JAFFNA HINDU COLLEGE

First Term Exam - 2023

Grade - 10	Science	Time: - 2 Hours

Name/Index No: …………………………………..…………………………

Part - I

❖ **Answer all the questions.**

❖ **In each of the question 1 to 30, pick one of the alternatives (1), (2), (3), (4) which you consider is correct or most appropriate.**

❖ **Mark a cross (×) on the number correct ponding to your choice in the answer sheet provided.**

01) A unit based on fundamentals of force.
   1. $Kgms^{-1}$　　　　2. $Kgms$　　　　3. $Kgms^{-2}$　　　　4. N

02) Which is not a unicellular organism?
   1. Yeast　　　　　　　　　　2. Chlamydomonas
   2. Amoeba　　　　　　　　　　4. Mushroom

03) A group of elements in ascending order of mass in the human body.
   1. O, N, C, H　　　2. H, N, C, O　　　3. N, H, C, O　　　4. C, H, O, N

04) Glucose + ☐ × ⇌ Maltose + water which of the following is appropriate for ×?
   1. Glucose　　　　2. Fructose　　　　3. Galactose　　　　4. Sucrose

05) The form in which carbohydrate is stored in the animal body as food.
   1. Cellulose　　　2. Glycogen　　　3. Starch　　　4. Chitin

06) What is the momentum of a motor vehicle of mass 1250Kg traveling at a uniform velocity of $4ms^{-1}$?
   1. $4000Kgms^{-1}$　　2. $1250Kgms^{-1}$　　3. $6000Kms^{-1}$　　4. $5000Kgms^{-1}$

07) Consider the following statements related to frictional force.
   A. Always found against the applied force.
   B. Always found opposite to the direction of motion.
   C. When a force is applied to an object on a horizontal surface, only a frictional force is produced.

   Which of the above statements are correct?

   1. A, B　　　　2. B, C　　　　3. A, C　　　　4. A, B, C

❖ An element is symbolized as $^{27}_{13}X$ Answer question 8: 9 with this.

08) Valency of X
   1. 1　　　　2. 3　　　　3. 3　　　　4. 4

09) The period and group of element X respectively.
   1. 3, III
   2. 2, III
   3. 13, III
   4. 3,

10) Who was the scientist revised and published Rutherford's planetary model?
   1. J.J.Thomson
   2. Niels Bohr

   3 John Dalton
   4. Mendeleev

11) Newton's third law is unrelated to phenomena,
   1. Passengers moving forward while a running bus is using the brake.
   2. Motion of a rocket.
   3. Swimming.
   4. After throwing a ball at a wall, the ball returns.

12) Vitamin and mineral essential for blood clotting respectively,
   1. Vit A, Ca
   2. Vit K, Ca
   3. Vit C, Fe
   4. Vit D, Ca

13) The most correct statement of motion, if the displacement of an object varies with time shown here.
   1. Uniform velocity
   2. Uniform deceleration
   3 Uniform acceleration
   4. Rest
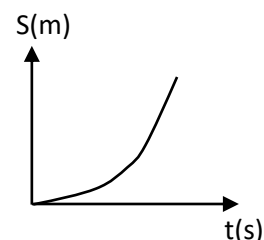
14) A motor car of mass 150Kg is traveling with a constant velocity of $4ms^{-1}$ what is the magnitude of the external force generated by its engine. (Neglect friction and air resistance)
   1. 600N
   2. ON
   3. 150N
   4. 450N

15) Consider the following statements.
   A) Neutrons are found in all atoms of elements.
   B) In atoms, the number of protons is always equal to the number of protons is always equal to the number of electrons.
   C) Due to the difference in the number of neutrons (in atoms of the same element) isotopes appear.
      Correct statement / statements.
   1. A
   2. A, B
   3. B, C
   4. A, B, C

16) If a train traveling with a uniform speed of $8ms^{-1}$ takes 18 seconds completely cross a bridge 75m long, then the length of the train is,
   1. 144m
   2. 219m
   3. 180m
   4. 69m

17) What is the mass of an object of mass 60kg on the moon?
   (Gravitational acceleration on Earth is $10ms^{-2}$, assume that the gravitational acceleration on the moon is 1/6 of the Earth's gravitational acceleration.)
   1. 600N
   2. 10Kg
   3. 60Kg
   4. 100N

18) Which of the following is an organelle that is not bounded by a membrane?
   1. Ribosome
   2. Chloroplast
   3. Mitochondria
   4. Endoplasmic Reticulum (ER)

19) The elements with highest electronegativity, and first ionization energy are respectively,
(Within first 20 element)
1. Cl, Na
2. F, K
3. F, He
4. K, He

20) When a force of 12N is applied to a wooden block of mass 2Kg as shown in the figure, if the wooden, block does not move, then the frictional force and its magnitude

$$2Kg \longrightarrow 12$$
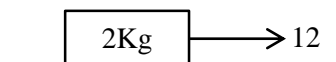
1. Limiting frictional force, 10N
2. Static frictional force 12N
3. Dynamic frictional force, 12N
4. Static frictional force 24N

21) The chemical formula of the carbonate of an element M is MCO_3, what is the chemical formula of the phosphate of M?
1. MPO_4
2. $M_3 Po_4$
3. $M_3(Po_4)_2$
4. $M(Po_4)_2$

22) A water retaining compound found in plant leaves.
1. Suberin
2. Cutin
3. Lignin
4. Pectin

23) In correct connection in the following connections,
1. Sodium   -   Transmission of nerve impulses.
2. Calcium   -   Production of milk.
3. Iron   -   Production of hemoglobin.
4. Iodin   -   Growth of teeth and bone.

24) A grade 10 student presented with the following symptoms.
A. Spots in the eye.
B. Pin – like blisters on knees, elbows.
C. Dry skin.
   Food that should in the diet to eliminate these deficiencies of this student.
   1. Protein food
   2. Yellow vegetables and fruits

   3 Carbohydrate food
   4. Oily food.

25) The properties of an element are as follows.
A. It has allotropes and isotopes.
B. It has high melting point.
C. It has the nature of absorbing toxic gases.

This could be the element of

1. C
2. Na
3. Si
4. N

26) A metal that does not react with Coldwater but   reacts with hot water.
1. Na
2. K
3. Mg
4. Zn

27) Statement about the displacement of an object are always true.
A. Always greater than distance.
B. Equal to distance.
C. Less than distance.
D. May be equal to or less than distance.
1. A, B, C
2. A, B, C
3. A, C, D
4. None of the above.

28) Not an example for the non – crystalline form of silicon.
   1. Clay   2. Thiruvanaikkal   3. Sand   4. Gem

29) Which of the following oxide is a basic oxide?
   1. Al_2O_3 2. K_2O 3. SO_2 4. Cl_2O_7

30) What is the magnitude of the force required to produce an acceleration of $4ms^{-2}$ on an object of 80N on a smooth horizontal surface?
   1. 320N   2. 80N   3. ON   4. 32N

(30×1=30 Marks)

Part - II

- ❖ Part II consists part II A and part II B.
- ❖ Answer the two questions in part A, in the space provided.
- ❖ Of the three questions in part B answer two questions only.
- ❖ After answering, tie part A and the answer script of part B together and hand over.

Part – II A

01. The chemical substances that make up the body of the organisms can be classified into two main categories. They are bio – organic compounds and bio – inorganic compounds.
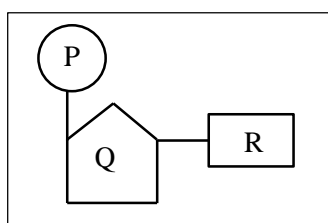
A.

   I. Give 4 types of bio – organic compounds,

   ....

   ....

   (2Marks)

   II. The structural unit of one of the above bio – organic compound is shown below.

   a. Name the structural unit shown above figure.

   ....

   (1 Marks)

   b. Identify the components P, Q and R here.

   P..   Q..   R..

   (3 Marks)

   III. Give 2 functions of the polymer formed by the combination of components shown in the figure I question II

   ....

   .... (2 Marks)

B. Complete the following chart.

I.

Component	Elements that make up	Reagent	Observation
Glucose Protein	.... C, H, O, N (S)	.... Sudan III	....

(8×1/2 = 4 Marks)

II. Give 2 Unique properties of water that contribute to the survival of living organisms.

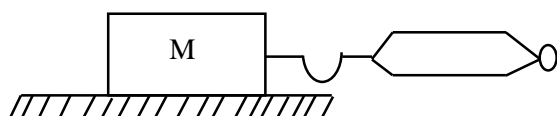..

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(2 Marks)

III.   What is the colour of dry cobalt chloride paper?

....
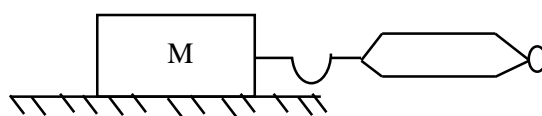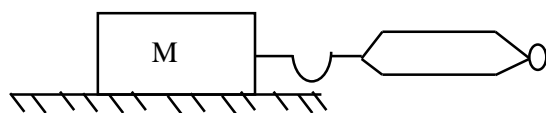
(1 Marks)

02. An activity related to friction carried out by a group of student in the laboratory is given.
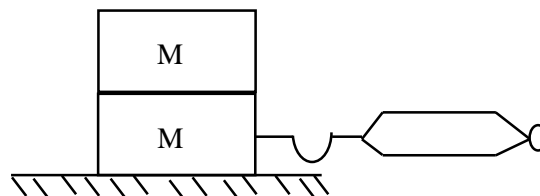

Sand paper

Wooden plank

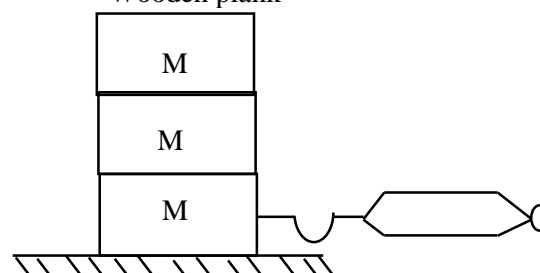Glass plate

Wooden plank

Wooden plank

Wooden plank

A.
I. Give the 3 types of frictional force.

....

....

....

(3 Marks)

II. What is the purpose of arranging the setups X and Y?

Set up X: -...

Set up Y: -...

(2 Marks)

III. What is the instrument used in these experimental setups to measure force?

....

(1 Marks)

IV. Give the observation in setup X.

....

(1 Marks)

V. Give the observation in setup Y.

....

(1 Marks)

VI. Give 2 instances in daily life where the frictional force is increased?

....

....

(2 Marks)

B. Give the elements that have the following properties / applications.

a- Dyeing denim fabrics   -..

b- Production of solar cells   -..

c- High ionization energy in 3rd period -..

d- Glass cutting   -..

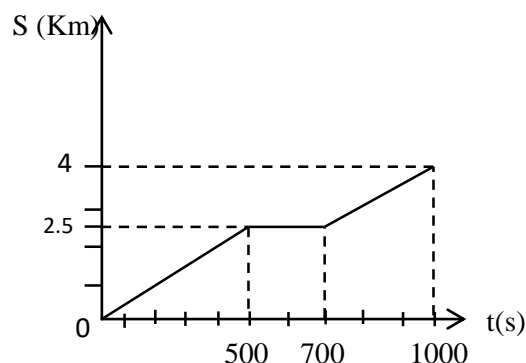e- Match production   -..

(5×1=5 Marks)

Part – II B

❖ Answer only two question from the questions No. 3, 4 and 5.

03. The time varying rate of displacement for Maaran's motion from his home to the shop on a straight line for shopping is given in the figure. Maaran met his friend Ravi in the middle of the Journey and continued his journey towards the shop after having a conversation.

A.

I. How far from home did he meet his friend?

II. What is the time span of meeting a friend?

III. What is the speed at which he traveled till he met his friend? (in ms^{-1})

IV. How long would he have reached the shop if he had not met his friend?

V. What is the velocity at which Maaran must have traveled after meeting his friend if he wants to reach the shop by the given time in question IV?

VI. How far is the shop from the house?

B. Maaran was traveling with a friend in a bicycle while returning home from the shop along the same route. In the first 20 seconds after starting the journey from the shop, they reached the highest velocity with a uniform acceleration of $0.2ms^{-2}$. Then they traveled the certain distance at the same velocity and decelerated for the last 30 second before coming to rest in front of the house.

I. What is the maximum velocity attained by the bicycle?

II. Draw the velocity – time graph for this motion.

III. What is the total time taken for the journey?

IV. If the is total mass of both of them along with the bicycle is 300Kg, what is the momentum in case of traveling at constant velocity?

(20 Marks)

04.

A. The graph below shows how the first ionization energy of some element belonging to the 2nd and 3rd periods varies with atomic number.


First ionization energy

Atomic number
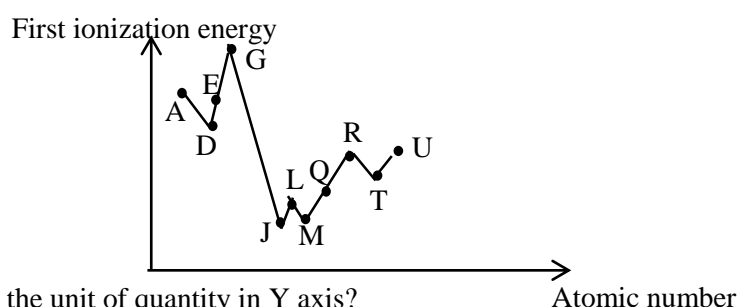
I. What is the unit of quantity in Y axis?

II. Give 2 pair of element in the same group.

III. Which element forms amphoteric oxide?

IV. Give the electronic configuration of element R.

V. What is the formula for the combination of D and J?

VI. Select the element having the following properties from the graph above.

a. Super cooling agent in liquid form.

b. Vulcanization of rubber.

c. High electronegativity among the first 20 elements.

B. A car of mass 1250Kg traveling with a velocity of $5ms^{-1}$ suddenly applies a brake and comes to rest for 10 seconds.

I. Calculate the acceleration of the car.

II. What is the magnitude of the force applied against the motion when the brake is applied?

III. Write the law you used to answer the question.

(30 Marks)

A. Picture of two generalized cells are given below.

X   Y
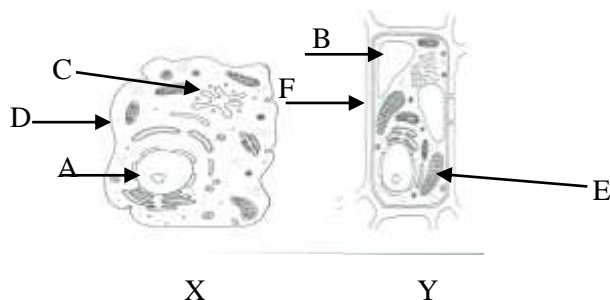
Identify the cell X and Y.

    I.   Name the part A to F.

    II.   Name 2 scientists who proposed the cell theory.

    III.   Tabulate 2 differences between X and Y.

    IV.   Give one function of each of the give parts.

        a- A

        b- C

        c- E

    V.   What are the 2 main types of cell division?

    VI.   Which is the type of cell division in which chromosome number is kept constant?

B.

    I.   What are the main elements that make up carbohydrates?

    II.   Give 2 function of DNA.

    III.   In which solvents do lipids dissolve?

    IV.   Give 2 special properties of water as one of the biological molecules.

(20 Marks)

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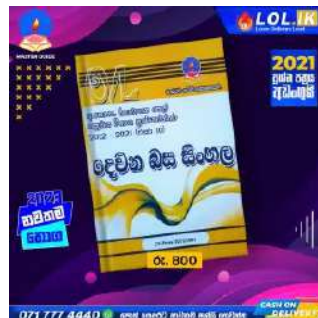**O/L Buddhism Past Paper Book – Master Guide**
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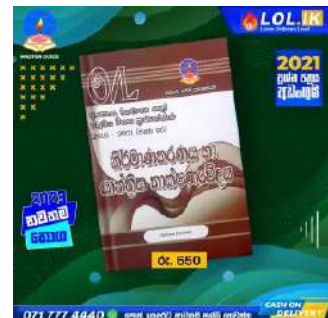රු 700.00
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