

# VICTORIOUS TUITION CENTER

## MODEL EXAMINATION 19-20

10th Standard

SCIENCE

Reg.No. :

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**INSTRUCTIONS : 1. Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall supervisor.**

**2. Use Blue (or) Black ink to write and underline and pencil to draw diagrams.**

**Note : This question paper contains four parts.**

Exam Time : 00:03:00 Hrs

Total Marks : 75

### PART - I

12 x 1 = 12

**Note : (i) Answer all questions.**

**(ii) Choose the most suitable answer and write the code with corresponding answer.**

- 1) A small bulb is placed at the principal focus of a convex lens. When the bulb is switched on, the lens will produce  
(a) a convergent beam of light    (b) a divergent beam of light    (c) a parallel beam of light    (d) a coloured beam of light

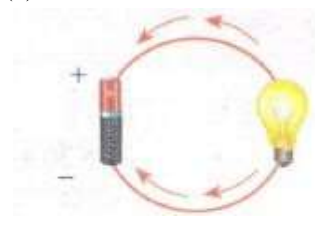
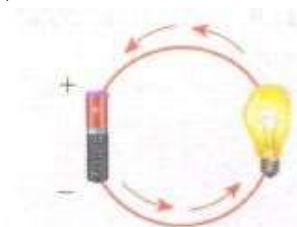
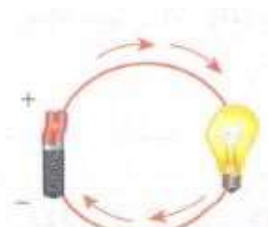
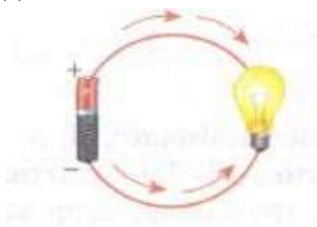
- 2) Which options show the correct direction of current?

(a)

(b)

(c)

(d)



- 3) The explosion of hydrogen bomb is based on the principle of  
(a) uncontrolled fission reaction    (b) nuclear fusion reaction    (c) controlled fission    (d) photo electric effect

- 4) The reaction between carbon and oxygen is represented by  $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)} + \text{Heat}$ . In which of the type(s), the above reaction can be classified?

- (i) Combination Reaction  
(ii) Combustion Reaction  
(iii) Decomposition Reaction  
(iv) Irreversible Reaction

(a) i and ii

(b) i and iv

(c) i, ii and iii

(d) i, ii and iv

- 5) General molecular formula of alkynes is \_\_\_\_\_.

(a)  $C_nH_{2n+2}$

(b)  $C_nH_{2n}$

(c)  $C_nH_{2n-2}$

(d)  $C_nH_{2n+1}$

- 6) Who discovered light dependent photosynthesis?

(a) Robin Hill

(b) Nehemiah Grew

(c) Kolliker

(d) Melvin Calvin

- 7) Which one is referred as "Master Gland"?

(a) Pineal gland

(b) Pituitary gland

(c) Thyroid gland

(d) Adrenal gland

- 8) Okasaki fragments are joined together by \_\_\_\_\_.

(a) Helicase

(b) DNA polymerase

(c) RNA primer

(d) DNA ligase

- 9) Radioactive Carbon ( $C^{14}$ ) dating method was discovered by \_\_\_\_\_.

- (a) w. F.Libby                      (b) Niels Bohr                      (c) Issac Newton                      (d) William Harvey

10) Pusa snowball is a disease resistant variety of \_\_\_\_\_.

- (a) cowpea                      (b) cauliflower                      (c) wheat                      (d) rice

11) Medical waste is disposed by \_\_\_\_\_

- (a) Sanitary land fill                      (b) Incineration                      (c) Composting                      (d) Segregation

12) The device which helps in explaining the concepts easily through pictures is \_\_\_\_\_

- (a) Visible Communication Device    (b) Visible Cinema Device    (c) Visual Cinema Device    (d) Visual Communication Device

### PART - II

7 x 2 = 14

**Note : Answer any seven questions (Q.No 22 is compulsory)**

13) Two astronauts at the surface of the moon cannot talk to each other. Why?

14) How is diastema formed in rabbit?

15) Name the parts of the hind brain.

16) Mention the diseases caused by tobacco smoke.

17) Assertion: Gas is highly compressible than solid and liquid

Reason: Interatomic or intermolecular distance in the gas is comparably high.

- a. Both the assertion and the reason are true and the reason is the correct explanation of the assertion.  
b. Both the assertion and the reason are true but the reason is not the correct explanation of the assertion.  
c. The assertion is true but the reason is false.  
d. The assertion is false but the reason is true.

18) **Assertion** : The nature of bond in HF molecule is ionic

**Reason** : The electronegativity difference between H and F is 1.9

- i) A and R are correct, R explains the A.  
ii) A is correct, R is wrong.  
iii) A is wrong, R is correct.  
iv) A and R are correct, R doesn't explains A.

19) A 100 watt electric bulb is used for 5 hours daily and four 60 watt bulbs are used for 5 hours daily. Calculate the energy consumed (in kWh) in the month of January.

20) How does developing embryo gets its nourishment inside the mother's body?

21) Define Ethnobotany and write its importance.

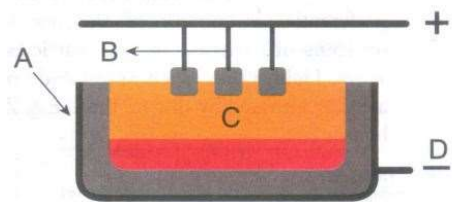
22) An organic compound A' of molecular formula  $C_2H_6O$  on oxidation with dilute alkaline  $KMnO_4$  solution gives an acid 'B' with the same number of carbon atoms. Compound A' is often used for sterilization of skin by doctors. Name the compound. Write the chemical equation involved in the formation of 'B' from A.

### PART - III

7 x 4 = 28

**Note : Answer any seven questions: (Q.No 32 is compulsory)**

23) Redraw and label the diagram. Then answer the following questions.



- (a) What process does the diagram represent?  
(b) Why does the graphite rod need to be replaced often?

(c) Give reason for the melting point of the electrolyte.

(d) Write the overall equation of this process.

24) Electrical resistivities of some substances at 200 C are given below:

Silver	$1.60 \times 10^{-8} \Omega\text{-m}$
Copper	$1.62 \times 10^{-8} \Omega\text{-m}$
Tungsten	$5.20 \times 10^{-8} \Omega\text{-m}$
Iron	$10.0 \times 10^{-8} \Omega\text{-m}$
Mercury	$94.0 \times 10^{-8} \Omega\text{-m}$
Nichrome	$10.0 \times 10^{-8} \Omega\text{-m}$

Answer the following question in relation to them:

(i) Among silver and copper, which one is a better conductor? Why?

(ii) Which material would you advise to be used in electrical heating devices? Why?

25) a) One calorie is the amount of heat energy required to raise the temperature of \_\_\_\_\_ of water through \_\_\_\_\_.

b) The unit of coefficient of real expansion is \_\_\_\_\_

c) When heat energy is supplied there is decrease in dimension of the object which is called thermal expansion.

d) At constant pressure volume is proportional to temperature is known as Boyle's law.

26) a) Calculate the % of oxygen in  $\text{Al}_2(\text{SO}_4)_3$ . (Atomic mass: Al-12, O-16, S -32)

b) 
$$\begin{array}{c} \text{H}_2\text{C} - \text{CH}_2 \\ | \quad | \\ \text{H}_2\text{C} - \text{CH}_2 \end{array}$$
 Name the above compound and classify it

27) a) 7.5 litre of ethanol is present in 15 litre of aqueous solution of ethanol. Calculate volume percent of ethanol solution.

b) You are given the following materials

1. Marble chips

2. Dilute hydrochloric acid

3. Zinc granules

Identify the type of reaction when marble chips and zinc granules are added separately to acid taken in two tubes. Write chemical equations in each case.

28) a) What will you do to prevent leaf fall and fruit drop in plants? Support your answer with reason.

b) What are Okazaki fragments?

29) a) Name three improved characteristics of wheat that helped India to achieve high productivity.

b) How would you dispose the following wastes?

a. Domestic wastes like vegetable peels

b. Industrial wastes like metallic cans Can the disposal protect the environment? How?

30) a) What is the importance of valves in the heart?

b) How are arteries and veins structurally different from one another?

31) Government has brought in lot of measures to focus on health of a pregnant woman. Answer the following questions based on the same

(a) Name the tissue responsible for transfer of nutrients from mother to the offspring during pregnancy.

(b) Suggest two measures to maintain a woman's health during pregnancy.

- 32) a) An object is placed at a distance 20cm from a convex lens of focal length 10cm. Find the image distance and nature of the image.  
b) What is near point and far point of a human eye?

**PART - IV**

3 x 7 = 21

**Note : i) Answer all questions**

**ii) Each question carries seven marks.**

**iii) Draw the diagrams wherever necessary.**

- 33) a) a) State the universal law of gravitation and derive its mathematical expression  
b) Give the applications of gravitation.

**(OR)**

- b) a) Write any three features of natural and artificial radioactivity  
b) source producing a sound of frequency 500 Hz is moving towards a listener with a velocity of  $30 \text{ m s}^{-1}$ . The speed of the sound is  $330 \text{ m s}^{-1}$ . What will be the frequency heard by listener?
- 34) a) a) Answer the following questions with respect to periods of the modern periodic table.  
(i) Longest period  
(ii) Shortest period  
(iii) Number of elements in 1<sup>st</sup> period  
(iv) Elements of period 1  
(v) Number of elements in period 4  
b) Give the balanced chemical equation of the following reactions:  
(i) Neutralization of NaOH with ethanoic acid.  
(ii) Evolution of carbon dioxide by the action of ethanoic acid with  $\text{NaHCO}_3$ .  
(iii) Oxidation of ethanol by acidified potassium dichromate.  
(iv) Combustion of ethanol.

**(OR)**

- b) a) Calculate the % of each element in calcium carbonate. (Atomic mass: C-12, O-16, Ca -40)  
b) In what way hygroscopic substances differ from deliquescent substances
- 35) a) a) Why is the Government imposing ban on the use of polythene bags and plastics? Suggest alternatives. How is this ban likely to improve the environment?  
b) a) Describe and name three stages of cellular respiration that aerobic organisms use to obtain energy from glucose.

**(OR)**

- b) a) A plant hormone was first discovered in Japan when rice plants were suffering from Bakanae disease caused by *Gibberella fujikoroi*. Based on this information answer the following questions:  
a. Identify the hormone involved in this process.  
b. Which property of this hormone causes the disease?  
c. Give two functions of this hormone.  
b) With a neat labelled diagram explain the techniques involved in gene cloning.

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