

R - 14
DISTRICT COMMON EXAMINATION BOARD
PRE-PUBLIC EXAMINATIONS - MARCH - 2016
GENERAL SCIENCE - Paper - I

(Physical Science)
(English Version)

Part - A

Class : X]

(Max. Marks : 35) [Time : 2 Hr.15Mts.

Instruction : 15 minutes time is allotted exclusively for reading question paper and 2.00 hours for writing the answers.

SECTION - I

Note : i) Answer any FIVE questions choosing atleast two questions from each group.

ii) Each question carries '2' marks. 5 x 2 = 10

Group - A

1. A small glass bottle with full of water and tight lid is placed in deep freezer for few hours. What will happen to it? And why it happens?
2. Define critical angle. When does the total internal reflection takes place?
3. What is presbyopia? How this can be corrected?
4. Why does the picture appear distorted when a bar magnet is brought close to the screen of a television.

Group - B

5. Equal lengths of magnesium ribbons are taken in test tubes A and B. Hydrochloric acid is added to test tube 'A'. And Acetic acid is added to test tube B. Amount and concentration of both acids is same. In which test tube the fizzing. Occur more vigorously and why?
6. Which electron shell is at higher energy level 'K' or 'L'? Why?
7. How does the periodic property atomic size changes in groups and periods?
8. How do you condemn the use of alcohol as a social practice?

SECTION - II

Note : i) Answer any four questions.

ii) Each question carries '1' mark. 4 x 1 = 4

9. Write any two questions you would like to ask your teacher who is conducting an experiment with concave mirror.
10. What is dispersion of light?

[Turn Over

11. What do you mean by 1 unit of Electric current in day to day Electrical usage.
12. Balance the equation $Fe_2O_3 + Co \rightarrow Fe + Co_2$.
13. Why pure water do not conduct electricity?
14. Define the term slag.

SECTION - III

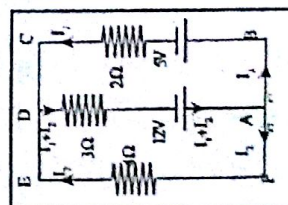
Note : i) Answer any four questions choosing atleast two questions from each group.

ii) Each question carries '4' marks.

4 x 4 = 16

Group - A

15. Suggest an experiment to prove that the rate of evaporation of a liquid depends on its surface area and vapour already present in surrounding air.
16. Why does the sun appear in red colour at sunrise and sunset?
17. Derive an expression for the effective resistance 'R' when three resistors R_1, R_2, R_3 are connected in parallel.
18. Find the electric current drawn from the battery of e.m.f 12 in the given figure.



Group - B

19. Explain Aufbau principle with an example.
20. Explain the postulates of valance Bond Theory.
21. Where do we use Hand picking and washing methods in our daily life? Give examples. How do you correlate these examples with enrichment of Ore?
22. Explain the substitution reactions in alkanes taking methane as an example.

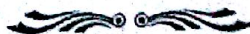
SECTION - IV

Note : i) Answer any one of the following.

1 x 5 = 5

ii) Question carries '5' marks.

23. Draw the ray diagram for the position of image when an object is placed on the principle axis at 'C' before a concave mirror. What are the properties of the image?
24. Draw a neat sketch of arrangement of apparatus for the Electrolysis of water in the lab, and label its parts.



Regd. No.

R - 14 A

Marks:

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PART - B

Class : X]

(Max. Marks : 15)

[Time : ½ Hr.

I. Choose the correct answer and place the letter in the brackets given. Each question carry ½ mark. 20 x ½ = 10

1. $1 \text{ Cal/gr.}^{\circ}\text{C} = \underline{\hspace{2cm}}$ ()
A) $42 \times 10^3 \text{ J/kg.k}$ B) $4.2 \times 10^2 \text{ J/kg K}$
C) $4.2 \times 10^3 \text{ Kg K/J}$ D) $4.2 \times 10^3 \text{ J/Kg K}$
2. In the process of freezing the liquid substance energy and converts to solid substance. ()
A) Gains B) Neither gains nor loses
C) Loses D) All the above
3. When the image of an object which is at infinite distance from a concave mirror falls at a distance of 20 cm then its focal length is ()
A) 10 cm B) 20 cm C) 30 cm D) 40 cm
4. The concave mirror always forms a real image except when the object is placed. ()
A) Between pole and F B) on 'C'
C) Between 'F' and 'C' D) Beyond 'C'
5. For a set of two mediums the critical angle is 60° . Then the T.I.R. takes place when the incident angle is ()
A) $> 60^{\circ}$ B) $= 60^{\circ}$ C) $< 60^{\circ}$ D) All the above
6. If $n_1 = 2$ and $n_2 = 3$ the relative refractive index $n_{21} = \underline{\hspace{2cm}}$ ()
A) 0.66 B) 1.5 C) 6 D) 32
7. 1 coloumb / 1 second = ()
A) 1 Watt B) 1 Volt C) 1 Ampere D) 1 Ohm
8. The equivalent resistance when two resistors of 252 each are connected in parallel is ()
A) 4Ω B) 2Ω C) 0.5Ω D) 1Ω
9. The magnetic flux is denoted by ()
A) θ B) ϕ C) B D) Ω
10. The magnetic force on a current carrying wire placed in uniform magnetic field if the wire is oriented to the magnetic field is $F = \underline{\hspace{2cm}}$ ()
A) 0 B) 2 ILB C) $\frac{\text{ILB}}{2}$ D) ILB

[Turn Over

11. $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$. This reaction is an example of ____ ()
 A) Chemical Decomposition B) Chemical Combination
 C) Chemical Displacement D) Chemical Double Displacement
12. The spoiling of food can be prevented by adding preservation like vitamin ____ ()
 A) A B) B C) C D) D
13. The colour of methyl orange indicates in sodium chloride solution is ____ ()
 A) No change in the colour B) Pink
 C) Yellow D) Red
14. The general name of Calcium Oxy chloride is ____ ()
 A) Washing Soda B) Baking Soda
 C) Bleaching Powder D) Plaster of paris
15. The maximum number of electrons that can be filled in 'f' orbital is ()
 A) 10 B) 14 C) 6 D) 2
16. The outer shell electronic configuration of Halogens is ____ ()
 A) $ns^2 np^6$ B) ns^1 C) ns^2 D) $ns^2 np^5$
17. The "VSEPR" was proposed by ____ ()
 A) Sidgwick and Powell B) Kossel
 C) Lewis D) Gillespie and Nyholm
18. Which compound has Bond angle 180° ____ ()
 A) NH_3 B) BeCl_2 C) H_2O D) CCl_4
19. The reducing agent in Thermite process is ____ ()
 A) Fe B) Si C) Al D) Cu
20. The general formula of ester is ____ ()
 A) CHO B) $\text{R}-\text{C}=\text{O}$ C) NH_2 D) $\text{R}-\text{COO}-\text{R}'$

II. Fill in the blanks.

$$5 \times \frac{1}{2} = 2\frac{1}{2}$$

21. In the equation $Q = ms\Delta$, 's' represents ____
22. For an incident angle the angle of refraction is 90° . Then the incident angle is called ____
23. The object and screen are separated by 1m distance. When a convex lens is placed at 30 cm from the object it forms a clear image then the image distance = ____
24. The total length of a lens is 25 cm then its diapter power = ____
25. For a bar magnet of length '5' cm the magnetic lines of force intersect at ____ number of points.

III. Match the following.

$$5 \times \frac{1}{2} = 2\frac{1}{2}$$

- | <u>Group - A</u> | | <u>Group - B</u> |
|------------------|-----|-------------------------------|
| 26. Butane | () | A) NH_2CoNH_2 |
| 27. Butene | () | B) C_4H_{10} |
| 28. Butyne | () | C) CHCl_3 |
| 29. Urea | () | D) C_4H_6 |
| 30. Chloroform | () | E) C_4H_8 |

