus Chlotonla</li></ul>	st	
	<ul><li>(4) Cell wall Plasma membrane Centra</li></ul>	l vacuole	
11	The depth of a reservoir is 1.2 m Calcula	te the pressure exerted	l on a fish who lives in the
11,	bottom (g = $10 \text{ms}^{-2}$ , density of water = 10	$100 \mathrm{kgm}^{-3}$	
	(1) 15000 pa (2) 12000 pa	(3) 10000 pa	(4) 100 pa
12.	Consider the following statements about a	rate of reactions.	
	A - Rate of reaction increases when the	surface area of the rea	ctants is increased.
	B - Rate of reaction increases while the	decrease of temperatu	ire.
	C - There is no connection between rate	e of reaction with the p	resence 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 of $5 \text{ ms}^{-1}$ .	ne kinetic energy when	n it is moving at a velocity
	(1) 50 J (2) 40 J	(3) 100 J	(4) 80 J
14.	Find the total resistance (equivalent resist	ance) of the circuit.	6Ω
	(1) $6\Omega$ (2) $3\Omega$		
	(3) $4\Omega$ (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 r	reaction
	(3) Decomposition reaction	(4) Single displace	ement reaction
17.	Select the wrong statement about the graf	ting and budding.	
	(1) Can propagate plants that do not proc	luce seeds successfull	у.
	(2) Can obtain disease resistant plants.		
	(3) always successful with every plant		
	(4) Can produce off springs with charact	eristics of the scion.	

18.	Human reproduction process is completely regulated by hormones. Which bormone 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 natur	re?	
	(1) Sodium (2) Iron	(3) Silver	(4) Zinc	
20.	A certain metal when heated in air burns with a This metal can be,	a bright white flame ar	nd leaves a white powder.	
	(1) Al (2) Fe	(3) Pb	(4) Mg	
21.	Select the in-correct statement about fractional f	orce,		
	(1) fractional force depends on the nature of the	e surface.		
	(2) fractional force depends on the surface area	of the object.		
	(3) Fractional force increases when the normal	reaction between the tw	wo forces increase.	
	(4) There are both advantages and disadvantag	es of fraction.		
22.	An object with the weight of 200 kg moves with	the velocity of $20 \mathrm{ms}^{-1}$ .	Find the momentum.	
	(1) $2000 \mathrm{kgms}^{-1}$ (2) $200 \mathrm{kgms}^{-1}$	(3) $5000  \text{kgms}^{-1}$	(4) $4000  \text{kgms}^{-1}$	
23.	Select the answer which contains the compound	only with covalent bon	.ds,	
	(1) $CH_4$ , $H_2O$ , NaCl	(2) NaCl, CaCl, Kf		
	(3) $H_2O, CH_4, NH_3$	(4) $NH_3$ , NaCl, $H_2O$		
24.	In order to maintain equilibriums under the a	nuction of three parall	el 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 produ	ice oxygen gas?		
	(1) Potassium Nitrate	(2) Potassium Perman	nganate	
•	(3) Calcium Carbonate	(4) Potassium Chlora	te	
26.	$A \xrightarrow[]{0.4 \text{ m}} 0.5 \text{ m} \\ H \xrightarrow[]{0.4  m$			
	According to the diagram, to balance the bar what	at 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.	9. 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 falling on them.	based on the amount of light
	(4) When light intensity is low, these resistors have lower resistant	ce.
30.	0. Time taken to lift a mass of $10 \text{ kg}$ to a height of $3 \text{ m}$ is $3 \text{ s}$ . Calculate the	he rate of doing work (power).
	(1) $100 \text{ W}$ (2) $300 \text{ N}$ (3) $30 \text{ W}$	(4) 360 W
31.	1. An experiment is done in order to identify an nutrient which co observation was that solution became pinkish purple. The nutrient is	ontain in a food sample. The S,
	(1) Lipids (2) Proteins (3) Carbohydrate	s (4) Fat
32.	2. 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.	3. Number of lone pairs that present in water molecule is,	
~ (	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	(4) 0
34.	4. Organizational levels of an organism is shown in order is,	
	(1) Cell $\rightarrow$ tissues $\rightarrow$ organs $\rightarrow$ system $\rightarrow$ organis	sm
	(2) Cell $\rightarrow$ organs $\rightarrow$ tissues $\rightarrow$ system $\rightarrow$ organis	sm
	(3) Cell $\rightarrow$ system $\rightarrow$ tissues $\rightarrow$ organs $\rightarrow$ organis	sm
	(4) Cell $\rightarrow$ tissues $\rightarrow$ system $\rightarrow$ organs $\rightarrow$ organis	om
35.	5. Which answer shows the correct number of Hydrogen, Nitrogen, O	xygen and Sulphur atoms in a
	molecule of Ammonium Sulphate in order ? $[(NH_4)_2 SO_4]$	
	(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.	6. Molar mass of Carbon is 12 gmol <sup>-1</sup> . Find the number of atoms in 0.1 i	mol of Carbon,
	(1) $6.022 \times 10^{23} \times 0.1$ (2) $6.022 \times 10^{23}$	J
	(3) $6.022 \times 10^{23}$ (4) $6.022 \times 10^{24}$ 0.1	
37.	7. Which organelle of the cell does contribute to the function of releasi	ng energy by respiration,
	(1) Golgi bodies (2) Nucleus	
	(3) Mitochondrion (4) Endoplasmic	Reticulum
38.	8. Which equations are balanced?	
	A - $CaCo_3 \rightarrow CaO + Co_2$	
	$B - 2H_2 + O_2 \rightarrow H_2O$	
	$C - HCl + NaOH \rightarrow Nacl + H_2O$	
	$D - H_2So_4 + 2 NaOH \rightarrow Na_2So_4 + H_2O$	
	(1) A and B (2) A and C (3) B and C	(4) $B and D$
39.	9. What is the virus flue spreaded through African countries recently.	
	(1) Ebola (2) Sars (3) Dengue	(4) Bird flue
40.	0. What is the suitable chemical formula for the Lewis structure given	by the diagram?
	$(1) N \equiv N$	(2) $O \equiv O$
	(3) Na - cl	(4) Cl - Cl

#### **Science II** විදනව II 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? TE ALLEAD a. ..... CONST 11 CONSTAN b. ..... \_\_\_\_\_\_ for The c. - THE POLICE 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.

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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



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

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



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



- (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 comp	onents of a nucleo	otide.					
		a							
		b							
		c							
	(3)	Name the two main types of Nucleic acids.							
		b							
В.	(1)								
		a		alth	action .				
		b							
		0.00	Ronald						
		ele elester							
	(2)	Compare two main di	differences between Animal cell and Plant cell						
		Plant Cell		Anima	l Cell				
		01.							
		02.							
C.	(1)	Fill the table given below.							
		Organelle	Struct	ure	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

### <u>Part B</u>

#### **Biology.**

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

Type of Vitamin	Use	Deficiency symptoms
Vitamin A		
Vitamin B		

- C. (i) What do you understand by genetic engineering.
  - (ii) Name 3 field genetic engineering is applied on.
  - (iii) 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.



- (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.



- (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. Find the molar mass of following compounds.
  - (i)  $Mg_3N_2$  (ii)  $(NH_4)_2CO_3$  (iii)  $NH_4Cl$

(Mg = 24, N = 14, H = 1, C = 12, Cl 35.5, O = 16)

- B. (i) Define the word "mole".
  - (ii) Find how many moles are there in 90 g of Glucose. (C=12, H=1, O=16)
  - (iii) What is the amount of substances in moles in 12 g of Magnesium (Mg)?
- C. Answer the following questions based on the metals given below.

Ca, Mg, Cu, Zn, Al, Fe

- (i) What is metal that reacts fastest with water?
- (ii) What is the metal that does not react with dil. HCl?
- (iii) Which metal tarnishes fastest when exposed to air?
- D. Explain the followings scientifically.
  - (i) Metals like sodium and potassium are stored in kerosene or liquid paraffin.
  - (ii) Copper metal has been in use from ancient times.

#### **Physics**

- 01. A. (i) Write down Archimedes principle.
  - (ii) The weight of a piece of metal in air is 40 N. When it is completely immersed in water its apparent weight is 10 N.
    - (a) What is the upward thrust exerted on the piece of metal by water?
    - (b) What is the weight of water displaced by piece of metal when it is completely immersed in water.
  - B. The pressure forms by solid liquid and gas are useful in day to day activities.
    - (i) Define the term "Pressure".
    - (ii) Derive the units of pressure by using appropriate equation.
  - C. (i) You are provided one end closed 1 meter length capillary glass tube and sufficient amount of mercury. Draw a simple labeled diagram how you have prepared a simple Barometer using other essential equipment.
    - (ii) Explain why you have used 1 meter length capillary tube?
    - (iii) When the barometer was kept in a place the height of mercury is 72 cm. Calculate the pressure of that place.

Density of Mercury  $= 13600 \text{ kgm}^{-3}$ 

Gravitational acceleration =  $10 \text{ ms}^{-2}$ 

(iv) Calculate the height of the water column which is created by the same atmospheric pressure of that place. (Density of water 1000 kgm<sup>-3</sup>)

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

Force (N)	Mass (kg)	Acceleration (ms <sup>-2</sup> )
	3 kg	$4 \text{ ms}^{-2}$
80 N	2 kg	
	1.5kg	$100 \text{ ms}^{-2}$
4 N	1000 kg	
60 N		$1.5 \text{ ms}^{-2}$

- B. (i) A mass of 400 g was projected vertically upwards at a velocity of  $40 \text{ ms}^{-1}$ .
  - (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.