SRINI SCIENCE MIND

10th CLASS

ENGLISH MEDIUM

New Pattern

Physical Science

ACADEMIC STANDARD WISE IMPORANT QUESTIONS

Question wise weightage table

S.No	Type of questions	Number of questions	Marks allotted	Total marks	percentage
1.	Objective questions	12	1/2	6	12
2.	Very short answer questions	8	1	8	16
3	Short answer question	8	2	16	24
4	Essay questions	5	4	20	40
	Total	33		50	100

→**Section I containing 12 questions**

→**Each question carries 1/2Marks**

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1. Heat

1/2 Mark Questions

1. Which of the following is a warming process?
A) Evaporation B) Condensation C) Boiling D) All the above
Ans: B) Condensation.

2. Three bodies A, B and C are in thermal equilibrium. The temperature of B is 45^0C. Then What is the temperature of C?
Ans: 45^0C.

3. The temperature of a steel rod is 330 K. Write its temperature in ^{0}C?
Ans: 57^0C.

4. Write the formula for specific heat?
Ans: Specific heat, S $= \frac{Q}{m\Delta T}$

5. X: When ice melts, its temperature remains constant.
Y: During boiling the temperature changes.
A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.
Ans: B) X is true and Y is wrong.

6. Write the C.G.S. unit of specific heat?
Ans: Cal/g – ^{o}C.

7. What is the boiling point of water at normal atmospheric pressure?
Ans:100^{o}C (OR) 373 k.

8. Rate of evaporation depends on _____, _____, _____.
A) Evoparation, condemsation, dew
B) Surface Area,Humidity, Temperature
C) Melting, boiling, Humidity
D) None of these
Ans:B) Surface Area,Humidity, Temperature

9. The specific heat(s) of a substance depends on its_____
A) Temperature B) Mass C) Nature D) All the above
Ans:D) All the above

10. Which of the following has more specific heat value?
A) Kerosene oil B) Iron C) Copper D) Water
Ans:D) Water.

11. What happens to the temperature during evaporation?
Ans: Falls down (OR) decreases.

12. What is the C.G.S. unit of latent heat of vaporization?
Ans: Cal/g

13. Write the value of Latent heat of fusion of ice?
Ans:80 cal/gm.

14. How much energy is transferred when 1gm of boiling water at 100^{o}C condenses to water a 100^{o}C?
Ans:540 Cal.

15. What would be the final temperature of a mixture of 60 g of water at 40^{o}C temperature and 60 g of water at 80^{o}C temperature?
Ans:60^{o}C.

16. Write the value for the latent heat of vaporization of water?
Ans:540 cal/ gm.
17. What is the SI unit of temperature?
Ans: Kelvin(K).
18. Write the SI unit of specific heat?
Ans:J/Kg-K.
19. Match the following?

P: Evaporation	**[ ]**	**X) Heating process**
Q: Condensation	**[ ]**	**Y) Warming process**
R: Boiling	**[ ]**	**Z) Cooling process**

A) P-X, Q-Y, R-Z B) P-Z, Q-Y, R-X C) P-Y, Q-X, R-Z
Ans:B) P-Z, Q-Y, R-X
20. Why do we feel sultriness in the summer season?
Ans: Humidity.
21. Assertion: Ice floats on water.
Reason: The density of water is less than that of ice.
A) Both assertion and reason are true.
B) An assertion is true and the reason is false.
C) An assertion is correct and the reason is correct explanation.
D) An assertion is correct. Reason is not an explanation of assertion.
Ans:B) An assertion is true and reason is false.
22. Write the specific heat value of ice?
Ans:0.50 cal/gm^{o}-C
23. What is the boiling point of water?
Ans:100^{o}C
24. During melting the temperature of the substance is?
Ans: Constant.
25. The process of escaping molecules from the outer surface of a liquid at any temperature is called?
Ans: Evaporation.
26. The formula for the latent heat of a substance is?
Ans: Latent heat, L = $\frac{Q}{m}$ cal/gm.
27. Match the following.

i) Amount of water vapour	**[ ]**	**P) Fog**
ii) Condensation of water drops on grass	**[ ]**	**Q) Humidity.**
iii) Condensation of water droplets on dust particles in the air.	**[ ]**	**R) Dew**

A) i-P, ii-Q, iii-R B) i-Q, ii-R, iii-P C) i-R, ii-P, iii-Q D) i-R, ii-Q, iii-P
Ans:B) i-Q, ii-R, iii-P
28. Statement A: Evaporation is a cooling process.
Statement B: Boiling is a warming process.
A) Both A and B are true. B) A is true but B is not true.
C) A is false and B is true. D) Both A and B are false.
Ans:B) A is true but B is not true.

29. Choose the correct answer.

Group – A	**Group – B**

1. Humidity	**[ ]**	**A) Flowers**
2. Dew	**[ ]**	**B) Visibility**
3. Fog	**[ ]**	**C) Cooling process**
4. Condensation	**[ ]**	**D) Water vapour**
5. Evaporation	**[ ]**	**E) Warming process**

A) D, E, A, C, B B) C, D, E, B, A C) C, D, A, E, B D) D, A, B, E, C

Ans:D) D, A, B, E, C

30. Choose the correct answer.

Group – A		**Group – B**
1. Melting	**[ ]**	**A) 540 cal/gm**
2. Boiling	**[ ]**	**B) Increases volume**
3. Freezing	**[ ]**	**C) 80 cal/gm**
4. Latent heat of vaporization	**[ ]**	**D) liquid to gas of water**
5. Latent heat of fusion of ice	**[ ]**	**E) solid to liquid**

A) D, E, A, C, B B) E, D, B, A, C C) C, D, A, E, B D) C, D, A, E, B

Ans:B) E, D, B, A, C

2. Acids Bases and Salts

1/2 Mark Questions

1. What is the colour of methyl orange indicator in an acidic medium?

Ans: Red.

2. What is the colour of the phenolphthalein indicator in a basic solution(alkali)?

Ans: Yellow.

4. A solution turns red litmus blue. What is its pH value?

A)1 B) 4 C) 5 D) 10

Ans:D) 10.

5. A solution reacts with crushed egg-shells to give a gas that turns lime-water milky the solution contains _____

A)NaCl B) HCl C) LiCl D) KCl

Ans:B) HCl

6. What colour would hydrochloric acid (p^H=1) turn universal indicator?

Ans: Red.

7. What types of medicines are used for treating indigestion?

Ans: Antacid(Milk of magnesia)

8. Which of the following is the most accurate way of showing neutralization?

A) Acid + base→ acid-base solution B) Acid + base→ salt + water

C) Acid + base →sodium chloride + hydrogen D) Acid + base→ neutral solution

B) Acid + base→ salt + water

9. When red litmus paper is dipped in X solution than the litmus paper changes to blue colour. What is the nature of the solution X?

Ans: Base

10. What is the reason for the whitening of the wall when wet lime is applied?

Ans: Ca(OH)2

11. Many salts absorb water from the atmosphere. What is the name of this property?

Ans: Crystallization

12. Which of the following indicators is not an acid-base indicator?

A) phenolphthalein B) Vanilla C) Litmus D) Methyl orange

Ans:B) Vanilla

13. What gas is produced when magnesium is made to react with hydrochloric acid?

Ans: Hydrogen

14. Which of the following substances when mixed together will produce table salt?

A) Sodium thiosulphate and sulphur dioxide
B) Hydrochloric acid and sodium hydroxide
C) Chlorine and oxygen
D) Nitric acid and sodium hydrogen carbonate.

Ans:B) Hydrochloric acid and sodium hydroxide

15. If the pH of a solution is 13. Then what is the nature of the solution?

A) Strongly acidic B) Strongly basic C) Weakly acidic D) Weakly basic

Ans:B) Strongly basic

16. A solution turns red litmus blue; its PH is likely to be_____

A) 1 B) 4 C) 5 D) 10

Ans:D) 10

17. Amongof the following substance has the lowest PH value?

A) Sugar B) Tomato juice C) Vinegar D) Washing soda

Ans:C) Vinegar

18. The name for preferred when bases which are soluble in water?

Ans: Alkal.

19. <u>Match the following:</u>

a) Plaster of Paris	(D)	A) $CaO\ Cl_2$
b) Gypsum	(E)	B) $NaHCO_3$
c) Bleaching powder	(A)	C) $Na_2\ CO_3$
d) Baking soda	(B)	D) $CaSO_4 . ½\ H_2O$
e) Washing soda	(C)	E) $CaSO_4 . 2\ H_2O$

Ans: a-4,b-5,c-1,d-2,e-3

20. Give any one example for olfactory indicator?

Ans: Onion juice, clove oil and vennela essence.

21. What is the colour of the HCl in pH paper?

Ans: Red.

22. Precautions to be taken while dilution of con.acids?

A) Water is added to Acid. B) Acid is added to water.
C) A and B D) Acid is added to base.

Ans:B) Acid is added to water.

23. What is the name of the substance which chemical formula is $CaSO4\ \frac{1}{2}\ H_2O$?

Ans: Plaster of Paris.

24. mixing of an acid/base with water result in a decrease in the concentration per unit volume. Such a process is called?

Ans: Dilution.

25. Identify the pair pH values of strong acid and a strong base in the following?

A) (6,14) B) (1,8) C) (7,7) D) (2,14)

Ans:D) (2,14)

26. The acid enter into our body by a honey bee stung?

Ans: Methanoic acid.

27. Match the following.

1. P^H range of acidic solution	[ ]	A) 7.4
2. P^H range of basic solutions	[ ]	B) 0 – 7
3. P^H range of neutral solutions	[ ]	C) 7 – 14
4. P^H range of body	[ ]	D) 7
5. P^H value of blood	[ ]	E) 7 – 7.8

A) D, E, A, B, C B) C, D, E, B, A C) B, C, D, E, A D) C, D, A, E, B

Ans:C) B, C, D, E, A

28. Match the following.

1. Strong acid	[ ]	A) NH_4OH
2. Weak acid	[ ]	B) NaOH
3. Strong base	[ ]	C) Distilled water (H_2O)
4. Weak base	[ ]	D) CH_3COOH
5. Neutral solution	[ ]	E) HCl

A) D, E, A, B, C B) E, D, B, A, C C) B, C, D, E, A D) C, D, A, E, B

Ans: B) E, D, B, A, C

29. Match the following.

1. Metallic oxide	[ ]	A) Washing soda
2. Non metallic oxide	[ ]	B) Aqueous NaCl
3. Brine solution	[ ]	C) MgO
4. Borax	[ ]	D) Baking soda
5. Acts as mild antiseptic	[ ]	E) CO_2

A) D, E, A, B, C B) E, D, B, A, C C) B, C, D, E, A D) C, E, B, A, D

Ans: D) C, E, B, A, D

30. Match the following.

1. Ants	[ ]	A) Tartaric acid
2. Lemon	[ ]	B) Oxalic acid
3. Milk	[ ]	C) Lactic acid
4. Tomato	[ ]	D) Citric acid
5. Tamarind	[ ]	E) Formic acid.

A) D, C, A, B, E B) E, D, C, B, A C) B, C, D, E, A D) C, E, B, A, D

Ans: B) E, D, C, B, A

3. Refraction of Light at Plane Surfaces

1/2 Mark Questions

1. Which of the following is Shell's law?

A). $n_1 \sin i = \frac{\sin r}{n_2}$ B) $\frac{n_1}{n_2} = \frac{\sin r}{\sin i}$ C). $\frac{n_2}{n_1} = \frac{\sin r}{\sin i}$ D) $n_2 \sin i$ = constant

Ans: B) $\frac{n_1}{n_2} = \frac{\sin r}{\sin i}$

2. A ray of light is incident on a plane surface of refractive index $\sqrt{3}$ at a certain angle. It is found that the reflected and refracted rays are perpendicular to each other. Then the angle of incidence is?

Ans: Angle of incident = 60^0

3. Which of the following absolute refractive index values is not possible?

A) $\sqrt{2}$ B) $\sqrt{3}$ C) $\sqrt{2}$ + 1 D) $\sqrt{2}$ -2

Ans: D) $\sqrt{2}$ -2

4. The refractive index of glass with respect to air is 2. What is the critical angle of glass-air interface?

Ans: C= 30^o

5. The refractive index of medium 1 relative to medium 2 is $\frac{4}{3}$. Then the refractive index of medium 2 relative to medium 1 is?

Ans: $\frac{3}{4}$

6. Total internal reflection takes place when the light ray travels from?

A) rarer to denser medium B) rarer to rarer medium

C) denser to rarer medium D) denser to denser medium

Ans: D) denser to denser medium

7. Twinkling of stars is due to?

Ans: Atmosphere refraction.

8. The angle of deviation produced by the glass slab is?

Ans: 0^0

9. The characteristics of light are not altered by refraction?

Ans: Frequency.

10. When a pencil kept in a glass tumbler filled with water seen from the side of the glass it seems to bend. What is the reason?

Ans: Refraction

11. A coin is placed at a depth of 4cm in water. When seen from air it appears to be at a depth of ($n_w = \frac{4}{3}$) . Find the answer?

Ans: $\frac{16}{9}$ cm

12. At a critical angle of incidence, the angle of refraction is?

Ans: 90^0

13. If the speed of light were the same in all the media, which of these processes is not possible?

A) Reflection B) Refraction C) Dispersion D) All the above

Ans: B) Refraction

14. Which one of the following is not an application of total internal reflection?

A) Sparkling diamond B) Optical fibre C) Blue colour of sky D) Mirage

Ans: C) The blue colour of sky

15 What is the unit of refractive index?

Ans: No units.

16. The absolute refractive index of water and glass are $\frac{4}{3}$ and $\frac{3}{2}$ respectively. Then the relative refractive index of glass with respect of water is?

$\frac{8}{9}$

17. The refractive index of glass with respect to air is 2. Then the critical angle of glass-air interface is?

Ans: 30^0

18. A ray of light travels from a medium of refractive index 'n_1', to medium of refractive index n_2.If the angle of incidence is 'i' and the angle of refraction is 'r'. Then $\frac{Sin\ i}{Sin\ r}$ is equal to?

$\frac{Sin\ i}{Sin\ r}$ = n_{21}

19. A plane glass slab is placed over different coloured letters. The colour that appears to be raised by least amount is?

Ans: Red.

20. A ray of light passes from vacuum into a medium of refraction index if the angle of incidence is twice the angle of refraction, then the angle of incidence is?

Ans: 2 Cos^{-1} $(\frac{n}{2})$

21. The net deviation produced by a rectangular glass slab is?

Ans: Less than the angle of incidence

22. The distance between the parallel rays in a glass slab is called?

Ans: Lateral shift.

23. Match the following.

1. Snell's law	[ ]	A) Used in communication
2. Mirage	[ ]	B) $n = \frac{c}{v}$
3. Refractive index	[ ]	C) $Sin\ C = \frac{1}{n_{12}}$
4. Critical angle	[ ]	D) Total internal reflection
5. Optical fibres	[ ]	E) $n_1 \sin i = n_2 \sin r$

A) D, C, A, B, E B) E, D, B, C, A C) B, C, D, E, A D) C, E, B, A, D

Ans: B) E, D, B, C, A

24. According to sign convention the negative sign indicates _____image?

Ans: Real and inverted image.

25. A hunter wants to shoot a fish. The image which seems through clear water it is to be aimed?

A) The same position of the fish B) Above the fish C) Below the fish D) All

Ans: C) Below the fish

26. The refractive index of medium 1 relative to medium 2 is $\frac{4}{3}$. Then the velocity of medium 2 is?

$\frac{9}{4}$ × 10^8 m/s.

27. When the convex lens(n = $\frac{3}{2}$) is immersed in water its focal length is_____

A) Increases B) Decreases C) No change D) A and B

Ans: C) No change

28. Which principle stated that the light selects the path which takes least time to travel?

Ans: Fermat Principle.

29. Assertion: Diamond shine.
Reason: Total internal reflection.

A) Assertion and reasons are correct.
B) Assertion, reason correct. Reason is not a correct explanation of A.
C) Assertion is correct and the reason is wrong.
D) Assertion is false and the reason is correct.

Ans: B) Assertion, reason correct. Reason is not a correct explanation of A.

30. The refractive index of a glass which is a symmetrical convergent lens if it's focal length is equal to radius of curvature of its surface?

A) 1 B) 0 C) $\frac{3}{2}$ D) $\frac{1}{2}$

Ans: C) $\frac{3}{2}$

4. REFRACTION OF LIGHT AT CURVED SURFACES
1/2 Mark Questions

1. Which one of the following materials cannot be used to make a lens?
A) water B) glass C) plastic D) clay

Ans: D) clay

2. Which of the following is true?
A) The distance of virtual image is always greater than the object distance for convex lens.
B) The distance of virtual image is not greater than the object distance for convex lens.
C) Convex lens always forms a real image.
D) Convex lens always forms a virtual image.

Ans: A) The distance of virtual image is always greater than the object distance for convex lens.

3. Focal length of the plano-convex lens is _____ when its radius of curvature of the surface is R and n is the refractive index of the lens?

Ans: f = $\frac{R}{n-1}$

4. The value of the focal length of the lens is equal to the value of the image distance when the rays are?
A) passing through the optic centre B) parallel to the principal axis
C) passing through the focus D) in all the cases

Ans: B) parallel to the principal axis

5. The distance between focus and 'Optic centre' is ?

Ans: Focal length(f).

6. The line that joins the center of curvature and the pole is?

Ans: Principal axis.

7. The formula for formation of image in the case of a plane mirror is ?
A) $\frac{n_2}{v} - \frac{n_1}{u} = 0$ B) $\frac{n_2}{v} + \frac{n_1}{u} = 0$ C) $\frac{n_2}{u} - \frac{n_1}{v} = 0$ D) $\frac{n_2}{u} + \frac{n_1}{v} = 0$

Ans: A) $\frac{n_2}{v} - \frac{n_1}{u} = 0$

8. What is the name of the lens which can form real and virtual images?

Ans: Convex lens.

9. What is the lens which always form virtual images?

Ans: Concave lens.

10. If the focal length is positive then the lens is?

Ans: Convex lens.

11. If the focal length is negative then the lens is?

Ans: Concave lens.

12. For drawing a ray diagrams, we represent convex lens with a symbol?

Ans: 

13. For drawing a ray diagrams, we represent concave lens with a symbol?

Ans: 

14. X: The air bubble in water behave like a diverging lens.
Y: Air bubble acts as a conversing lens.

A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

15. X: The light ray gets refracted twice through glass slab.
Y: The perpendicular distance between incident ray and final emergence ray is called lateral shift.
A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.

Ans:A) Both X and Y are true.

16. X: The convex lens behaves like a conversing lens.
Y: The convex lens behaves as a converging lens, if it is kept in a medium with refractive index less than the refractive index of the lens.
A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.

Ans:A) Both X and Y are true.

17. X: The rays from the distant object, falling on the convex lens pass through Focus.
Y: The rays passing through the pole, focus and center of curvature of the lens is not deviated.
A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

18. X: Real image cannot be seen by eyes.
Y: Real image is captured on screen.
A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

19. What is the S.I unit of the power of a lens?

Ans: Diaptor(D).

20. When light ray travels from denser to rarer medium, the relation between r and i is?
A) r = i B) r > i C) r < i D) r > i

Ans: B) r > i

21. A lemon kept in a glass of water appears to be bigger in size. What is the phenomena involve in this?

Ans: Refraction.

22. What is the speed of light in vacuum or air?

Ans: 3×10^{8} m/sec

23. To establish the relation between u, v and f of a lens, the required apparatus are?
A) Lens B) V-Stand C)candle D) All

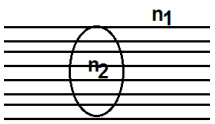
Ans: D) All

24. When beam of light incident parallel to the prism after the refraction the rays converses at_____

Ans: Focal plane.

25. The focal length of a plano-convex lens is?

Ans: Focal length, f = $\frac{R}{n-1}$



26. The lens which can form both real and virtual image is _____

Ans: Convex lens.

27. A lens with refractive index n2 is kept in a medium of refractive index n1 as shown in the figure. If n1>n2 then what is the nature of the lens?

Ans: Concave lens(Diversing lens).

28. Match the following.

1. Object is beyond C_2	[ ]	A. Image is formed beyond C_1
2. Object is at C_2	[ ]	B. Image is formed between F_1 and C_1
3. Object is between C_2 and F_2	[ ]	C. Image is formed at infinity
4. Object is at F_2	[ ]	D. Image formed at F_1
5. Object is between F_2 and P	[ ]	E. Virtual, Erect image formed.
		F. Image is formed at C_1

A) B, F, A, C, E B) E, D, B, C, A C) B, C, D, E, A D) C, E, B, A, D

Ans: A) B, F, A, C, E

29. What is the principle involving in the working of a optical fibre?

Ans: Total internal reflection.

30. A bird flying in air will appear to a fish inside the water as_____

A) Further away than its actual distance. B) Closer than its actual distance.
C) At the same plane. D) The bird does not appear to the fish.

Ans: A) Further away than its actual distance.

5. Human eye and Colourful world

1/2 Mark Questions

1. The size of an object is perceived by an eye depends primarily on?

A) Actual size of object B) Distance of the object from the eye
C) Aperture of pupil D) Size of image formed on retina

Ans: B) Distance of the object from the eye

2. The adjacent figure shows which eye defect? And how it will correct?

Ans: Myopia, bi-concave lens.

3. What is the reason for formation for Rainbow?

Ans: Dispersion of light.

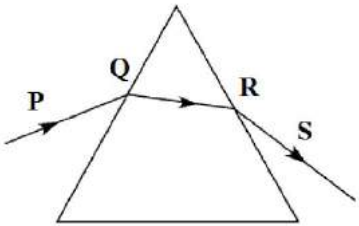
4. The wave lengths corresponding to violet, yellow, red lights are _____

A) $\lambda_v > \lambda_y > \lambda_r$ B) $\lambda_v < \lambda_y < \lambda_r$ C) $\lambda_y < \lambda_v < \lambda_r$ D) $\lambda_y < \lambda_r < \lambda_v$

Ans: B) $\lambda_v < \lambda_y < \lambda_r$

5. A ray of light falls on one of the lateral surface of an equilateral glass prism placed on a horizontal surface of a table as shown in the figure for minimum deviation of a ray. Which of the following is true?

A) PQ is horizontal B) QR is horizontal
C) RS is horizontal D) Either PQ or RS horizontal



Ans: B) QR is horizontal.

6. The process of remission of absorbed light in all directions with different intensities by an atom or molecule is called?
Ans: Scattering of light.
7. When the focal length of lens is 50Cm, then power of lenses is?
Ans: Power, P = 0.5 D
8. The sky looks blue and clear on sunny. Name the phenomena to involve in this?
Ans: Scattering of light.
9. The angle of minimum deviation for an equilateral triangle prism is found to be 30^0. What is its refractive index?
Ans: Refractive index, n = $\sqrt{2}$
10. The power of accommodation of normal eye is?
Ans: 4 D
11. Which part of retina identify the colour?
Ans: Cones.
12. Natural example of dispersion of light is?
Ans: Rainbow.
13. When objects at different distances are seen by the eye which of the following remain constant?
Ans: Image distance from eye-lens
14. What is the maximum and minimum focal lengths of eye lens?
Ans: 2.5 cm and 2.27 cm
15. The far point of a person is 5m in order that he has normal vision. What kind of spectacles should be used?
Ans: Concave lens with focal length 5m.
16. Eye lens adjusts its focal length according to distance of object. Which helps for this?
Ans: Ciliary muscles.
17. The colour which has the least wavelength in visible spectrum VIBGYOR?
Ans: Violet.
18. An equilateral triangle prism is arranged in minimum deviation position for an angle of incidence of 45^0. What is the angle of minimum deviation?
Ans: 30^0
19. The vision defect when the ability of accommodation of the eye usually decreases with increasing the ageing is?
Ans: Presbyopia.
20. The value of the least distance of distinct vision is about?
Ans: 25cm.
21. The distance between the eye lens and retina is about?
Ans: 2.5cm.
22. What is the essential part of the eye act as a sensitive screen?
Ans: Retina.
23. The molecules which are the reason for the blue of the sky?
Ans: N_2, O_2
24. Power of a convex lens of focal length 50 cm is?
Ans: Power = $\frac{100}{f} = \frac{100}{50}$ = 2D.

25. In a rainbow the angle between the incident and emergent ray for violet colour is?
Ans: 42^0.
26. When the atmosphere is absent around the earth the colour of the sky appears to be?
Ans: White in colour.
27. In a bifocal lens, the upper and lower portion contains which lenses?
Ans: Upper part-Concave and Lower part-convex lens.
28. When the object is at different distances are seen by the eye which of the following remains constant?
A) Focal length of the eye lens. B) Object distance from the eye lens.
C) The radius of curvature of the eye lens. D) Image distance from eye lens.
Ans: D) Image distance from eye lens.
29. Actual shape of a rainbow is?
A) Three dimensional sphere. B) Three dimensional cone
C) Three dimensional cylinder D) Three dimensional cube.
Ans: B) Three dimensional cone
30. What is the refractive index of the prism when the critical angle is 45^o?
Ans: Refractive index, n= $\frac{1}{sin\, c}$ = $\frac{1}{sin\, 45^0}$ = $\frac{1}{1/\sqrt{2}}$ = $\sqrt{2}$ = 1.414

6. Structure of Atom
1/2 Mark Questions

1. An emission spectrum consists of bright spectral lines on the dark background. Which one of the following does not correspond to the bright spectral lines?
A) Frequency of emitted radiation B) Wavelength of emitted radiation
C) Energy of emitted radiations D) Velocity of light
Ans: B) Wavelength of emitted radiation
2. The maximum no. of electrons that can be accommodated in the L–shell of an atom is?
Ans: Eight(8) electrons.
3. If l = 1 for an atom then the number of orbitals in its sub-shell is _____
Ans: Two(2).
4. What is the shape of s –orbital?
Ans: Spherical.
5. What is the shape of p –orbital?
Ans: Dumbell.
6. What is the shape of d –orbital?
Ans: Double dumbbell.
7. What is the shape of f –orbital?
Ans: Double dumbbell.
8. Quantum theory was proposed by?
Ans: Erwin Schrodinger.
9. Splitting of spectral lines in an electric field is known as?
Ans: Stark Effect.
10. The number of electrons in a shell is limited to?
Ans: $2n^2$.

11. Splitting of spectral lines in the magnetic field is known as?
Ans: Zeeman Effect.
12. Write the Planck's constant value?
Ans: 6.626×10^{-34} JS.
13. Bohr's model explains all the line spectra observed in the case of _____atom.
Ans: Hydrogen.
14. Bohr's model failed to account for the splitting off?
Ans: Atomic spectra.
15. Match the following.

1. Value of n	[ ]	A) o to (n - 1)
2. Value of l	[ ]	B) +1/2, -1/2
3. Value of m_l	[ ]	C) Non- zero integers
4. Value of m_s	[ ]	D) –l to + l
5. d- orbital	[ ]	E) l = 1
		F) l = 2

A) B, C, D, E, A B) A, B, C, D, E C) E, D, C, B, A D) C, A, D, B, F
Ans: D) C, A, D, B, F
16. Match the following.

1. Continuous spectrum	[ ]	A) Gaseous atoms
2. Line spectrum	[ ]	B) 589nm – 589.6nm
3. Band spectrum	[ ]	C) Rainbow
4. Absorption spectrum	[ ]	D) Molecules
5. Wavelength range of Na vapour	[ ]	E) Absorption energy.

A) B, D, A, E, C B) C, A, D, E, B C) E, D, C, B, A D) C, A, D, B, F
Ans: B) C, A, D, E, B
17. Match the following.

1. Quantum theory	[ ]	A) Moeller
2. Stationary orbits	[ ]	B) Max plank
3. Relative energies of orbits	[ ]	C) Erwin Schrödinger
4. Quantum model of an atom	[ ]	D) Niel's Bohr
5. No two electrons have same set of four Quantum numbers	[ ]	E) Wolfgang Pauli

A) B, D, A, E, C B) C, A, D, E, B C) B, D, A, C, E D) C, A, E, B, D
Ans: C) B, D, A, C, E
18. Match the following.

1. Size and shape of main shell	[ ]	A) l
2. sub- shells	[ ]	B) m_s
3. Orientation of orbitals	[ ]	C) n
4. Direction of spin	[ ]	D) electronic configuration
5. Distribution of electrons	[ ]	E) m_l

A) B, D, A, E, C B) C, A, D, E, B C) B, D, A, C, E D) C, A, E, B, D
Ans: D) C, A, E, B, D
19. Match the following.

1. Chromium	[ ]	A) [Ar] $4s^2$ $3d^{10}$
2. Carbon	[ ]	B) [Ar] $4s^1$ $3d^{10}$
3. Copper	[ ]	C) [He] $2s^2$ $2P^2$
4. Zinc	[ ]	D) [He] $2s^2$ $2P^3$
5. Nitrogen	[ ]	E) [Ar] $4s^1$ $3d^5$
		F) [NE] $3s^1$

A) E, C, B, A, D B) C, A, D, E, B C) B, D, A, C, E D) C, A, D, B, F

Ans: A) E, C, B, A, D

20. Name of the atom which has a electronic configuration is $1s^2 2s^2 2p^6 3s^2 3p^6$?

Ans: Argon(Ar).

21. Match the following.

Orbital		No. of electrons
1. s. orbital	[ ]	A) 6
2. p orbital	[ ]	B) 2
3. d orbital	[ ]	C) 14
4. f orbital	[ ]	D) $2n^2$
5. For 'n' orbit	[ ]	E) 10

A) B, D, A, E, C B) B, A, E, C, D C) B, D, A, C, E D) C, A, D, B, F

Ans: B) B, A, E, C, D

21. Aufbau principle is violated in?

A) $1s^2\ 2s^2\ 2p^6$ B) $1s^2\ 2s^2\ 2p^6\ 3s^1$ C) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^1$

Ans: C) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^1$

23. X: Atomic spectral lines arise because of emition /absorption of certain frequency of light energy.

Y: The lines in atomic spectra can be used to identify unknown atoms.

A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

24. Which rule is violated in the electronic configuration $1s^0\ 2s^2\ 2p^4$?

V Aufbau principle.

25. Who proposed the elliptical orbits?

Ans: Sommerfeld.

26. Observe the following table.

n	l	m_l	m_s
3	3	0	+1/2

This table indicated the orbital_____

A)3f orbital. B) 3p orbital C) 3s orbital D) 3d orbital

Ans: A)3f orbital.

27. The wave length of radio wave is 1m. Its frequency is_____

Ans: 3×10^8 Hz.

28. What is the shape of s-orbital?

Ans: Spherical.

29. What is the shape of p-orbital?

Ans: Dumb-bell.

30. What is the shape of the d-orbital?

Ans: Double dumb-bell.

7. Classification of Elements-Periodic Table

1/2 Mark Questions

1. How many number of elements present in the 2nd period of a periodic table?

Ans: 8 elements.

2. Nitrogen (Z = 7) is the element of group V of the periodic table. Which of the following is the atomic number of the next element in the group?

A) 9 B) 14 C) 15 D) 17

Ans: C) 15

3. Electron configuration of an atom is 2, 8, 7 to which of the following elements would it be chemically similar?

A) nitrogen (Z=7) B) fluorine (Z=9) C) phosphorous (Z=15) D) argon (Z=18)

Ans: B) fluorine (Z=9)

4. Which of the following is the most active metal?

A) lithium B) sodium C) potassium D) rubidium

Ans: D) rubidium

5. What is the most electro negative element?

Ans: Fluorine.

6. 5f elements are called_____?

Ans: Actinoids.

7. 4f elements are called_____?

Ans: Lanthanoids.

8. The properties of the elements on the modern periodic table depend on?

Ans: Electronic configuration.

9. Which element family of Potassium belongs to?

Ans: Alkali metal family.

10. Which element family of barium belongs to?

Ans: Alkaline earth metal family.

11. The number of elements in a third period of the periodic table?

Ans: 8 elements.

12. Ionization potential is expressed in_____

Ans: ev (or) Kcal/mole (or) KJ/mole.

13. Predict the reason for placing inert gases in the 18^{th} group?

i)They have octet valency
ii)They have zero reactivity
iii) They are highly reacting.

A) i and ii B) ii and iii C) I and ii D) i, ii and iii

Ans: A) i and ii

14. Match the following.

A) eka boron	[ ]	X) Scandium
B) eka Aluminium	[ ]	Y) Galium
C) eka silicon	[ ]	Z) Germanium

Ans: A-X, B-Y, C-Z

15. Match the following.

1) Alkali metal	[ ]	P) Calcium
2) Chalcogen	[ ]	Q) Potassium
3) Alkaline earth metal	[ ]	R) Sulphur

A) 1-Q,2-R, 3-P B) 1-Q, 2-P, 3-R C) 1-P, 2-Q, 3-R D) 1-P, 2-R, 3-Q

Ans: A) 1-Q,2-R, 3-P

16. On moving from top to bottom in a group the ionization energy is?

Ans: Decreases.

17. How many numbers of elements present in the first period of the periodic table?

Ans: Two elements.

18.

1) Dobernier	[ ]	P) Triad
2) Mendaleff	[ ]	Q) Atomic weight
3) H.J Mosley	[ ]	R) Atomic number

A) 1-Q,2-R, 3-P B) 1-Q, 2-P, 3-R C) 1-P, 2-Q, 3-R D) 1-P, 2-R, 3-Q

Ans: C) 1-P, 2-Q, 3-R
19. What are the representative elements?
Ans: S-block and p-block elements.
20. What are the transition elements?
Ans: d-block elements.
21. What are the inner transition elements?
Ans: f-block elements.
22. On moving from left to right ina modern periodic table the atomic size vary is?
Ans: Decreases.
23. Assertion: In a group from top to bottom the atomic size is increasing.
Reason: In the group from top to bottom the atomic number increases hence shell number also increases.
A) Assertion and reasons are correct.
B) Assertion, reason correct. The reason is the correct explanation of A.
C) Assertion is correct and the reason is wrong.
D) Assertion is false and the reason is correct.
Ans: B) Assertion, reason correct. The reason is the correct explanation of A.
24. X: In a periodic table the valence electrons are equal to its group number.
Y: Modern periodic table is based on atomic weight.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: B) X is true and Y is wrong.
25. Who is the father of the modern periodic table?
Ans: Mendaleeff's.

8. Chemical Bonding

1/2 Mark Questions

1. What is the general electronic configuration of Inert gases?
Ans: $ns^2\ np^6$ except helium ($1s^2$).
2. Who proposed the electronic theory of valence?
Ans: Lewis and Kossel.
3. Generally, elements of metals have tendency of losing electron to attain the octet in their valence shell. This property is called?
Ans: Metallic character or electro positivity.
4. X: Elements with more electropositive character form cations.
Y:- Elements with more electronegative character form anions.
A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.
5. An angstrom (Å) is a unit of length equal to_____
A) 10^{-10}meter B) 0.1 nanometer C)100 picometre D) All
Ans: D) All
6. X: 1 nanometer = 10^{-9}meter (Or) $1A^o = 10^{-8}$ cm.
Y: Carbon dioxide has a linear shape.
A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

7. An element $_{11}X^{23}$ forms an ionic compound with another element 'Y'. Then the charge on theion formed by X is?

A) +1 B) +2 C) -1 D) -2

Ans: A) +1

8. What is the shape of a ammonia molecule?

Ans: Pyramidal shape.

9. An element 'A' forms a chloride ACl_4. The number of electrons in the valence shell of 'A'?

A) 1 B) 2 C) 3 D) 4

Ans: D) 4

10. X: Hybridization of atomic orbital's' was proposed by Linus Pauling (1931).
Y: Boron trifluoride (BF_3) has planar triangular shape.

A) Both X and Y are true.
B) X is true and Y is wrong.
C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

11. What is the shape of water (H_2O) molecule?

Ans: v-shape.

12. What is the hybridization in Beryllium chloride?

Ans: Sp hybridization.

13. What is the hybridization in Boron trifluoride?

Ans: sp^2 hybridization.

14. What is the hybridization in ammonia and water molecule?

Ans: sp^3 hybridisation.

15. In a sodium chloride crystal, the coordination number of Na and Cl are _____?

Ans: 6 and 6.

16. Covalent compounds are generally soluble in?

A) Polar solvents B) Non-Polar solvents C) Concentrated acids. D) All solvents

Ans: B) Non-Polar solvents

17. What is the bond present in HCl molecule?

Ans: Polar covalent bond.

18. What is the shape of the ammonia molecule?

Ans: Trigonal pyramid.

19. Which of the following do not obey octet rule?

A) O_2 B) F_2 C) BCl_3 D) N_2

Ans: C) BCl_3

20. Which of the following element is electronegative?

A) Sodium B) Magnesium C) Oxygen D) Calcium

Ans: C) Oxygen

21. What is the bond angle in beryllium chloride?

Ans: 180^o

22. Which of the following is a most reactive metal?

A) Lithium B) Zinc C) Potassium D) Rubidium.

Ans: D) Rubidium.

23. The number of σ-bonds in CH4 molecule is _____

A) 2 B) 3 C) 4 D) 1

Ans: C) 4

24. What is the shape of H2O molecule?

Ans: V-shape.

25. Which one of the following element belongs to the 3rd period and the IIIA group?
A) Sodium B) Potassium C) Aluminium D) Argon

Ans: B) Potassium

9. Electric Current

1/2 Mark Questions

1. A uniform wire of resistance 50 Ω is cut into five equal parts. These parts are now connected in parallel. Then the equivalent resistance of the combination is?
A) 2 Ω B) 12 Ω C) 250 Ω D) 6250 Ω

Ans: A) 2 Ω

2. A charge is moved from a point A to a point B. The work done to move a unit charge during this process is called?
A) potential at A B) potential at B
C) potential difference between A and B D) current from A to B

Ans: C) potential difference between A and B

3. Joule/ coulomb is the same as _____
A) 1 - watt B) 1 – volt C) 1- ampere D) 1 – ohm

V B) 1 – volt

4. The current in the wire depends on _____
A) only on the potential difference applied
B) only on the resistance of the wire
C) on both of them D) none of them

Ans: C) on both of them

5. A. In series connection, the same current flows through each element.
B. In a parallel connection, the same potential difference gets applied across each element.
A) both A and B are correct B) A is correct but B is wrong
C) A is wrong but B is correct D) both A and B are wrong

Ans: A) both A and B are correct

6. Metals contain a large number of free electrons while the positive ions are fixed in their locations. The arrangement of the positive ions in a conductor is?

Ans: Lattice.

7. The amount of charge crossing any cross-section of the conductor in one second is?

Ans: Electric current.

8. Write the formula for the electric current?

Ans: Electric current, I = $\frac{electric\ charge}{time\ interval}$ (I= $\frac{Q}{t}$).

9. What is the SI unit of electric current?

Ans: Ampere(A).

10. X: 1 Ampere = 1 Coloumb/1 Second (1 A = 1 C/s).
Y: 1 Volt = 1 Joule/1 Coulomb (1V = 1J/C).
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

11. X: Potential difference is also called voltage.
Y: The SI unit of potential difference is "Volt" and it is denoted by V.

A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.

12. The work is done by the chemical force on unit negative charge to move it from positive terminal to the negative terminal. This is called?
Ans: Electromotive force(emf)

13. X: The device used to measure the current in the circuit is ammeter.
Y: The device used to measure the potential difference is voltmeter.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.

14. X: The SI unit of resistance is ohm. The symbol of ohm is Ω.
Y: 1 Ohm = 1 Volt/1 Ampere (1 Ω = 1V/A)
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.

15. What is the SI unit of resistivity?
Ans: Ohm-meter(Ω - m).

16. X: The reciprocal of resistivity is called conductivity (σ).
Y: Metals with low resistivity behave as good conductors.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.

17. Write the formula for electrical power?
i) $P = \frac{v^2}{R}$ ii) P = VI iii) $P=I^2R$ iv) $\frac{I^2}{R}$
A) i, ii only B) i, ii, iv only C) i, ii, iii only D) i, ii, iii, iv
Ans: C) i, ii, iii only

18. **Assertion:-** Potential difference is also called as voltage.
Reason:- Potential difference is measured using a voltmeter.
A) Assertion is correct. B) Reason is correct.
C) Both assertion and reason are correct.
D) Assertion is correct and the reason is wrong.
C) Both assertion and reason are correct.

19. In the battery chemical energy is converted into _____ Energy.
Ans: Electrical energy.

20. The current in the wire depends on _____
A) Only on the potential difference applied B) Only on the resistance of the wire
C) On both of them D) None of them.
Ans: C) On both of them.

21. 1 Volt = _____
A) 1 joule/kelvin B) 1joule/ kg C) 1ampere D) 1joule/1coulomb
Ans: D) 1joule/1coulomb

22. A uniform wire of resistance 50Ω is cut into five equal parts. These parts are now connected in parallel, then the equivalent resistance of combinations is?
Ans:10 ohms.

23. The obstruction of the flow of electrons in a conductor is called?
Ans: Resistance.

24. If two or more resistors connected in parallel, then ____ is the same in them.
Ans: Potential difference.

25. Match the following.
1) Resistance [ ] A) ampere
2) Current [ ] B) volt

3) Electro Motive Force [ ] C) kilowatt hour
D) ohm

Ans: 1-D, 2-A, 3-B

26. The bulb filament made up of _____

Ans: Tungston.

27. The material which offers resistance to the motion of electrons is called?

Ans: Resistor.

28. What is the S.I unit of Specific resistance (OR) resistivity?

Ans: Ohm-meter(Ω-m).

29. Specific resistance depends upon _____

A) Temperature B) Nature of Material
C) Both A and B D) Length of Material

Ans: C) Both A and B

30. Semiconductors are used to make the following devices?

A) Diodes B) Transistors C) Integrated Circuits D) All of These

Ans: D) All of These

31. The reciprocal of resistivity is called as _____

Ans: Conductivity(σ)

32. If two or more resistors are connected in series, then_ flows through them is same?

A) Potential difference B) Current C) Resistance D) Heat

Ans: B) Current

33. Consider the following statement.

A: In a series connection, the same current flows through each element

B: In a parallel connection, the same potential difference gets applied across each element

A) Both A and B are correct B) A is correct but B is wrong
C) A is wrong but B is correct D) Both A and B are wrong

Ans: A) Both A and B are correct

34. Match the following.

1) All resistors are in series [ ] A) $\frac{R_3R_1+R_2R_1}{R_1+R_2+R_3}$

2) All resistors are in parallel [ ] B) $\frac{R_1R_3+R_2R_3}{R_1+R_2+R_3}$

3) R_1, R_2 are in series and R_3 is parallel to both of them [ ] C) $R_1 + R_2 + R_3$

D) $\frac{R_1R_2R_3}{R_1R_2+R_2R_3+R_3R_1}$

Ans: 1-C, 2-D, 3-B

35. A thick wire has _____ resistance than a thin wire.

Ans: Low resistance.

10.Electromagnetism

1/2 Mark Questions

1. Assertion: A current-carrying conductor behaves like a magnet.
   Reason: When the current passing through the conductor the electrons in a conductor travel in a particular direction.
   A) Both assertion and reason are true.
   B) Both assertion and reason are false.
   C) Assertion is correct and the reason is the correct explanation.
   D) Assertion is correct and the reason is not the correct explanation of assertion.

Ans: C) Assertion is correct and the reason is the correct explanation.

2. What is the S.I unit of magnetic flux?

Ans: weber(W).

3. The magnetic flux passing through unit area has taken perpendicular to the field is called?

Ans: Magnetic field induction(B).

4. The ratio of magnetic flux passing through a plane perpendicular to the field and the area of the plane is called?

Ans: Magnetic flux density(B).

5. What is the formula for magnetic flux density?

Ans: Magnetic flux density = $\frac{\text{Magnetic flux}}{\text{Area}}$ ($B = \Phi/A. \Rightarrow \Phi = BA$)

6. What is the unit of magnetic flux density?

Ans: weber/ $(\text{meter})^2$. It is also called Tesla.

7. X: A solenoid is a long wire wound in a close packed helix.
   Y: The magnetic field formed by a solenoid is similar to magnetic field in a bar magnet.
   A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

8. X: The direction of the field due to solenoid is determined by using right hand rule.
   Y: When the charge moves parallel to the magnetic field the value of becomes zero.
   A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

9. What is the value of magnetic force on the moving charge can be found experimentally?

Ans: F = q v B.

10. In electric motors, electrical energy is converted into Which energy?

Ans: Mechanical energy.

11. Assertion: When a bar magnet is pushed towards a coil with its north pole facing the coil an induced current is set up in the coil.
    Reason: Whenever there is a continuous change of magnetic flux linked with a closed coil, a current is generated in the coil.
    A) Both assertion and reason are true.
    B) Both assertion and reason are false.
    C) Assertion is correct and the reason is the correct explanation.
    D) Assertion is correct and the reason is not the correct explanation.

Ans: C) Assertion is correct and the reason is the correct explanation.

12. Assertion: The phenomenon of getting induced current is called electromagnetic

induction.

Reason: The magnetic flux through the coil are responsible for the generation of current in the coil.

A) Both assertion and reason are true.
B) Both assertion and reason are false.
C) Assertion is correct and the reason is the correct explanation.
D) Assertion is correct and the reason is not the correct explanation.

Ans: C) Assertion is correct and the reason is the correct explanation.

13. "The induced current will appear in such a direction that it opposes the changes in the flux in the coil."What is the name of this law?

Ans: Lenz's law.

14. What is the principle involved in the tape recorder which we use to listen to songs (or) record voices?

Ans: Electromagnetic induction.

15. What is the main difference between AC and DC motor?

Ans: Commutator.

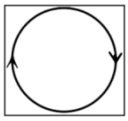
16. In generators, mechanical energy is converted into Which energy?

Ans: Electrical energy.

17. When a conductor of length 'l' moves perpendicular to field B with a speed v then the potential difference (voltage) developed between the ends of conductor is Blv. This EMF is called?

Ans: Motional EMF.

18. The direction of the current flowing through the wire is given. The magnetic pole formed at the face is?



Ans: South pole.

19. Which principle gives the direction of the magnetic field by a current carrying conductor?

Ans: Right hand thumb rule.

20. Is the magnetic field is a scalar quantity or vector quantity?

Ans: Vector quantity.

21. The magnetic field inside a _____ is uniform.

A) Magnet B) Solenoid C) Both A and B D) None of these.

Ans: C) Both A and B

22. Assertion: A current-carrying wire behaves like a magnet.

Reason: The direction of the current detect by right-hand thumb rule.

A) Assertion is correct. B) Reason is correct.
C) Both assertion and reason are correct.
D) Assertion is correct and the reason is wrong.

Ans: C) Both assertion and reason are correct.

23. Are the magnetic field lines are open loops or closed loops?

Ans: Closed loops.

24. Write the relation between weber and tesla?

Ans: 1weber/m2 = 1 tesla.

25. The magnetic lines are formed around the magnet is technically called?

Ans: Magnetic field lines.

26. Which finger gives the direction of current in Ampere's right-hand rule?

Ans: Forefinger.

27. What are the factors that affect the magnetic field induction at a point nearer a straight current carrying conductor?

A) Current B) Distance from the wire C) A and B D) None

Ans: C) A and B

28. A current carrying wire produces _____

A) An electric field B) A magnetic field

C) A and B D) Neither electric nor magnetic field

Ans: B) A magnetic field

29. Write the SI unit of magnetic field induction?

Ans: Tesla(T)

30. Match the following.

1. Magnetic field strength	[ ]	A. Weber
2. Imaginary lines of force	[ ]	B. Tesla
3. Magnetic flux	[ ]	C. Oersted
4. Magnetic flux density	[ ]	D. Magnetic field
5. Current carrying wire	[ ]	E. Magnetic lines

1-E, 2-D, 3-A, 4-B, 5-C

31. Which of the following is required to reverse the current in the electric motor?

Ans: Commutator.

33. For making a strong electromagnet, the material of the core is?

Ans: Soft iron.

34. A current-carrying wire of length L is placed perpendicular to a uniform magnetic field B. Then the force acting on the wire with current 'i' is, F = _____ ?

Ans: F = BIL

35. What is the magnetic force on the charge moving parallel to a magnetic field?

Ans: Zero.

36. What do we call the metallic half rings in a motor?

Ans: Split rings.

37. What is the principle used in the working of a motor?

Ans: Fleming's left-hand rule.

38. Which of the following converts electrical energy into mechanical energy?

Ans: Electric motor.

39. Match the following.

1. Dynamo rule	[ ]	A. Gauss
2. Magnetic field	[ ]	B. $Wb.m^{-2}$
3. Electromagnet	[ ]	C. Fleming's right hand rule
4. Magnetic flux	[ ]	D. BA
5. Tesla	[ ]	E. Microphones.

Ans: 1-C, 2-A, 3-E, 4-D, 5-B

40. A soft iron bar is introduced inside a current-carrying solenoid. The magnetic field inside the solenoid is _____

A) No change B) Will decrease C) Will increase D) Uncertain

Ans: C) Will increase

11. Principles of Metallurgy

1/2 Mark Questions

1. The impurity present in the ore is called as _____

A) Gangue B) flux C) Slag D) Mineral

Ans: A) Gangue

2. Which of the following is a carbonate ore?
   A) Magnesite B) Bauxite C) Gypsum D) Galena

Ans: A) Magnesite

3. Which of the following is the correct formula of Gypsum?
   A) $CuSO_4.2H_2O$ B) $CaSO_4.½\ H_2O$ C) $CuSO_4.5H_2O$ D) $CaSO_4.2H_2O$

Ans: D) $CaSO_4.2H_2O$

4. What is the name of the oil used in the froth floatation process?

Ans: Pine oil.

5. Froth floatation is method used for the purification of _____ore.

Ans: Sulphide.

6. Galena is an ore of ——————
   A) Zn B) Pb C) Hg D) Al

Ans: B) Pb

7. The metal that occurs in the native form is _____
   A) Pb B) Au C) Fe D) Hg

Ans: B) Au

8. The most abundant metal in the earth's crust is ——————
   A) Silver B) Aluminium C) zinc D) iron

Ans: B) Aluminium(Al)

9. What is the reducing agent in thermite process?

Ans: Aluminium(Al)

10. The purpose of smelting an ore is to _____ it.
    A) Oxidise B) Reduce C) Neutralise D) None of these

Ans: B) Reduce

11. X: Metallurgy is the process of extraction of metals from their ores.
    Y: The minerals from which the metals are extracted without an economical loss are called ores.
    A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

12. Which method is suitable for enrich of sulphide ore?

Ans: Froth floatation.

13. Which method is suitable, if the ore or impurity, one of them is magnetic substance and the other non-magnetic substance they are separated?

Ans: Electromagnetic method.

14. Arrangement of the metals in decreasing order of their reactivity is known as?

Ans: Activity series.

15. Sulphide ores are converted into oxides by heating them strongly in excess of air. This process is known as?

Ans: Roasting.

16. The process which involves the reaction of metal oxides with Aluminium?

Ans: Thermite process.

17. Write the chemical formula of cinnabar?

Ans: HgS.

18. X: When cinnabar (HgS) which is an ore of mercury.
    Y: The process of obtaining the pure metal from the impure metal is called refining of the metal.
    A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

19. Which method is very useful for purification of low boiling metals like zinc and mercury containing high boiling metals as impurities?
Ans: Distillation.
20. Which method is suitable for purification of Blister copper?
Ans: Poling method.
21. X: In an electrolytic refining method, the impure metal is made to act as an anode.
Y: In an electrolytic refining method, the pure metal is made to act as cathode.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.
22. X: To prevent corrosion of metals by covering the surface with paint or by some chemicals like bisphenol.
Y: Alloying is a method of improving the properties of a metal.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.
23. When iron is mixed with nickel and chromium we get an alloy which does not rust. What is the name of this alloy?
Ans: Stainless steel.
24. What is the name of a pyrochemical (pyre = heat) process, in which the ore is mixed with flux and fuel and strongly heated?
Ans: Smelting.
25. What the name of a pyrochemical process in which the ore is heated in the presence of oxygen or air below its melting point?
Ans: Roasting.
26. What the name of a pyrochemical process in which the ore is heated in the absence of air?
Ans: Calcination.
27. X: Flux is a substance added to the ore to remove the gangue from it by reacting with the gangue.
Y: Furnace is the one which is used to carry out pyrochemical processes in metallurgy.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans:A) Both X and Y are true.
28. Which furnace is used for Calculations and Roasting?
Ans: Reverberatory furnace.
29. Which furnace is used for smelting?
Ans: Blast furnace.
30. Which of the following is not a refining method of crude metal?
A) Distillation B) Smelting C) Poling D) Liquation.
Ans: B) Smelting.
31. In a _____ method, the molten metal is stirred with logs of greenwood.
Ans: Poling.

12. Carbon and its Compounds

1/2 Mark Questions

1. The carbon compounds containing double and triple bonds are called?
Ans: Unsaturated hydrocarbons.

2. What is the name of the compound which is a basic constituent of many coughs syrups?

Ans: Ethanol.

3. Very dilute solution of ethanoic acid is called _____

A) Vinegar. B) Soda water C) Ester D) Alcohol

Ans: A) Vinegar.

4. A sweet odour substance formed by the reaction of an alcohol and a carboxylic acid is?

Ans: Ester.

5. Which gas released when sodium metal is dropped in ethanol?

Ans: Hydrogen gas(H_2).

6. What is the functional group present in methanol?

Ans: –OH(Alcohol).

7. IUPAC name of alkene containing 3 carbon atoms is?

Ans: Propene(C_3H_6)

8. The first member of the homologous series among alkynes is?

Ans: Ethyne(C_2H_2).

9. The product that is formed by dehydration of ethanol in conc. sulphuric acid is?

Ans: Ethene(C_2H_6)

10. Number of single covalent bonds in ammonia are?

Ans: 3(Three).

11. Which of the four test tubes containing the following chemicals shows the brisk effervescence when dilute acetic acid was added to them?

i) KOH ii) $NaHCO_3$ iii) K_2CO_3 iv) NaCl

A) i& ii B) ii & iii C) i & iv D) ii & iii

Ans: B) ii & iii

12. Which of the following solution of acetic acid in water can be used as preservative?

A) 5-10% B) 10-15% C) 15-20% D) 100%

Ans: A) 5-10%

13. The suffix used for naming an aldehyde is

A) -ol B) -al C) -one D) –ene

Ans: B) –al

14. Acetic acid, when dissolved in water, it dissociates into ions reversibly because it is a_____

A) Weak acid B) strong acid C) weak base D) strong base

Ans: A) Weak acid

15. Which one of the following hydrocarbon can show isomerism?

A) C_2H_4 B) C_2H_6 C) C_3H_8 D) C_4H_{10}

Ans: D) C_4H_{10}

16. Combustion of hydrocarbon is generally accompanied by the evolution of_____

A) Heat B) Light C) both heat and light D) Electric current.

Ans: C) both heat and light

17. 2ml of ethanoic acid was taken in each of the three test tubes A, B and C and 2ml, 4ml and 8ml water were added to them, respectively. A clear solution is obtained in:

A) Test tube A only B) Test tubes A & B only.

C) Test tubes B and C only D) All the test tubes.

Ans: D) All the test tubes.

18. If 2 ml of acetic acid was added slowly in drops to 5ml of water then we will notice?

A) The acid forms a separate layer on the top of the water.

B) Water forms a separate layer on the top of the acid.
C) Formation of a clear and homogenous solution.
D) Formation of a pink and clear solution.

Ans: C) Formation of a clear and homogenous solution.

19. A few drops of ethanoic acid were added to solid sodium carbonate. The possible results of the reactions are?
A) A hissing sound was evolved B) Brown fumes evolved.
C) Brisk effervescence occurred. D) A pungent smelling gas evolved.

Ans: C) Brisk effervescence occurred.

20. When acetic acid reacts with ethyl alcohol, we add conc. H_2SO_4, it acts as_____and the process is called_____
A) Oxidizing agent, Saponification B) Dehydrating agent, Esterification
C) Reducing agent, Esterification D) Acid & Esterification

Ans: B) Dehydrating agent, Esterification

21. The bond angle in methane (CH_4) molecule is?

Ans: 109^o28^1.

22. Who introduced the concept of hybridization?

Ans: Linus Pauling (1931).

23. The redistribution of orbital's of almost equal energy in individual atoms to give an equal number of new orbitals with identical properties like energy and shape is called?

Ans: Hybridization.

24. X: Properties but different physical properties is called allotropy.
Y: The different forms of the element are called allotropes.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.

Ans: A) Both X and Y are true.

25. The occurrence of the same element in two or more different forms is known as?

Ans: Allotropy.

26. Name any one of crystalline allotropic forms carbon?

Ans: Diamond, graphite and buckminsterfullereneC$_{60}$).

27. What is the name of the hybridization between carbon atoms in a diamond?

Ans: sp^3 hybridization.

28. X: In a diamond carbon atoms are in a tetrahedral arrangement.
Y: Due to the hardness of the diamond, it is used as a glass cutter.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
A) Both X and Y are true.

29. X: The density of a diamond is 3.51 gm/cc^3.
Y: Bond length in a diamond is 1.54 A^o.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
A) Both X and Y are true.

30. What is the name of the hybridization between the carbon atoms in graphite?
sp^2hybridization.

31. The spherical fullerenes are called?
Buckyballs.

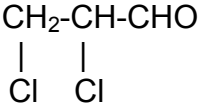
32. What is the name of the property of an atom to form a long chain to its own atom?

Ans: Catenation.

33. The compounds which are having the same molecular formula but different structures are called isomers. What is the name of this phenomenon?

Ans: Isomerism.

34. The process of conversion of starches and sugars to C_2H_5OH is called?
Ans: Fermentation process.
35. X: Pure ethanol boils at 78.3^oC.
Y: Pure ethanol is called absolute (100 %) alcohol.
A) Both X and Y are true. B) X is true and Y is wrong. C) Both X and Y are Wrong.
Ans: A) Both X and Y are true.
36. The reaction between carboxylic acid and an alcohol in the presence of conc. H_2SO_4 to form a sweet odour substance is called?
Ans: Esterification.
37. Write the IUPAC name of the hydrocarbon CH_3-CH_2-CH_2-COOH?
Ans: Butanoic acid.
38. Alkaline hydrolysis of tristers of higher fatty acids producing soaps is called?
Ans: Saponification.
39. Write the IUPAC name of the following compound.



Ans: 2,3-dichloropropanal.
40. Write the IUPAC name of CH_3 CHO?
Ans: Ethanal.

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