

R - 16
DISTRICT COMMON EXAMINATION BOARD
PRE-PUBLIC EXAMINATIONS - FEBRUARY - 2015
GENERAL SCIENCE - Paper - I
(Physical Sciences)

(English Medium)

PART - A

Class : X]

(Max. Marks : 35)

[Time : 2 Hrs.

SECTION - I (Marks : 10)

Note : 1. Answer any FIVE questions, choosing atleast two questions from each group.

2. Each question carries 2 marks.

Group - A

1. What role does specific heat play in keeping a water melon cool for a long time after removing it from fridge on a hot day ?
2. State the differences between convex and concave mirrors.
3. If a white sheet of paper is stained with oil, the paper turns transparent. why ?
4. Give a few applications of Faraday's law of induction in daily life.

Group - B

5. What is the use of keeping food in air tight containers ?
6. Write the uses of plaster of paris.
7. Draw a neat sketch of reverberatory furnace.

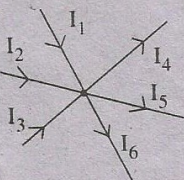
[Turn Over

8. Draw the structure of the following compound.
i) 5, 6 - Di chloro - Oct - 6, 7 Di - en - 1, 2 Di Ol

SECTION - II (Marks : 4)

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

2. Each question carries 1 mark.

9. Define "latent heat of fusion".
10. What is power of a lens ? What are its units ?
11.  $I_1 + I_2 + I_3 = I_4 + I_5 + I_6$ what is this law ?
12. Balance the equation $C_3H_8 + O_2 \rightarrow CO_2 + H_2O$
13. What information does the principal quantum number reveal ?
14. What is meant by 'Gangue' ?

SECTION - III (Marks : 16)

Note : 1. Answer any **FOUR** questions, choosing atleast two questions from each group.

2. Each question carries 4 marks.

Group - A

15. How do you verify experimentally that the angle of refraction is more than angle of incidence when light rays travel from denser to rarer medium ?

[Contd.. 3rd

16. Find the radii of curvature of convex concave convergent lens made of glass with refractive index $n = 1.5$ having focal length of 24 cm. One of the radii of curvature is double the other.
17. Suggest an experiment to produce a rainbow in your classroom and explain the procedure.
18. Derive an equation for the resultant resistance when the resistors R_1 , R_2 and R_3 are connected in parallel.

Group - B

19. Write an activity to investigate whether all the compounds containing hydrogen are acids or not.
20. How does the following periodic properties change in groups and periods.
- (i) Atomic size
 - (ii) Ionisation Energy
 - (iii) Electro positivity
 - (iv) Electro negativity
21. Explain the differences between Ionic and covalent compounds with examples.
22. Explain the substitution reactions in alkanes.

[Turn Over

SECTION - IV (Marks : 5)

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

2. Question carries 5 marks.

23. Draw a neat sketch of A.C. electric generator and label its parts.

24. Draw the shapes of the d - orbital.



Regd. No.

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Marks :

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PART - B

Class : X]

(Max. Marks : 15)

[Time : $\frac{1}{2}$ Hr.

I. Choose the correct answer for the following and put the corresponding letter in brackets.

$$20 \times \frac{1}{2} = 10$$

1. What are S.I. units of latent heat of vapourisation

[**D**]

A) Cal / gr

B) Celcius

C) Kelvin

D) Joul / kg

2. Which of the following is a warming process

[**C**]

A) Vapourisation

B) Boiling

C) Condensation

D) All the above

3. When an Iron nail is dropped in copper sulphate solution copper gets coated on that. What type of reaction is this

[**B**]

A) Chemical combination

B) Chemical Displacement

C) Chemical Decomposition

D) Chemical Double decomposition

4. Which is coated on Iron in galvanisation process

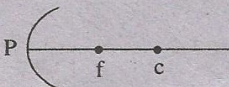
[**A**]

A) Zinc

B) Gold

C) Silver

D) Paint

5. 

In the adjacent figure we will have virtual image when object is placed

[**A**]

A) Between p and f

B) On 'f'

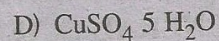
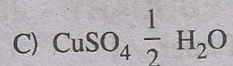
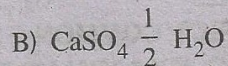
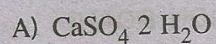
C) Between f, c

D) On 'c'

[Turn Over

6. The formula of plaster of Paris is

[B]



7. Critical angle is _____ angle

[C]

A) Angle of reflection

B) Angle of refraction

C) Angle of incidence

D) All the above

8. Which one of the following is lens making formula

[D]

A) $\frac{1}{f} = (n - 1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$

B) $\frac{1}{f} = (n + 1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$

C) $\frac{1}{f} = (n + 1) \left(\frac{1}{R_1} - \frac{1}{R_2} \right)$

D) $\frac{1}{f} = (n - 1) \left(\frac{1}{R_1} - \frac{1}{R_2} \right)$

9. What type of lens is used to correct presbyopia

[B]

A) Convex lens

B) Bifocal lens

C) Concave lens

D) None of the above

10. Which one of the following gives information about how many electrons can occupy an orbital ?

[D]

A) Aufbau principle

B) Quantum theory

C) Principle quantum number

D) Pauli exclusion principle

11. The scientist who was able to calculate the number of positive charges by analysing X - ray patterns

[A]

A) H.J. Moseley

B) Dobereiner

C) Newlands

D) Mandeleef

12. Which of the following are univalent

1) Chlorine 2) Argon 3) Potassium 4) Calcium [C]

A) 1, 2 and 3

B) 1, 3 and 4

C) 1 and 3

D) 1, 2, 3 and 4

13. The type of hybridization in Ammonia is _____

[D]

A) sp

B) sp^2

C) sp^4

D) sp^3

[Contd.. 3rd

14. The units of specific resistivity are _____ [C]
 A) Ohm B) Ohm / meter
 C) Ohm - meter D) Meter / ohm
15. The instrument used to measure current, voltage and resistance is [B]
 A) Ammeter B) Multimeter
 C) Voltmeter D) Galvano meter
16. _____ law states that the induced current will appear in such a direction which opposes the changes in flux in the coil [A]
 A) Lenz B) Faraday
 C) Ampere D) Oersted
17. Cinnabar is the ore of _____ [A]
 A) Mercury B) Lead
 C) Magnesium D) Zinc
18. Which metal is not available in nature in free state [B/D]
 A) Au B) Al
 C) Ag D) Cu
19. In a homologous series the successive compounds differ by ____ [C]
 A) CH_3 B) CH_4 C) CH_2 D) CH
20. The formula of chloroform is _____ [D]
 A) CH_3Cl B) CH_2Cl_2 C) CCl_4 D) CHCl_3

II. Fill in the blanks.

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

21. When an object is placed at a distance of 30 cm. before a convex lens the image falls on 'c'. Then its focal length is 15 cm
22. L.E.D. is an example of non ohmic conductor
23. The S.I. Units of Magnetic field intensity an Tesla (or) wb/m^2
24. The chemical process in which the ore is heated in the absence of air is called Calcination
25. The I.U.P.A.C. name of $\text{H}_3\text{C} - \text{C} \equiv \text{C} - \text{CH}_3$ is but-2-yne

[Turn Over

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III. Match the following.

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

Group - A

Group - B

- | | | |
|--|-------|------------------------|
| 26. Quantum theory | [b] | a) Linus Pauling |
| 27. Quantum Mechanical
model of an atom | [e] | b) Max Planck |
| 28. Stationary Shell | [d] | c) Sidgwick and Powell |
| 29. V.E.S.P.R.T Theory | [c] | d) Niels Bohr |
| 30. Valance Bond theory | [a] | e) Erwin Schrodinger |
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