

**TK - 89**  
**HALF - YEARLY EXAMINATIONS - 2015 - 2016**  
**GENERAL SCIENCE - Paper - I**  
**(Physical Science)**  
**(English Version)**  
**PART - A**

**Class : X]**

**(Max.Marks : 35)**

**[ Time : 2 Hrs**

**SECTION - I (Marks : 10)**

**Note : 1) Answer any FIVE of the following questions choosing atleast two from each group.**

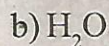
**2) Each question carries 2 Marks.**

**Group - A**

1. Write the differences between evaporation and boiling.
2. Explain the Phenomenon of Total Internal Reflection with the help of an activity.
3. How can you appreciate the role of a small fuse in house wiring circuit in preventing damage to various electrical appliances connected in the circuit?
4. Explain Faraday's Law of Induction with the help of an activity.

**Group - B**

5. Fresh Milk has a  $P^H$  of 6. Explain why the  $P^H$  changes as it turns into curd.
6. What is an Orbital? How it is different from Bohr's orbit?
7. Explain how the elements are classified into  $s, p, d$  and  $f$  - block elements in the modern periodic table.
8. Draw simple diagrams to show how electrons are arranged in the following molecules.



**[ Turn Over**

## SECTION - II (Marks : 4)

Note : 1) Answer any FOUR of the following questions.

2) Each question carries 1 Mark.

9. What would be the final temperature of a mixture of 50g of water at 20°C temperature and 50g of water at 40°C temperature?
10. Define Electromotive force (emf).
11. State Lenz's law
12. Write the electronic configuration of  
 a) Argon  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$  (b)  
 b) Chromium  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$  (a)
13. On the basis of atomic numbers predict to which block the elements with atomic number 9, 27 belongs?  $9 - p$  block,  $27 - d$  block
14. Why do only valence electrons involve in bond formation?

## SECTION - III (Marks : 16)

Note : 1) Answer any FOUR of the following questions choosing atleast two from each group.

2) Each question carries 4 Marks.

Group - A

15. What is the reason behind the shining of diamonds and how do you appreciate it?
16. What type of lens do you use to correct myopia? How can you decide the focal length of the lens to be used to correct myopia?
17. How do you find the refractive index of material of a prism?
18. Deduce the expression for the equivalent resistance of three resistors connected in series.

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Group - B

19. What is Baking Powder? Write its formula. How does it make the cake soft and spongy?
20. Explain the significance of three Quantum numbers in predicting the position of an electron in an atom.
21. How the positions of elements in the periodic table help you to predict its chemical properties?
22. What is Hybridisation? Explain the formation of  $\text{BF}_3$  molecule using Hybridisation.

**SECTION - IV (Marks : 5)**

**Note :** 1) Answer any ONE of the following questions.

2) Question carries 5 Marks.

23. Show the formation of image with a ray diagram when an object is placed on the principal axis of a concave mirror away from the centre of curvature and label the parts.
24. Draw the diagram and label the parts showing the heating of calcium carbonate and testing the gas evolved.



Regd. No. :

Marks :

TK - 89 A

HALF - YEARLY EXAMINATIONS - 2015 - 2016

GENERAL SCIENCE - Paper - I

(Physical Science)

(English Version)

PART - B

Class : X]

(Max.Marks : 15)

[ Time : ½ Hr.

Note : 1) Answer all the questions.

2) Each question carries ½ Mark.

I. Choose the correct answer and write its letter in the brackets.

1. Three bodies A, B and C are in thermal equilibrium. The temperature of B is 50°C, then the temperature of C is ( B )

A) 45°C    B) 50°C    C) 40°C    D) 150°C

2. A ray which seems to be travelling through the focus of a convex mirror passes \_\_\_\_\_ after reflection ( A )

A) Parallel to the axis

B) Along the same path in opposite direction

C) Through F

D) Through C.

3. During refraction \_\_\_\_\_ will not change ( B )

A) Wavelength

B) Frequency

C) Speed of light

D) All the above

4. Lens formula is \_\_\_\_\_ ( A )

A)  $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$     B)  $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$     C)  $\frac{1}{f} = \frac{u+v}{uv}$     D)  $f = v - u$

5. The maximum focal length of eye lens is ( B )

A) 25 cm    B) 2.5 cm    C) 2.27 cm    D) 2 cm

6. The splitting of white light into different colours (VIBGYOR) is called \_\_\_\_\_ ( B )

A) Scattering of light

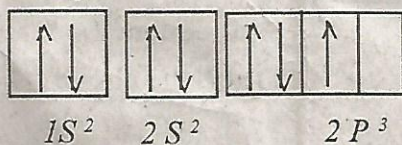
B) Dispersion of light

C) Reflection of light

D) Refraction of light

[ Turn Over

7. The S.I unit of electric current is \_\_\_\_\_ ( A )  
 A) Ampere B) Coulomb C) Volt D) Joule
8. Four copper rods P, Q, R and S have same length and their area of cross-section are  $15 \text{ cm}^2$ ,  $9 \text{ cm}^2$ ,  $20 \text{ cm}^2$  and  $25$  respectively. Which copper rod has highest electric resistance? ( B )  
 A) P B) Q C) R D) S
9. Ohm's law is not applicable to ( B )  
 A) Copper B) Germanium C) Silver D) Iron
10. Which converts electrical energy into mechanical energy ( A )  
 A) Motor B) Battery C) Switch D) Generator
11. On heating lead Nitrate brown fumes of \_\_\_\_\_ gas liberates ( B )  
 A)  $\text{CO}_2$  B)  $\text{NO}_2$  C)  $\text{F}_2$  D)  $\text{Cl}_2$
12. If a base dissolves in water by what name is it better known? ( B )  
 A) Neutral B) Basic C) Acidic D) Alkali
13. The maximum number of electrons that can be accommodated in the L-shell of an atom is ( C )  
 A) 2 B) 4 C) 8 D) 16
14. Electronic configuration of Nitrogen atom is given as



- Which rule does not support this? ( C )  
 A) Aufbau principle B) Pauli's exclusion Principle  
 C) Hund's rule D) Kirchhoff's rule
15. The wave length of a radio wave is 1.0 m, its frequency is ( D )  
 A)  $1.0 \times 10^5 \text{ Hz}$  B)  $2.0 \times 10^6 \text{ Hz}$   
 C)  $3 \times 10^{10} \text{ Hz}$  D)  $3 \times 10^8 \text{ Hz}$
16. The most electronegative element is ( A )  
 A) Fluorine B) Chlorine C) Sodium D) Caesium

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17. Number of elements present in period - 2 of the long form of periodic table ( B )  
~~A) 2~~ B) 8 C) 18 D) 32
18. Electronic configuration of an atom is 2, 8, 7 to which of the following element would it be chemically similar? ( B )  
 A) Nitrogen B) Fluorine  
 C) Phosphorous D) Argon
19. An element  ${}_{11}X^{23}$  forms an ionic compound with another element 'Y'. Then the charge on the ion formed by X is ( A )  
~~A) +1~~ B) +2 C) -1 D) -2
20. An element A forms a chloride  $ACl_4$ . The number of electrons in the Valence shell of 'A' ( D )  
 A) 1 B) 2 C) 3 D) 4

## II. Fill in the blanks.

21. The thick mist floating in the air is called fog.
22. The lens which can form real and virtual images convex lens
23. The reciprocal of focal length is called optical power
24. An unknown circuit draws a current of 2 A from a 12 V battery, its equivalent resistance is ~~20~~ 6-2
25. The S.I unit of magnetic field induction is ~~Henry~~ Tesla (T)

## III. Match the following.

### Group - A

### Group - B

26.  $CH_4$  ( B ) A)  $107^{\circ}48'$
27.  $BeCl_2$  ( D ) B)  $109^{\circ}28'$
28.  $NH_3$  ( A ) C)  $120^{\circ}$
29.  $H_2O$  ( F ) D)  $180^{\circ}$
30.  $BF_3$  ( C ) E)  $90^{\circ}$   
 F)  $104^{\circ}31'$   
 G)  $115^{\circ}12'$

