



PROVINCIAL DEPARTMENT OF EDUCATION - NORTH WESTERN PROVINCE

## THIRD TERM TEST - 2022

Grade 10

## SCIENCE - I

One Hours

Name / Index No. :

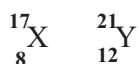
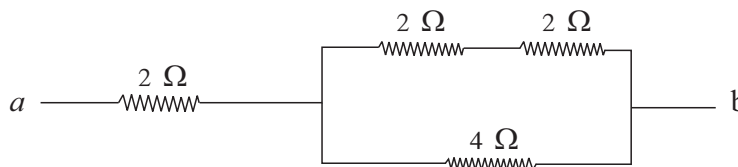
- Answer all the questions.
- Choose the correct or most suitable answer from the answer (1), (2), (3), (4) given in numbers 01 to 40.
- For each question on the answer sheet provided to you mark (x) in the circle corresponding to the number you have chosen from the circle letter.

- The organelle should present in all living cells is,  
(1) Nucleus (2) Chloroplast (3) Mitochondrion (4) Vacuole
- What is the vector quantity from given quantities ?  
(1) Distance (2) Weight (3) Mass (4) Density
- A rapid chemical reaction is,  
(1) Food spoilage (2) Ripening of fruits  
(3) Manufacturing yoghurt from milk (4) Reaction of sodium with water
- The unit  $\text{JS}^{-1}$  is equal for,  
(1) W (2) V (3) A (4) Pa
- A disaccharide is,  
(1) Glucose (2) Lactose (3) Fructose (4) Cellulose
- The unit used in measuring electric resistance of a conductor is,  
(1) A (2) V (3)  $\Omega$  (4) W
- Identify the vitamin for the deficiency symptom of bito patches in eyes.  
(1) Vitamin A (2) Vitamin B (3) Vitamin C (4) Vitamin D
- Select the compound with ionic bond,  
(1)  $\text{NH}_3$  (2)  $\text{H}_2\text{O}$  (3)  $\text{CH}_4$  (4)  $\text{Li}_2\text{O}$
- Identify the class of above animal belongs?  
(1) Amphibia  
(2) Reptilia  
(3) Pisces  
(4) Echinodermata
- Which of the following is correct electronic Configuration of  $\text{Mg}^{2+}$   
(1) 2-8-6 (2) 2-8-4 (3) 2-8-2 (4) 2-8
- Select the answer which given correct property about sexual and asexual reproduction.



	Asexual reproduction	Sexual reproduction
(1)	Mitosis occurs	Meiosis occurs
(2)	Gametes are produced	No production of gametes
(3)	New species are produced	New species are not produced
(4)	A large number of offsprings do not produced in a short period of time	A large number of offsprings are produced in a short period of time

12. Find the newton spring balance reading if a mass of 500 g object hang to it,  
 (1) 5 N (2) 50 N (3) 500 N (4) 5000 N
13. Not an excretory product is,  
 (1) Urine (2) Sweat (3) Saliva (4) Exhale air
14. The formula of the oxide of "M" element is  $M_2O_3$ . What is the most suitable ion formed by M?  
 (1)  $M^{3-}$  (2)  $M^{2+}$  (3)  $M^{2-}$  (4)  $M^{3+}$
15. The equivalent resistance between a and b is,  
 (1)  $2\ \Omega$   
 (2)  $4\ \Omega$   
 (3)  $6\ \Omega$   
 (4)  $8\ \Omega$
16. Select the answer contains only water soluble Vitamins,  
 (1) A and B (2) B and C (3) C and D (4) D and E
17. Electronic configuration of an element is 2,2. Another element found in the same group which belongs this element is,  
 (1) Mg (2) Na (3) Si (4) P
18. Standard representation of X and Y elements are given as below.



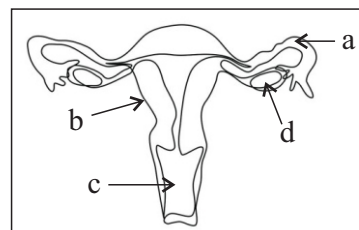
In X and Y elements,

- (1) have equal number of protons.  
 (2) have equal number of electrons.  
 (3) have equal number of neutrons.  
 (4) sum of protons and neutrons are equal.
19. Given below are three statements relevant to the cell theory,  
 a) The structural and functional unit of life is the cell  
 b) All organisms are made up of more cells.  
 c) New cells are formed from pre-existing cells.  
 The correct statements from above is,  
 (1) a and b (2) b and c (3) a and c (4) a, b and c
20. The formation of a new compound by the combination of an element with a compound is represented by,  
 (1)  $\text{CO}_2 + \text{C} \rightarrow 2\text{CO}$  (2)  $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$   
 (3)  $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$  (4)  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
21. What is the component can be used as an automatic switch in electric circuit?  
 (1) Rheostat (2) Capacitors  
 (3) Pre-adjustment resistor (4) Light dependent resistor
22. Not a property of Hydrogen gas is,  
 (1) a combustable substance (2) a supporter of combustion  
 (3) being colorless (4) Density is less than the atmosphere

23. A cell organelle which contributes..... protein synthesis is,  
 (1) Ribosome  
 (2) Nucleus  
 (3) Golgi bodies  
 (4) Mitochondrion
24. The element that can be formed very strong acidic oxide is,  
 (1) S (2) Mg (3) Cl (4) Na
25. In which instance that kinetic energy can transform into potential energy and potential energy can transform back into kinetic energy ?  
 (1) Rowing a boat (2) Falling of a fruit from a tree  
 (3) Kicking to a ball (4) Movement of a swing
26. The answer contains only factors affect for kinetic energy of a moving object is,  
 (1) Mass and velocity (2) Grovitational acceleration and velocity.  
 (3) Grovitational acceleration and mass. (4) Mass and acceleration.
27. The positioning of stamens and stigma of a flower at a distance is,  
 (1) Dichogamy (2) Hercogamy  
 (3) Self - sterility (4) Having extrose stamens
28. Not a property relevant to a malleable, ductile and good electrical conduct element is,  
 (1) forms of basic oxides (2) forms of acidic oxides  
 (3) forms of positive ions (4) forms of amphoteric oxides
29. Arough sketch of a female reproductive system is given below.

In which place the fertilization of a sperm and an ovum takes place ?

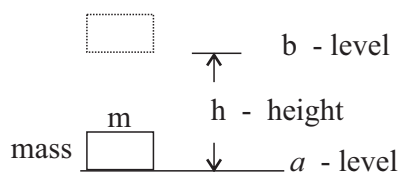
- (1) a  
 (2) b  
 (3) c  
 (4) d

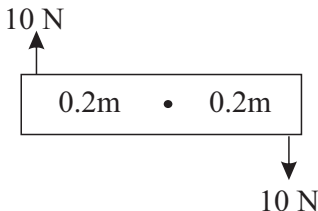


30. Consider the given statements. (Na = 23)  
 a. electronic configuration of Na atom is 2- 8 -1  
 b. mass of 1 mol of Na is 46 g.  
 c. Nucleus of Na atom contain 11 proton.

The true statement/s from the above is/are,

- (1) Only a (2) Only b (3) a and b (4) Only a and c
31. The relevant expression for calculate amount of work done when the object lifted from a level to b level is,  
 (1)  $\frac{mh}{g}$   
 (2)  $\frac{mg}{h}$   
 (3)  $m \times g \times h$   
 (4)  $m + g + h$



32. The frictional force that act when there is no relative motion, even though a force is applied on the bogy is,
- (1) Static friction (2) Dynamic friction  
(3) Limiting friction (4) No frictional force
33. The details relate to four elements are given below.
- ${}^{16}_8\text{W}$   ${}^{16}_{12}\text{X}$   ${}^{17}_7\text{U}$   ${}^{17}_8\text{Z}$
- The atoms in the same element are,
- (1) W and X (2) W and Z (3) X and Y (4) Y and Z
34. Not a factor essential for seed germination is,
- (1) Viability of seed (2) light (3) water (4) temperature
35. An instance illustrating the Newton's third law is,
- (1) falling of a fruit from the tree (2) Stopping a vehicle by applying brake  
(3) flying a fly cracker. (4) Explosion of a cracker
36. Find the moment of the couple force of force in above object.
- (1)  $0.2\text{m} + 10\text{N} \times 2$   
(2)  $0.2\text{m} \times 10\text{N}$   
(3)  $0.2\text{m} \times 10\text{m} + 10\text{m}$   
(4)  $0.2\text{m} \times 10\text{N} \times 2$
- 
37. The plant species which pocess vegetative propagation by leaves is,
- (1) Akkapana  
(2) Cactus  
(3) Nawahandi  
(4) Hatawariya
38. An invertebrate organism presented a visceral mass in the body is,
- (1) Hydra (2) Snail (3) Star fish (4) Jelly fish
39. Not and expected observation when putting  $\text{MnO}_2$  place into hydrogen peroxide solution is,
- (1) The speed of evolution of gas bubbles is high  
(2) Reduce the mass of  $\text{MnO}_2$  place.  
(3) Speed up the decomposition of  $\text{H}_2\text{O}_2$   
(4) The mass of  $\text{MnO}_2$  remains the same.
40. In present most peoples are tempt to wearing face mask. Spreading up of which disease can be control due to it,
- (1) Dengue (2) Cholera (3) Tuberculosis (4) Hydrophobia



PROVINCIAL DEPARTMENT OF EDUCATION - NORTH WESTERN PROVINCE

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Grade 10

## SCIENCE - II

Three Hours

Name / Index No. :

- Answer four questions in part A in the space given.
- Answer only three questions in part B, in separate papers.
- After answering, attach part A and answer script of B together and hand over.

### Part A - Structured Essay

(01) A Given below are some instances commonly can be seen in sexual reproduction.

- ★ Pollination
- ★ Formation of gametes
- ★ Fertilization
- ★ Producing seeds
- ★ Dispersal of seeds

(i) What is the instance meiosis can be seen. (1 m.)

.....

(ii) Define what is pollination. (1 m.)

.....

(iii) Name two types of gametes which contributes for process of fertilization. (2 m.)

.....

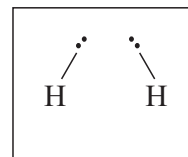
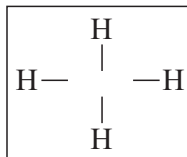
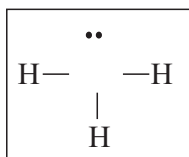
(iv) State an example of dispersal of seed by animals and write adaptation of it.

example .....

Adaptation ..... (2 m.)

(v) Write a fruit with large number of seeds. .... (1 m.)

B (i) X, Y Given below are lewis structures of compound X Y and Z. Write suitable element for the spaces given as dotted lines.



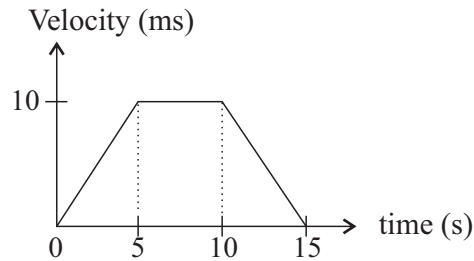
(3 m.)

(ii) Write the compound with out lone pairs. (1 m.)

.....

(iii) What is the name given for the pair of electron represent by a short line in a lewis structure. .... (1 m.)

C Given below is a velocity time graph related to the motion of an object.



(i) Explain the motion of an object in above graph (1 m.)

.....  
 .....

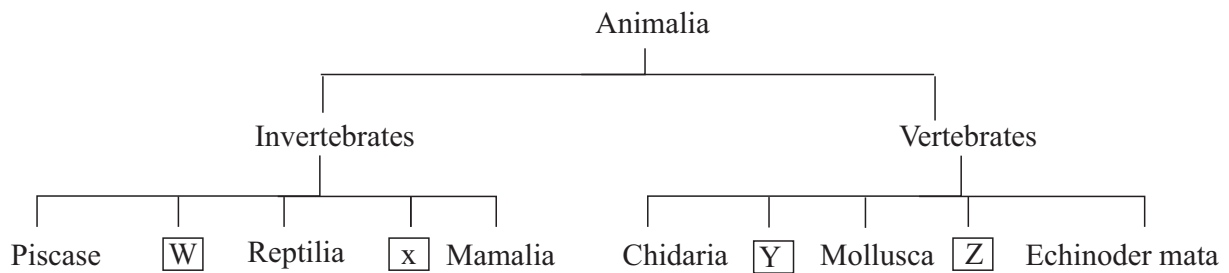
(ii) Find the displacement of an object during 5 - 10 second.

..... (2 m.)

What is the relationship between a force exerted on the object and frictional force of it during 5 - 10 seconds in graph b.

(Total Marks 15)

(02) A Given below is a simple chart of classification of kingdom Animalia WXY and Z are some groups of vertebrates and invertebrates.



(i) Name WXY and Z (2 m.)

W - ..... Y - .....

X - ..... Z - .....

(ii) Write a name of an animal belongs to the group reptilia and living environment of it.

Name .....

Environment ..... (2 m.)

(iii) Write a common characteristic between group X and mamalls. (1 m.)

.....

(iv) Select the group of Invertebrate which lives only in marine water. (1 m.)

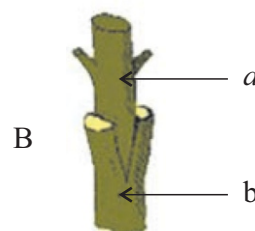
.....

(v) Write another two kingdoms belongs to the domen enukariya instead of kingdom animalia. (2 m.)

.....

B The given diagrams are two methods of artificial vegetative propagation of plants.

(i) State a method of each diagram.



(C. 02)

(ii) Name a plant can be propargated by method. (1 m.)

(iii) Parts a and b are connected to each other by wrapping a polythene strip from bottom to top. Write the reason for it. (1 m.)

(iv) Name a part "b" of method B and write a specific characteristic of it (2 m.)

(v) Tissue culture is a another method of artificial vegetative propagation. Write two substance contain in culture medium of tissue culture. (1 m.)

(Total Marks 15)

(03) A Given below are elements belongs to the artificial period of the periodic table. (elements are not in order)

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

(i) Rearrange the elements according to the periodic table. (1 m.)

(ii) What is the group which P belongs. (1 m.)

(iii) State an elements form strongest negative ion and strongest positive ion respectively. (2 m.)

(iv) Write a use of compound which form between Na and Cl. (1 m.)

(v) Write a formula of a alumninium oxide from above elements (1 m.)

(vi) Which of the above element is used to produce transistors and diodes. (1 m.)

B Information given below are related to the element X and Y with the atomic number below 20.

element X	element Y
combine with Y to form a compound XY	combine with H to form a compound HY
form strong basic oxides	form strong acidic oxides

(i) Write valency of X and Y (2 m.)

Valency of X -.....

Valency of Y -.....

(ii) Write a type of chemical bonds can be formed in XY and HY (2 m.)

XY .....

HY .....

(iii) Write an observation can be obtained when X is put into the water. (1 m.)

.....

(iv) Mention X and Y are metals or non metals. (1 m.)

x - .....

y - .....

(v) Given below is a method of collecting hydrogen gas.



Name a collecting method of H<sub>2</sub> gas and write physical of Hydrogen can be used to collect the gas by above method. (2 m.)

Method

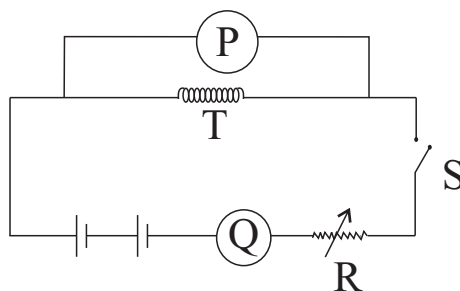
.....

Physical property

.....

(Total Marks 15)

(04)



Above diagram shows a set-up used to confirm a law related to the electricity.

A (i) Name the component used as P. (1 m.)

.....

(ii) What is the quantity measured by equipment Q. (1 m.)

.....

(iii) What is the function of equipment R. (1 m.)

.....

(04)

- (iv) Following table shows the readings obtained by components P and Q.

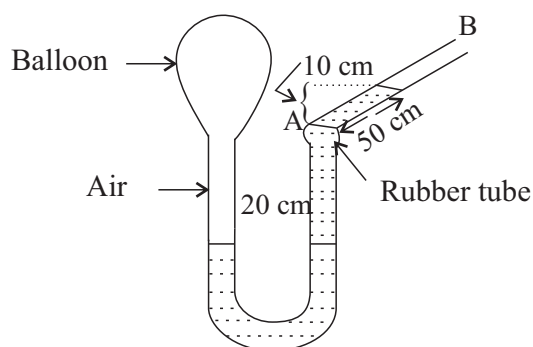
P Reading	Q Reading
2	4
4	8
6	12



Plot a graph using above readings.

- (v) What is the factor that should be constant during the activity (1 m.)  
 .....  
 (vi) Write a special strategy that should be followed during the activity to obtain correct readings to confirm the law. (1 m.)  
 .....  
 (vii) State the law that can be confirmed through the activity. (1 m.)

B



Above diagram shows a equipment which constructed for an exhibition

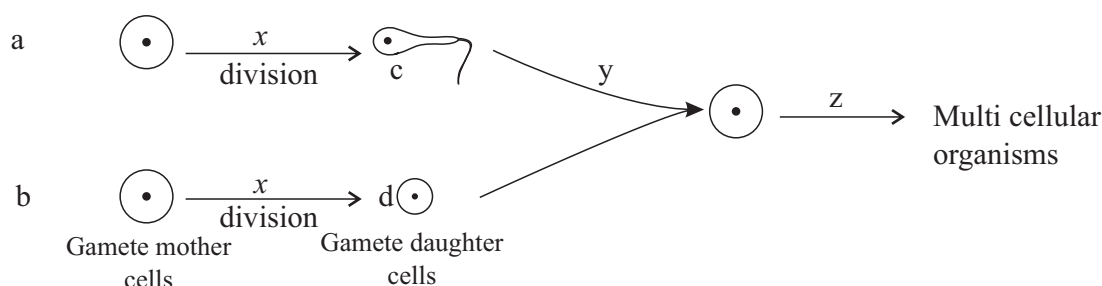
$$(\rho = 1000 \text{ kg m}^{-3}, g = 10 \text{ ms}^{-2}, \text{atm } p = 10^5 \text{ Pa})$$

- (i) If the atmospheric pressure is  $P$ . calculate the pressure inside the balloon using  $P$ . (1 m.)  
 .....  
 (ii) Difference between two arms become 40 cm due to AB tube kept vertically. (2 m.)  
 a) Write the change that can be observed inside the balloon.  
 .....  
 b) What is the new pressure inside the balloon. (2 m.)  
 .....  
 (iii) Calculate the pressure differences inside the balloon before the tube kept vertically and after the tube kept vertically (2 m.)

(Total Marks 15)

## ESSAY

- (05) A The life process that gives rise to a new generation from an existing generation is referred to as reproduction. Given below is a flow chart of sexual reproduction.



- What is the English letter used to represent male gamet. (1 m.)
- What is the type of cell division occurred in the X stage. (1 m.)
- Cell d has 23 pairs of chromosomes. What is the number of chromosomes in cell b. (1 m.)
- What is the organ which formed cells d. (1 m.)
- What is the process Y. (1 m.)
- State the part of female reproductive system that process Y is occurred. (1 m.)
- Write the organ of female reproductive system that development of multi cellular organism take place. (1 m.)
- State the structure which gametes C temporarily stored. (1 m.)
- Write the hormone which maintain the functions of male reproductive system. (1 m.)
- Write a sexually transmitted disease. (1 m.)

B There is a diversity among organisms in the environment.

- Write a common inherited characteristic of human. (1 m.)
- What is the biological molecule which transmits characters from generation to generation. (1 m.)
- Explain what is gene linkage. (2 m.)
- Write the genotypes of  $F_1$  generations due to the monohybrid cross carried out in pure breeding tall (TT) pea plant and pure breeding short (tt) pea plant. (2 m.)
- State the phenotypes of above  $F_1$  generation. (1 m.)
- What is the method of pollination can be used to obtain above results from  $F_1$  generation. (1 m.)
- State the type of chromosome which carries gene (factor) of hemophilia. (1 m.)
- State the main symptom of above disease. (1 m.)

(Total Marks 20)

- (06) A Given below are four activities done by students ABC and D in a school laboratory.

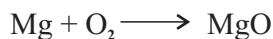
A Heating potassium permanganate in a boiling tube



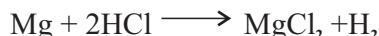
B Put a strip of magnesium in to the copper sulphate solution.



C Heat magnesium ribbon in air.



D Put a strip of magnesium into the dilute hydrochloric acid



- (i) Write an observation of activity C and write balance the chemical equation of activity C. (2 m.)
- (ii) State the colour of the  $\text{KMnO}_4$ . Write the identifying test of a gas which produce in activity A. (2 m.)
- (iii) Select a single displacement reaction from above four activities (2 m.)
- (iv) During the activity B 0.5 mol of Mg completely reacted with copper sulphate solution. Calculate the mass of metal Cu can be obtained. (2 m.)
- (v) Write a physical property of gas produce in activity D. (2 m.)

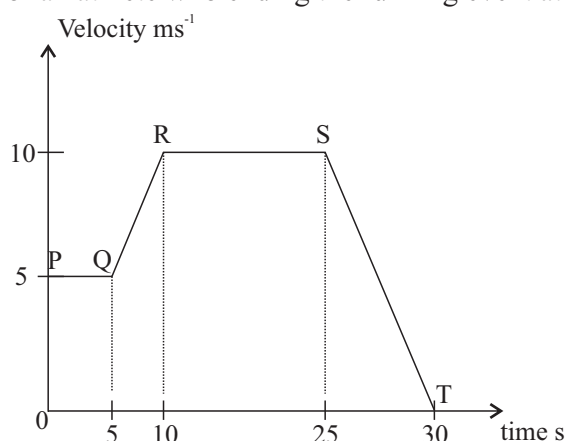
B) Given below are atomic numbers of elements ABCDE and F (The elements are not in order and symbols are not real.)

Element	A	B	C	D	E	F
Atomic number	6	11	12	14	16	19

- (i) Write a chemical property of element E and one use of it. (1 m.)
- (ii) Write two elements belongs to the same group. (2 m.)
- (iii) Write an allotropy form of element A and advantage of it. (2 m.)
- (iv) Write a balance chemical equation for reaction between C and hot water. (2 m.)
- (v) Draw a structure of atom B to illustrate arrangement of electrons around the atom. (2 m.)
- (vi) Write a physical property common to the elements all above. (1 m.)

(07) A Above velocity time graph shows the motion of an athlete who ending the running event at last 30 seconds.

- (i) What is the maximum velocity maintain by the athlete during the event (1 m.)
- (ii) What is the time duration of the athlete with above velocity. (1 m.)
- (iii) The mass of a athlete is 75 kg. What is the momentum of him at the maximum velocity (1 m.)
- (iv) What is the type of motion at the 25<sup>th</sup> second. (2 m.)



- (v) Calculate the acceleration of him during 5 - 10 s. (1 m.)
- (vi) Find the unbalanced force he exerted within acceleration. (2 m.)
- (vii) Find the displacement of him within 5s - 10s (2 m.)

B The diagram shows the instance of keep equilibrium of force under three parallel forces.

(i) What is the magnitude of force P.

(1 m.)

(ii) Write an example for instance which keep equilibrium as above diagram

(1 m.)

(iii) If the force P is changed in to 500 N it will be moved.

(a) Mention the direction of an object using letters A and B.

(1 m.)

(b) Find the unbalance force exerted for above motion.

(iv) What change can be observed in the object, if the force R change from 400 N to 200 N without changing the Point of application.

(1 m.)

C (i) What is the type of frictional force can be occurred while object is at rest and in the motion.

(1 m.)

(ii) Write a strategy to reduce the above frictional force.

(1 m.)

(iii) Write an advantage of frictional force.

(1 m.)

(Total Marks 20)

(08) Given below are some characteristics of an organisms.

A a. Water lily, lotus and fish are aquatic organisms which living in water.

b. Similar Skeletal system can be found in human hand and flippers of a whale.

c. Being prokaryotic and can be destroyed by antibiotics.

d. A non flowering plant but process reproduction by seeds.

(i) Which of the above statement can be used as a criteria of artificial classification.

(1 m.)

(ii) Which of the above statement can be used as a physiological factor of animal classification.

(1 m.)

(iii) Write a plant with characteristics which explain in statement d.

(1 m.)

(iv) What is the domain of organisms explain by the statement C.

(1 m.)

(v) Write an advantage of classification of organisms.

(1 m.)

B (i) Write a criteria which used to classify animal into two group.

(1 m.)

(ii) Write two features of mollusca group.

(1 m.)

(iii) Write an example for organism belongs to the group echinodermata.

(1 m.)

(iv) State another feature of plants which bear trimerous flowers.

(1 m.)

C The diagram shows a setup prepared by a group of students in school laboratory.

(i) Name equipment T

(1 m.)

(ii) Write changes can be occurred in P and S balances separately while object Q immersed in water.

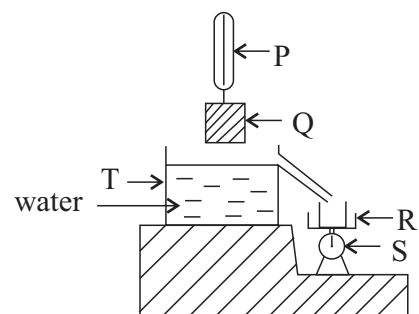
(2 m.)

(iii) Write a precaution should be followed when Q immersed in water

(1 m.)

(iv) The readings of P is denoted as "a" when it is hang in air when if immersed in water reading is b. The reading of S is indicated as "C". Write a statement to show relationship among a, b and c.

(2 m.)

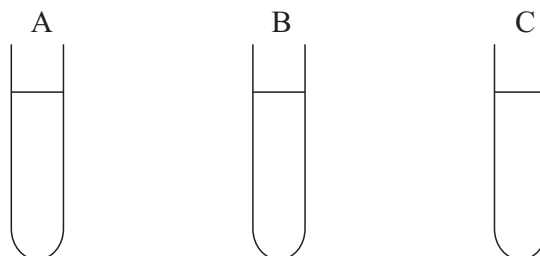


(v) Write the law can be confirmed through above activity. (2 m.)

(vi) Explain the reason to a ship does not sink in water. (1 m.)

(09) A AB and C test tubes are filled with equal volume of concentrated  $\text{CuSO}_4$  solutions.

(i) What is the colour of  $\text{CuSO}_4$  solution (2 m.)



(ii) Equal mass of Mg Cu and Pb insert in to the solutions at ones. Write the observation of A B and C respectively. (1 m.)

A

B

C

(iii) Write two factor should be constant in above step (2m.)

(iv) The mass of 6 g of Mg is used in the experiment. Find the number of moles of Mg used. ( $m_g = 24$ ) (2 m.)

(v) Write the most reactive metal from Mg Cu and Pb according to the activity series. (1 m.)

(vi) A and C test tubes are slightly heated using a flame. What are the observations can be expected from above instance. (1 m.)

A

C

(vii) Name a method of extraction of metals which are located bottom of the activity series. (1 m.)

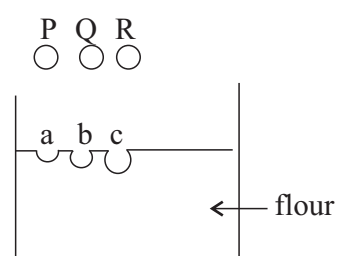
B The diagram shows release three balls P Q and R from equal vertical high to the surface of flour P Q and R are with equal size and volume. The depressions caused on the surface are a b and c respectively.

(i) According to the depressions which of the above get the highest mass. (1 m.)

(ii) Explain the reasons for above (i)

(2 m.)

(iii) Find the potential energy of Q ball of mass 250 g at a vertical high of 1 m. ( $g = 10\text{ms}^{-2}$ ) (2 m.)



(iv) Write a straterge to increase the depth of depression of Q ball. (1 m.)

(v) If the potential energy of ground level is zero. Mansion the name of the potential energy which stored due to increasing the vartical hight of the object (1 m.)

(vi) Verious devices can be constructed using elastic potential energy.

(a) Write a device which use above type of potential energy mention above. (1 m.)

(b) What is the medium that pontential energy can be stored. (1 m.)

(c) Write an energy transformation occurred in above device. (1 m.)

## Grade 10

## ANSWER PAPER

## SCIENCE - I

## Paper - I

1 -(3) 2 -(2) 3 -(4) 4 -(1) 5 -(2) 6 -(3) 7 -(1) 8 -(4) 9 -(3) 10 -(4)  
 11 -(1) 12 -(1) 13 -(3) 14 -(4) 15 -(2) 16 -(2) 17 -(1) 18 -(3) 19 -(3) 20 -(1)  
 21 -(4) 22 -(2) 23 -(1) 24 -(3) 25 -(4) 26 -(1) 27 -(2) 28 -(2) 29 -(1) 30 -(1)  
 31 -(3) 32 -(1) 33 -(2) 34 -(2) 35 -(3) 36 -(4) 37 -(1) 38 -(2) 39 -(2) 40 -(3)

(Marks 01x40=40)

01. A (i) Formation of gametes (1 m.)  
 (ii) The process of depositing matured pollen on the stigma of the same species flower (1 m.)  
 (iii) Pollen, Ovules (1 m.)  
 (iv) Nagadarana - Presence of hooks or hairs such an answer with a plant and with adaptation. (2 m.)  
 (v) Jack, .... such type of answer. (1 m.)  
 B (i) N C O (3 m.)  
 (ii) Y (1 m.)  
 (iii) Bond pair electron (1 m.)  
 C (i) 0 - 5 time - acceleration (2 m.)  
 5 - 10 time uniform velocity 10 - 15 time - stationery  
 $10\text{ms}^{-1} \times 5 = 50\text{m}$   
 (ii)  $v \times t = s$  (2 m.)  
 (15 m.)
02. A (i) W - amphibia X - Aves Y - Annelida Z - Arthropoda (2 m.)  
 (ii) Lizard - terrestrial environment, to illustrate such example (2 m.)  
 (iii) Homoiothermic, used lungs as respiratory organ, four chambered heart, such an answer. (1 m.)  
 (iv) Echinodermata (1 m.)  
 (v) Two answers from protista, fungi, plantae. (2 m.)  
 B (i) Ground layering, twing grafting (should in correct order) (2 m.)  
 (ii) Jasmine, lemon, passion fruit (such a plant which twig is bent (1 m.)  
 (iii) To prevent entering of water in to the connection. (1 m.)  
 (iv) Stock - having a strong root system / withstanding environmental changes. (2 m.)  
 (v) Egar, sucrose, mineral salts, Vitamins growth substances, illustrate of 2 answers (1 m.)  
 (15 m.)
03. A (i) Na, Mg, Al, Si, P, S, Cl, Ar, to correct order (1 m.)  
 (ii) V (Rome number) (1 m.)  
 (iii) Cl and Na (should in correct order) (2 m.)  
 (iv) As a flavour, To a correct answer (1 m.)  
 (v)  $\text{Al}_2\text{O}_3$  (1 m.)  
 (vi) Si (1 m.)  
 B (i) Valency of X = 1 Valency of Y = 1 (2 m.)  
 (ii) ionic, covalent (2 m.)  
 (iii) Given a hissing sound / Release of air bubbles. (1 m.)  
 (iv) X - metal Y - non metal (1 m.)  
 (v) Downward displacement of air, Density is less than the normal air (2 m.)  
 (15 m.)
04. A (i) Voltmeter (1 m.)  
 (ii) Electric current (1 m.)

- (iii) To control the current flowing through the circuit (1 m.)
- (iv) To a correct graph (2 m.)
- (v) Temperature (1 m.)
- (vi) Switch off as soon as possible (1 m.)
- (vii) ohm's law (1 m.)

- B (i)  $P + \frac{30}{100} \times 1000 \times 10 = (P + 3000) \text{ Pa}$  (1 m.)
- (ii) a) Balloon get inflated (2 m.)
- b)  $P + \frac{40}{100} \times 1000 \times 10 = (P + 34000) \text{ Pa}$  (2 m.)
- (iii) Before =  $P + 3000$
- After =  $P + 400$
- Difference =  $(P + 4000) - (P + 3000)$
- = 1000 Pa (2 m.)

(15 m.)

05. A (i) C (1 m.)
- (ii) Meiosis division (1 m.)
- (iii) 46 (1 m.)
- (iv) Ovary (1 m.)
- (v) Fertilization (1 m.)
- (vi) Fallopian tube (1 m.)
- (vii) Uterus (1 m.)
- (viii) Epididymis (1 m.)
- (ix) Testosterone (1 m.)
- (x) For a correct answer (1 m.)
- B (i) To a correct answer (1 m.)
- (ii) DNA (1 m.)
- (iii) Genes present in the same chromosome which are not segregated independently. (2 m.)
- (iv) Tt (1 m.)
- (v) Tall plant (1 m.)
- (vi) cross pollination (1 m.)
- (vii) X chromosome (1 m.)
- (viii) Delay for blood clotting (2 m.)

(20 m.)

06. A (i) Burns with a bright flame formed a white powder.
- $2\text{Mg} + \text{O}_2 \longrightarrow 2\text{MgO}$  (2 m.)
- (ii) Purple colour (1 m.)
- Introduce the glowing splint into it, then it relights with a flame (1 m.)
- (iii)  $\text{Mg} + \text{CuSO}_4 \longrightarrow \text{MgSO}_4 + \text{Cu}$
- or
- $\text{Mg} + 2\text{HCl} \longrightarrow \text{MgCl}_2 + \text{H}_2$  (2 m.)



1 mole  
0.5 mol

1 mole  
0.5 mol

$$\text{moles of Cu} = \frac{\text{mass}}{\text{molar mass}}$$

$$0.5 = \frac{m}{63}$$

$$m = 0.5 \times 63 = 31.5 \text{ g}$$

(v) Being colourless / or any other physical feature. (2 m.)

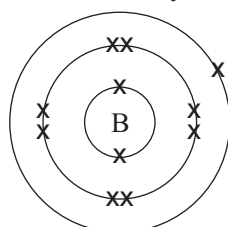
B (i) as a fungicide. (1 m.)

(ii) B and F (2 m.)

(iii) To give an allotrope of carbon and a correct use of it. (2 m.)

(iv)  $\text{C} + \text{Hot water} \longrightarrow \text{hydroxide of C} + \text{hydrogen}$  (2 m.)

(v)



Use of cross or dots

(2 m.)

(vi) Exists in solid state. (1 m.)

(15 m.)

07. A (i)  $10 \text{ ms}^{-1}$  (1 m.)

(ii)  $(25 - 10) = 15 \text{ s}$  (1 m.)

(iii) Momentum =  $mv$

$$= 75 \text{ kg} \times 10 \text{ ms}^{-1} = 750 \text{ kgms}^{-1}$$
 (2 m.)

(iv) Decrease the velocity and become rest (1 m.)

(1 m.)

$$(v) \text{ acceleration} = \frac{v_2 - v_1}{t} = \frac{(10-5)}{5} = 1 \text{ ms}^{-2}$$

(1 m.)

(vi)  $F = ma$

$$F = 75 \text{ kg} \times 1 \text{ ms}^{-2}$$

$$F = 75 \text{ N}$$

(2 m.)

$$(vii) \text{ Displacement} = \frac{(10+5)}{2} \times 5 = \frac{75}{2} \times 37.5$$
 (2 m.)

B (i) 800 N (1 m.)

(ii) For correct answer (1 m.)

(iii) a) move towards B (1 m.)

(iv) b)  $400 + 400 = 800$ ,  $- 500 = 300$  (2 m.)

rotate clockwise

(2 m.)

- C (i) D Dynamic friction and static friction (1 m.)  
(ii) For a correct answer (1 m.)  
(iii) For a correct answer (1 m.)  
(20 m.)
08. A (i) State a (1 m.)  
(ii) State b (1 m.)  
(iii) cycas or pinus (1 m.)  
(iv) Bacteria (1 m.)  
(v) For a correct answer (1 m.)
- B (i) with back bone (1 m.)  
(ii) For correct 2 features (2 m.)  
(iii) For a correct answer (1 m.)  
(iv) For a correct answer (1 m.)
- C (i) Displacement flask (1 m.)  
(ii) Decreased the reading of P  
Increased the reading of S (2 m.)  
(iii) Sunken wile water do not shake (1 m.)  
(iv)  $a - b = c$  (2 m.)  
(vi) for Archimde's law (2 m.)  
(vi) The upthrust exarted by water to ship is equal to the might of a ship (1 m.)  
(vii) Hydrometer (1 m.)  
(20 m.)
09. A (i) Colour (blue) (1 m.)  
(ii) Solution turns to colourless  
No change in colour  
No change in colour (2 m.)  
(iii) Concentration, Tampetre (2 m.)  
(iv)  $\frac{6}{24} = 0.25 \text{ mol}$  (2 m.)  
(v) mg (1 m.)  
(vi) quickly decoherized No change (1 m.)  
(vii) Physical method (1 m.)
- B (i) R (1 m.)  
(ii) For correct explanation (2 m.)  
(iii)  $E_p = mgh$  (1 m.)  
 $= \frac{250}{1000} \text{ kg} \times \text{ms}^{-2} \times 1 \text{ m}$   
 $= 2.5 \text{ J}$   
(iv) For correct answer (1 m.)  
(v) gravitonal potential energy (1 m.)  
(vi) For correct answer (1 m.)  
(vii) For correct answer (1 m.)  
(viii) Potential energy kinetic energy (2 m.)  
(20 m.)

