

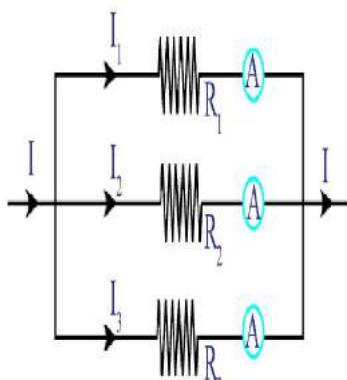
PHYSICAL SCIENCE

ENGLISH MEDIUM

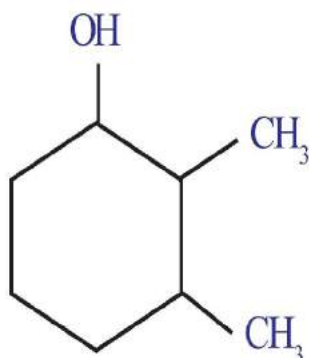
10th CLASS



Substance	Specific heat	
	In cal/g-°C	In J/kg-K
Lead	0.031	130
Mercury	0.033	139
Brass	0.092	380
Zinc	0.093	391
Copper	0.095	399
Iron	0.115	483
Glass (flint)	0.12	504
Aluminum	0.21	882
Kerosene oil	0.50	2100
Ice	0.50	2100
Water	1	4180
Sea water	0.95	3900



- **BASED ON NEW PATTERN**
- **AS₄ QUESTIONS WITH ANSWERS**
- **4 MARK QUESTIONS**
- **CHAPTER WISE**
- **TOPIC WISE**
- **PUBLIC EXAMINATIONS POINT OF VIEW**



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AS₄ (Information skills and Projects)

1) Observe the table and answer the following questions(Ch-1)

Substance	Specific heat	
	In cal/g-°C	In J/kg-K
Lead	0.031	130
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Aluminum	0.21	882
Kerosene oil	0.50	2100
Ice	0.50	2100
Water	1	4180
Sea water	0.95	3900

a)What is the SI unit of Specific heat ?

Ans: J/kg-K

b)Which metal is best for cooking utensils? Why?

Ans: Copper. Because it has low specific heat value

c)Which metal is slowly heated up among all given substance?

Ans: Aluminium

d)How much heat energy is required to rise 1⁰ C of water of 1 gram?

Ans: $Q=ms\Delta T=1\times 1\times 1=1$ cal

e)Which metal is used to soldering the wires? Why?

Ans: Lead. It is very low specific heat value

f) Why different substances have different specific heats?

Ans: Specific heat of a substance depends on its nature.

g) Write the formula of specific heat of the substance?

Ans: $S = \frac{Q}{m\Delta T}$

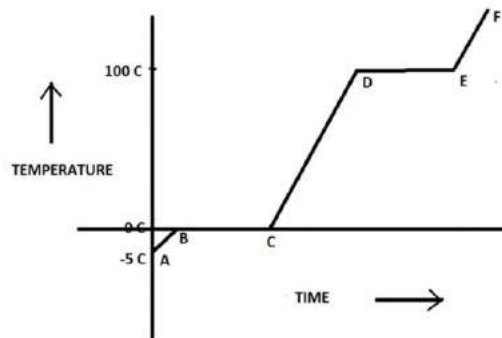
h) Convert 1 cal/g- °C into J/Kg-J

Ans: 1 cal/g- °C=4.186x10³ J/kg-K

i)Which liquid used as coolant? Why?

Ans: Water, because highest specific heat value .

2)Heat energy is continuously supplied to 1 kg of ice at -5⁰C till it boils. By noting Temperature, Time and Temperature-Time graph is drawn as follows. Answer the following questions(ch-1)



a) What is melting point of ice and boiling point of water?

Ans: 0°C and 100°C

b) What is the state and temperature at position C?

Ans: Liquid state and 0°C

c) What is the state and temperature at position E?

Ans: Gasses state and 100°C

d) What are the states of substance at AB and CD?

Ans: AB \rightarrow Solid state, CD \rightarrow Liquid state

e) What are the states of substance at BC and DE?

Ans: BC \rightarrow Solid + Liquid states, DE \rightarrow Liquid + Gasses states

f) Why there is no change in temperature at BC and DE even we gave heat energy continuously to the substance?

Ans: At BC, Latent heat of fusion occurred

At DE, Latent heat of evaporation occurred

g) How much heat energy is required to convert 1 g of ice at 0°C to water at 0°C ?

Ans: 80 cal

h) How much heat energy is required to convert 1 g of water at 100°C to vapour at 100°C ?

Ans: 540 cal

3) Observe the table and answer the following questions(Ch-2)

Liquid/Solution	pH
P	7
Q	6
R	11
S	2
T	8

a) Which solution(s) turn into pink by adding phenolphthalein ?

Ans: T and R

b) Which solution(s) turn into red by adding methyl orange?

Ans: Q and S

c) Which is strong acid?

Ans: S

d) Which one indicates pure water?

Ans: P

e) If $P^H=7$, then find the $[H]^+$

Ans: $[H]^+ = 10^{-7}$

f) Which solutions are acidic solutions?

Ans: Q and S

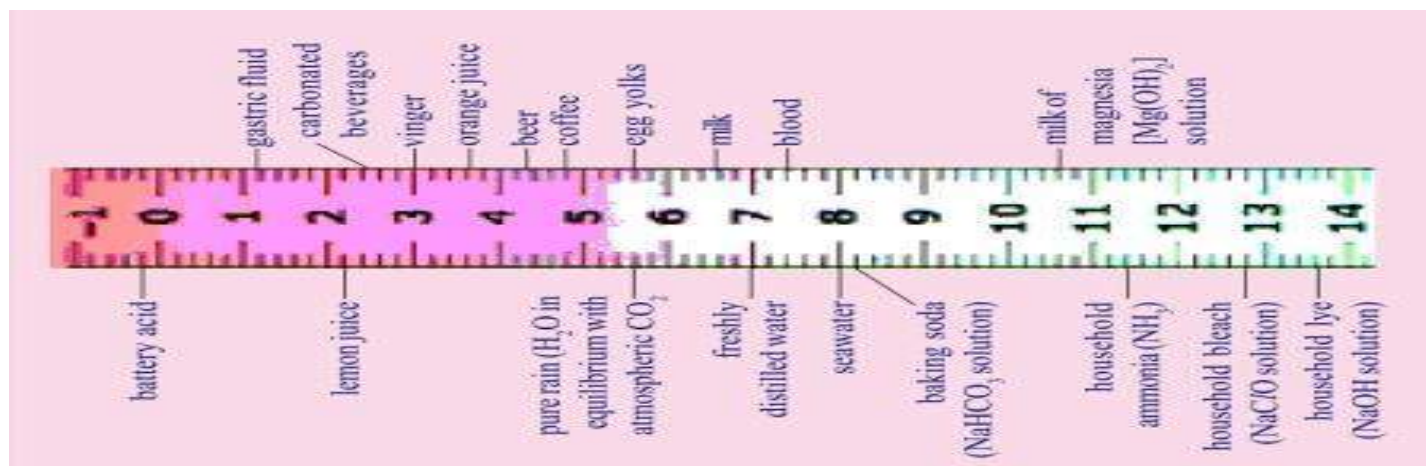
g) Which colour given by solution Q with universal indicator?

Ans: Green colour

h) Which colour gives by blue litmus paper when it is dipped in solution S?

Ans: Red colour

4) Observe the table and answer the following questions (Ch-2)



a) What is the nature of blood?

Ans: Basic nature

b) Which of the substances in the scale are used as antacids?

Ans: Milk of magnesia $[Mg(OH)_2]$

c) Which substance is neutral from above scale?

Ans: Freshly distilled water

d) Which substance acts as strong base?

Ans: Household bleach and Household lye

e) Which substance acts as strong acids?

Ans: Battery acid and Gastric fluid

f) What is the P^H range of bases?

Ans: Above 7 to 14

g) Which is the neutral solution?

Ans: Freshly distilled water

h) What is the chemical name of milk of magnesia?

Ans: Magnesium hydroxide

i) What is nature of gastric juice based on strength?

Ans: Strong acidic nature

j) Arrange the following in ascending order of their H^+ ion concentration?

i) Vinegar ii) Distilled water iii) Baking Soda iv) Gastric fluid v) House hold ammonia

Ans: House hold ammonia, Baking Soda, Distilled water, Vinegar, Gastric fluid

k) Classify above substances as strong acid, strong base, weak acid and weak base

Ans: Strong Acids- Battery acid, Gastric fluid,

Strong Bases- Household bleach and Household lye

Weak acids- Lemon juice, Carbonated beverages, Vinger, Orange juice, Beer, Coffee,

Pure rain water, Egg yolks and Milk

Weak bases- Blood, Sea water, Baking soda, Milk of magnesia, Household ammonia

5) Complete the following table (Ch-2)

S.No.	Sample solution	Red litmus paper	Blue litmus paper	Phenolphthalein solution	Methyl orange solution
1	HCl				
2	H_2SO_4				
3	HNO_3				
4	CH_3COOH				
5	NaOH				
6	KOH				
7	$Mg(OH)_2$				
8	NH_4OH				
9	$Ca(OH)_2$				

Ans:

S.No.	Sample solution	Red litmus paper	Blue litmus paper	Phenolphthalein solution	Methyl orange solution
1	HCl	Red	Red	No change	Red
2	H_2SO_4	Red	Red	No change	Red
3	HNO_3	Red	Red	No change	Red
4	CH_3COOH	Red	Red	No change	Red
5	NaOH	Blue	Blue	Pink	Yellow
6	KOH	Blue	Blue	Pink	Yellow
7	$Mg(OH)_2$	Blue	Blue	Pink	Yellow
8	NH_4OH	Blue	Blue	Pink	Yellow
9	$Ca(OH)_2$	Blue	Blue	Pink	Yellow

6) Complete the following table (Ch-2)

S.No.	Solution	Colour pH paper	Approximate pH value	Nature of substances
1	HCl			
2	CH ₃ COOH			
3	NH ₄ Cl			
4	CH ₃ COONa			
5	NaHCO ₃			
6	Na ₂ CO ₃			
7	NaOH			
8	Distilled water			
9	Lemon juice			
10	Carrot juice			
11	Coffee			
12	Tomato juice			
13	Tap water			
14	Banana juice			
15	Colourless aerated drink			
16	Saliva (before meal)			
17	Saliva (after meal)			

Ans:

S.No.	Solution	Colour pH paper	Approximate pH value	Nature of substances
1	HCl	Red	3	Acid
2	CH ₃ COOH	Light Yellow	4.7	Acid
3	NH ₄ Cl	Light Green	6.7	Acidic salt
4	CH ₃ COONa	Light Green	9.2	Basic salt
5	NaHCO ₃	Light Green	9	Mild non corrosive base
6	Na ₂ CO ₃	Light Green	10.5	Mild non corrosive base
7	NaOH	Deep Blue	14	Base
8	Distilled water	Green	7	Neutral
9	Lemon juice	Light Red	2.2	Acid
10	Carrot juice	Light Green	5 - 6	Mild Acidic
11	Coffee	Light Yellow	5	Mild Acidic
12	Tomato juice	Light Orange	4	Acid
13	Tap water	Green	6- 8	Neutral
14	Banana juice	Light Green	5	Mild Acidic
15	Colourless aerated drink	Green	6- 8	Very mild acidic/Neutral
16	Saliva (before meal)	Green	5.5 – 6.9	Mild Acidic
17	Saliva (after meal)	Green	5.5 - 6.9	Mild Acidic

7) Observe the following table and answer the questions(Ch-3)

Material medium	Refractive index	Material medium	Refractive index
Air	1.0003	Canada balsam	1.53
Ice	1.31	Rock salt	1.54
Water	1.33	Carbon Diasulphide	1.63
Kerosene	1.44	Dense flint glass	1.65
Fused quartz	1.46	Ruby	1.71
Turpentine oil	1.47	Sapphire	1.77
Crown glass	1.52	Diamond	2.42
Benzene	1.50		

a)Write the SI unit of Refractive index

Ans: No unit

b)What happens to the speed of light when light is passing from Water to Rock salt

Ans: Decreases

c)Write the relation between speed of light(v) and refractive index of the material medium(n)

Ans: $n \propto 1/v$ (OR) There are inversely proportional each other

d)What is the speed of light in Benzene?

Ans: $n=1.5=3/2$, $C=3 \times 10^8$ m/s, $V=?$

$$V=C/n=3 \times 10^8 \times 2/3=2 \times 10^8 \text{ m/s}$$

e)What is reason, RI of kerosene is more than the RI of water?

Ans: Optical density of kerosene is more than the optical density of water

f)Among Ice, Fused quartz, Ruby and Diamond, Which is rarer medium? Why?

Ans: Ice. Because Ice has low refractive index comparatively remaining

g)In the table, In which material medium speed of light is less? Why?

Ans: Diamond, it has highest refractive index

h)Define refractive index

Ans: The ratio of speed of light in vacuum to the speed of light in that medium is defined as refractive index.

i)Arrange the following materials medium based on the speed of the light in descending order

Diamond, Turpentine oil, Flint glass, Air and Ice

Ans: Air, Ice, Turpentine oil, Flint glass and Diamond

j)Whether the refracted ray bends towards normal or away from the normal when light ray travelled from Water to Kerosene

Ans: Bend towards normal

8)Fill the table following, which is related to convex lens (Ch-4)

Position of the Object	Position of the Image	Real/Virtual image	Inverted/Erected image	Enlarged/Diminished image
Beyond 2F2			Inverted	Diminished
	At 2F1	Real		Enlarged
Between 2F2 and F2	Beyond 2F1	Real		
	Same side of the Object		Erected	Enlarged

Ans:

Position of the Object	Position of the Image	Real/Virtual image	Inverted/Erected image	Enlarged/Diminished image
Beyond 2F ₂	Between F ₁ and 2F ₂	Real	Inverted	Diminished
At 2F ₂	At 2F ₁	Real	Inverted	Enlarged
Between 2F ₂ and F ₂	Beyond 2F ₁	Real	Inverted	Enlarged
Between O and F ₂	Same side of the Object	Virtual	Erected	Enlarged

9) Student 'Bharath' conducted an experiment and find the focal length of symmetric convex lens.(Ch-4)

Object distance(u)	Image distance(v)
60 cm	20 cm
30 cm	30 cm
25 cm	37.5 cm
20 cm	60 cm

a) What is the focal length of the convex lens?

Ans: Consider any case

u=60 cm, v=20 cm, f=?

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u} = \frac{1}{20} + \frac{1}{60} = \frac{4}{60} = \frac{1}{15}$$

f=15 cm

From the second case, Object distance= Image distance
So R=30 cm then f=R/2=30/2=15 cm

b) What is the radius of curvature of the lens?

Ans: f=15 cm , R=2f=2x15=30 cm

c) To get virtual image, at what distance should keep the object from the lens?

Ans: Below 15 cm

d) When object distance is 10 cm, where will image formed?

Ans: u=10cm, f=15cm, v=?

$$\frac{1}{v} = \frac{1}{f} - \frac{1}{u} = \frac{1}{15} - \frac{1}{10} = -\frac{1}{30}$$

v=-30 cm

e) Find the magnification of the lens when object is kept at 20cm?

Ans: u=20cm, v=60cm

Magnification(m)=v/u=60/20=3

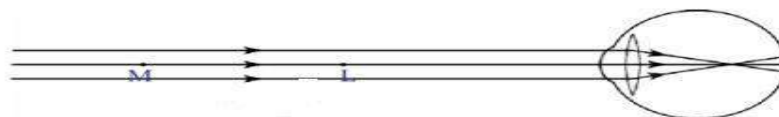
f) Which formula do you use to obtain focal length of the convex lens?

Ans: $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$

g)What are the characteristics of the image when object is placed at 30cm

Ans: Real, Inverted and Same size of the object

10) Observe the figure and answer the questions (Ch-5)



a) What type of eye defect indicates this figure?

Ans: Myopia

b) In the figure, M stands for?

Ans: Far point

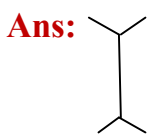
c) Define far point?

Ans: The point of maximum distance at which the eye lens can form an image on the retina is called 'far point'

d) Which lens is used to correct this eye defect?

Ans: Bi-concave lens

e) Draw the symbol of used lens?



f) What is the another name of this eye defect?

Ans: Near sightedness

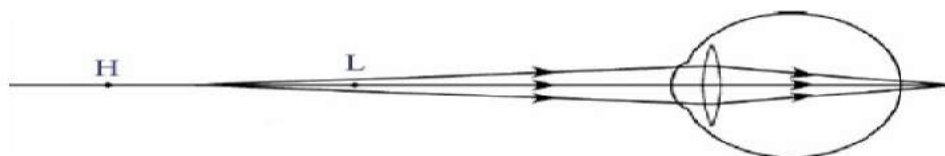
g) If the person suffering from this eye defect, what is the focal length of the eye lens?

Ans: Maximum focal length is less than 2.5 cm

h) Are the focal lens of the used lens is positive or negative?

Ans: Negative

11) Observe the following figure and answer the questions (Ch-5)



a) What type of eye defect indicates this figure?

Ans: Hypermetropia

b) In the figure, H stands for?

Ans: Near point

c) Define near point?

Ans: The point of minimum distance at which the eye lens can form an image on the retina is called 'near point'

d) Which lens is used to correct this eye defect?

Ans: Bi-convex lens

e) Draw the symbol of used lens?

Ans:



f) What is the another name of this eye defect?

Ans: Far sightedness

g) If the person suffering from this eye defect ,what is the focal length of the eye lens?

Ans: Minimum focal length is greater than 2.27 cm

h) Are the focal lens of the used lens is positive or negative ?

Ans: Positive

12) Observe the following table and answer the following (Ch-5)

Name of the Student	Power of lens used for a single eye
Bhavitha	+1 D
Bhavana	-2D
Bharathi	-1 D and +1 D

a) Who is suffering from hypermetropia

Ans: Bhavitha

b) What type of vision defect has Bharathi

Ans: Presbyopia

c) Which type of lens is used by Bhavana

Ans: Bi-concave lens

d) What is the focal length of lens used by Bhavitha

Ans: $f=1/p=1/1=1\text{ m}=100\text{ cm}$

13) Complete the following table (Ch-7)

Period number	Filling up orbital's (sub shells)	Maximum number of electrons, filled in all the sub shells	Total no. of elements in the period
1			
2			
3			
4	4s, 3d, 4p	18	18
5			
6			
7	7s, 5f, 6d, 7p	32	incomplete

Ans:

Period number	Filling up orbital's (sub shells)	Maximum number of electrons, filled in all the sub shells	Total no. of elements in the period
1	1s	2	2
2	2s,2p	8	8
3	3s,3p	8	8
4	4s, 3d, 4p	18	18
5	5s,4d,5p	18	18
6	6s,4f,5d,6p	32	32
7	7s, 5f, 6d, 7p	32	incomplete

14) Complete the following table (Ch-6)

Element	Atomic number (Z)	Electronic configuration of elements
C	6	
N	7	
O	8	
F	9	
Ne	10	
Na	11	
Mg	12	
Al	13	
Si	14	
P	15	
S	16	
Cl	17	
Ar	18	
K	19	
Ca	20	

Ans:

Element	Atomic number (Z)	Electronic configuration of elements
C	6	$1s^2 2s^2 2p^2$
N	7	$1s^2 2s^2 2p^3$
O	8	$1s^2 2s^2 2p^4$
F	9	$1s^2 2s^2 2p^5$
Ne	10	$1s^2 2s^2 2p^6$
Na	11	$1s^2 2s^2 2p^6 3s^1$
Mg	12	$1s^2 2s^2 2p^6 3s^2$
Al	13	$1s^2 2s^2 2p^6 3s^2 3p^1$
Si	14	$1s^2 2s^2 2p^6 3s^2 3p^2$
P	15	$1s^2 2s^2 2p^6 3s^2 3p^3$
S	16	$1s^2 2s^2 2p^6 3s^2 3p^4$
Cl	17	$1s^2 2s^2 2p^6 3s^2 3p^5$
Ar	18	$1s^2 2s^2 2p^6 3s^2 3p^6$
K	19	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
Ca	20	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$

15) Electronic configuration of element is $1s^2 2s^2 2p^6 3s^2 3p^5$ (OR) An element has atomic number is 15. Answer the following questions (Ch-6)

a) What is the name of element?

Ans: Phosphorus

b) How many electrons are present in L-shell ?

Ans: 8

c) What is the $(n+l)$ value of 3p orbital ?

Ans: $3+2=5$

d) In which orbital the next electron enters ?

Ans: 3p

e) Which period and which group the element belongs?

Ans: 3 period and VA(15) group

f) What are the number of valence electrons in the element?

Ans: 7

g) Which block it belongs?

Ans: p-block

h) Is it metal or non metal?

Ans: Non-metal

i) What is the valency of the element?

Ans: 5

j) What is the name of the group which the element exists?

Ans: Nitrogen family

j) It is electropositive or electronegative ?

Ans: Electronegative

16) Complete the following table (Ch-7)

Period number	Total no. of elements	Elements		Total no. of elements in			
		From	To	s-block	p-block	d-block	f-block
1							
2							
3							
4							
5							
6							
7							

Ans:

Period number	Total no. of elements	Elements		Total no. of elements in			
		From	To	s-block	p-block	d-block	f-block
1	2	H	He	2			
2	8	Li	Ne	2	6		
3	8	Na	Ar	2	6		
4	18	K	Kr	2	6	10	
5	18	Rb	Xe	2	6	10	
6	32	Cs	Rn	2	6	10	14
7	Incomplete	Fr	Un named	2	6	10	14

17) Complete the following table (Ch-7)

Group No.	Name of the element family	Elements		Valence shell configuration	Valence electrons	Valency
		From	To			
1 (IA)	Alkali metal family	Li	Fr	ns^1	1	1
2 (IIA)	Alkali earth metal family					
13 (IIIA)	Boron family					
14 (IVA)	Carbon family					
15 (VA)	Nitrogen family					
16 (VIA)	Oxygen family or (Chalcogen family)					
17 (VIIA)	Halogen family					
18 (VIIIA)	Noble gas family					

Ans:

Group No.	Name of the element family	Elements		Valence shell configuration	Valence electrons	Valency
		From	To			
1 (IA)	Alkali metal family	Li	Fr	ns^1	1	1
2 (IIA)	Alkali earth metal family	Be	Ra	ns^2	2	2
13 (IIIA)	Boron family	B	Tl	ns^2np^1	3	3
14 (IVA)	Carbon family	C	Pb	ns^2np^2	4	4
15 (VA)	Nitrogen family	N	Bi	ns^2np^3	5	3
16 (VIA)	Oxygen family or (Chalcogen family)	O	Po	ns^2np^4	6	2
17 (VIIA)	Halogen family	F	At	ns^2np^5	7	1
18 (VIIIA)	Noble gas family	He	118	ns^2np^6	8	0

18) Complete the following table (Ch-7)

Element	Valence electrons	Group number	Period number
Sulphur			
Oxygen			
Magnesium			
Hydrogen			
Fluorine			
Aluminum			

Ans:

Element	Valence electrons	Group number	Period number
Sulphur	6	VI A (16)	3
Oxygen	4	VI A (16)	2
Magnesium	2	II A (2)	3
Hydrogen	1	I A (1)	1
Fluorine	7	VII A (17)	2
Aluminum	3	III A(13)	3

19) Observe the table and answer the questions (Ch-7)

Element	Electronic configuration
A	$1s^2 2s^2$
B	$1s^2 2s^2 2p^6 3s^2$
C	$1s^2 2s^2 2p^2 3s^2 3p^3$
D	$1s^2 2s^2 2p^6$

a) Which are the elements coming within the same period?

Ans: A,D and B,C

b) Which are the elements coming within the same group?

Ans: A,B

c) Which are the noble gas element?

Ans: D

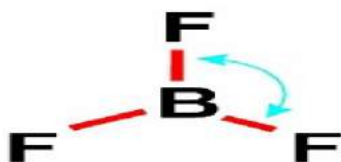
d) To which group and period does the element 'C' belong?

Ans: 3 period and VA(15) group

e) Name the element 'D'

Ans: Neon

20) Observe the figure and answer the questions (Ch-8)



a) What is the hybridization present in BF_3 ?

Ans: sp^2

b)What is the shape of BF_3 ?

Ans: Trigonal planar

c) What is the bond angle present in BF_3 ?

Ans: 120°

d)Why do BF_3 called as electron deficient compound?

Ans: Only 6 electrons are shared in bonding ,so no octet configuration gained

e)What is the overlap present between Boron and Fluorine?

Ans: $\sigma \text{ sp}^2\text{-p}$

f)Which element act as central atom in this molecule?

Ans: Boron

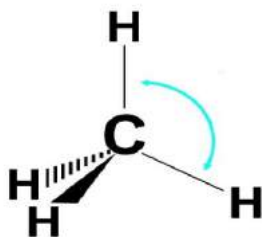
g)What is valency of Boron and Fluorine in BF_3 ?

Ans: Valance of Boron is 3 and Valance of Fluorine is 1

i)What is the name of the molecule?

Ans: Boron tri fluoride

21) Observe the figure and answer the questions (Ch-8)



a)What is the shape of the molecule?

Ans: Tetra hydral

b) What type of hybridisation present in CH_4 ?

Ans: sp^3

c) What is the name of the molecule?

Ans: Methane

d) What is the valency of Carbon and Hydrogen in CH_4 ?

Ans: Valance of Carbon is 4 and Valance of Hydrogen is 1

e)What is the bond angle in CH_4 ?

Ans: $109^\circ 28'$

f)What is the overlap present between Carbon and Hydrogen?

Ans: σ sp^3-s

22) Observe the figure and answer the questions (Ch-8)



a) How many lone pairs present on Nitrogen atom in Ammonia ?

Ans: one lone pair

b) What is the shape of the molecule?

Ans: Trigonal Pyramidal

c) What is the bond angle present in the molecule?

Ans: $107^{\circ}48'$

d) What is the valency of Nitrogen and Hydrogen in Ammonia?

Ans: Valance is Nitrogen is 3 and Valance of Hydrogen is 1

e) What is the hybridisation present in Ammonia?

Ans: sp^3

f) How many hybrid and atomic orbitals participated in the bonding ?

Ans: 3,3

23) Observe the figure and answer the questions (Ch-8)



a) What are the number of lone pairs and bond pairs present in the molecule?

Ans: Two lone pairs

b) What is the hybridisation present in the molecule?

Ans: sp^3

c) What is the shape of the molecule?

Ans: v-shape

d) What is the bond angle present in the molecule?

Ans: $104^{\circ}31'$

e)What is the valancy of Hydrogen and Oxygen in water molecule?

Ans: Valance of Hydrogen is 1 and Valance of Oxygen is 2

f)What is the overlap present in O-H bond?

Ans: σ sp^3 -s

g)What is the chemical name of Water?

Ans: Hydrogen monoxide

24) Observe the figure and answer the questions (Ch-8)



a)How many valance electrons are present in Y

Ans: 6

b)How many valance electrons are present in X

Ans: 1

c)How many covalent bonds are formed by X ?

Ans: 1

d) How many covalent bonds are formed by Y ?

Ans: 2

e)What is the valancy of X and Y

Ans: X valancy-1, Y valancy-2

f)Suggest the names for elements X and Y

Ans: X-Hydrogen , Y-Oxygen

g)Which method used in the molecular representation

Ans: Lewis electron dot structure

25) Amrutha conducted an experiment and her record the values of V and I are given below (Ch-9)

Potential difference(v) volt	Current(I) amp
3	1
4.5	1.5
6	2
7.5	2.5
9	3

a) $V/I = ?$

Ans: R (or) Constant

b) What is resistance of the resistor used?

Ans: We consider, any case

$$V=3V, \quad I=1A \quad R=?$$

$$R=V/I=3/1=3 \Omega$$

c) Does the used resistor is Ohmic or non Ohmic conductor?

Ans: Ohmic conductor

d) If the potential difference is 15 volt, then what will be the current in the resistor?

Ans: $V=15V, R=3 \Omega, I=?$

$$I=V/R=15/3=5A$$

e) What is shape of V-I graph of Ohmic conductor

Ans: Straight line

f) Write the relation between V and I

Ans: The potential difference between two ends of the conductor is directly proportional to the current passing through it (OR) $V \propto I$

26) Observe the table and answer the questions (Ch-9)

Material	$\rho(\Omega\text{-m})$ at 20 °C
Silver	1.59×10^{-8}
Copper	1.68×10^{-8}
Gold	2.44×10^{-8}
Aluminium	2.82×10^{-8}
Calcium	3.36×10^{-8}
Tungsten	5.60×10^{-8}
Zinc	5.90×10^{-8}
Nickel	6.99×10^{-8}
Iron	1.00×10^{-7}
Lead	2.20×10^{-7}
Nichrome	1.10×10^{-6}
Carbon (Graphite)	2.50×10^{-6}
Germanium	4.60×10^{-1}
Drinking water	2.00×10^{-1}
Silicon	6.40×10^2
Wet wood	1.00×10^3
Glass	10.0×10^{10}
Rubber	1.00×10^{13}
Air	1.30×10^{16}

a) On what factors does the resistivity of material depends?

Ans: Temperature and nature of the material

b) Write the SI unit of resistivity

Ans: Ω -m

c) Name the material which act as best conductor?

Ans: Silver

d) Name the material which is used to make of filament in the electric lamp?

Ans: Tungsten

e) Name the material which is used to make the heating elements of irons, toasters ?

Ans: Nichrome and Manganin

f) Name the materials which are used to make diodes, transistors and integrated circuits?

Ans: Silicon and Germanium

g) Name the two factors on which the resistivity of a substance does not depend?

Ans: Length and Cross section area of the substance

h) Write the equation to show the relation between resistance and resistivity of the material?

Ans: $R = \rho l/A$

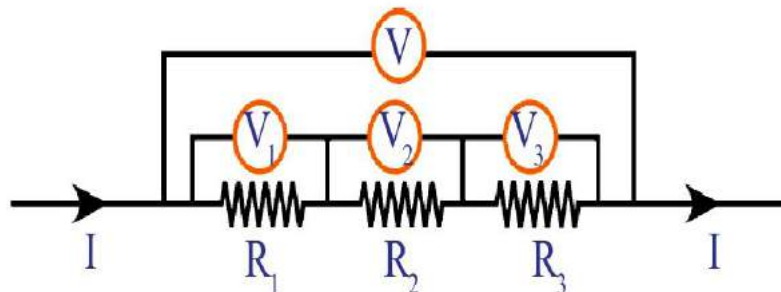
i) Which of the material do not oxidise easily either Nickel or Nichrome

Ans: Nichrome

k) Name the metals present in Nichrome?

Ans: Nickel, Chromium and Iron

27) Observe the figure and answer the questions (Ch-9)



a) Are all the resistors connected in series or parallel

Ans: Series

b) What is the equivalent resistance of the combination of three resistors

Ans: $R = R_1 + R_2 + R_3$

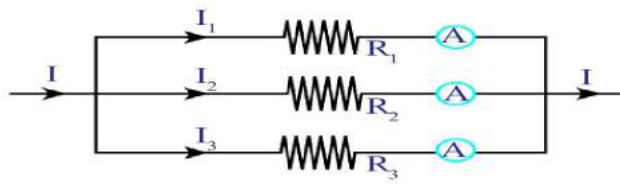
c) In this system, which physical quantity is constant

Ans: Electric Current(I)

d) If $R_1 = 2 \Omega$, $R_2 = 3 \Omega$ and $R_3 = 6 \Omega$, then find equivalent resistance

Ans: $R = R_1 + R_2 + R_3 = 2 + 3 + 6 = 11 \Omega$

28) Observe the figure and answer the questions (Ch-9)



a) Are all the resistors connected in series or parallel

Ans: Parallel

b) What is the equivalent resistance of the combination of three resistors

Ans: $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

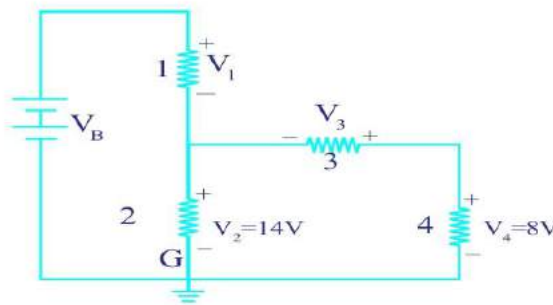
c) In this system, which physical quantity is constant

Ans: Potential difference (OR) Voltage

d) If $R_1 = 2 \Omega$, $R_2 = 3 \Omega$ and $R_3 = 6 \Omega$, then find equivalent resistance

Ans: $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} = \frac{1}{2} + \frac{1}{3} + \frac{1}{6} = \frac{6}{6} = 1$
R=1Ω

29) Observe the circuit and answer the questions given below (Ch-9)



a) Are resistors 3 and 4 in series ?

Ans: Yes

b) Are resistors 1 and 2 in series ?

Ans: No

c) Is the battery in series with any resistor?

Ans: The battery is in series with 1

d) What is the potential drop across the resistor 3?

Ans: $V_2 = V_3 + V_4$

$14 = V_3 + 8$

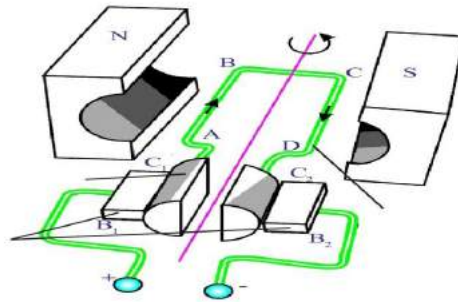
$V_3 = 14 - 8 = 6V$

e) What is the total emf in the circuit if the potential drop across resistor 1 is 6V?

Ans: $V_1=6V$, $V_2=14V$

The total emf in the circuit= $V_1+ V_2=6+14=20 V$

30) Observe the figure and answer the questions (Ch-10)



a) Name the diagram shown in the above figure?

Ans: Electric motor

b) Name the electrical device which converts electrical energy into mechanical energy?

Ans: Electric motor

c) What is the functioning of commutator in above diagram?

Ans: To change the direction of current through the coil ABCD after every half rotation

d) What is the nature of magnetic field between N and S poles ?

Ans: Uniform magnetic field

e) What happens when a current carrying coil is placed in a uniform magnetic field?

Ans: It rotates (It experience a force)

f) What is the direction of magnetic force on side AB of coil?

Ans: Inward (OR) into the page

g) What is the direction of magnetic force on side CD of coil?

Ans: Outward (OR) Out of the page

h) What is the direction of magnetic force on side BC of rectangular coil ABCD?

Ans: No force applied on BC

i) Does the coil rotate in clockwise or anti clockwise direction ,when the current flows through the coil in the direction ABCD?

Ans: Anti clockwise

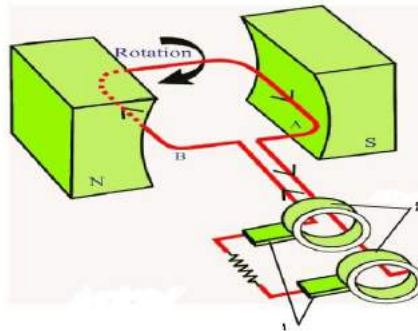
j) Does the coil rotate in clockwise or anti clockwise direction ,when the current flows through the coil in the direction DCBA?

Ans: Clockwise

k)What happens to the rotation of the coil,when the ends of the coil are connected to slip-rings instead of split-rings?

Ans: The coil will oscillates

31) Observe the figure and answer the questions (Ch-10)



a)Name the diagram shown in the above figure?

Ans: A.C generator

b)Name the parts labeled as 1 and 2 in the above figure?

Ans: Carbon brushes and Slip rings

c)Name the device which converts mechanical energy into electrical energy ?

Ans: Generator

d)What happens when a coil is continuously rotated in a uniform magnetic field?

Ans: Induced current is generated in the coil due to continuously change in magnetic flux passing through the coil

e)By which law we can find the direction of induced current generated in the coil?

Ans: Lenz's law

f)State lenz's law?

Ans: The induced current will appear in such a direction that it opposes the changes in the flux in the coil

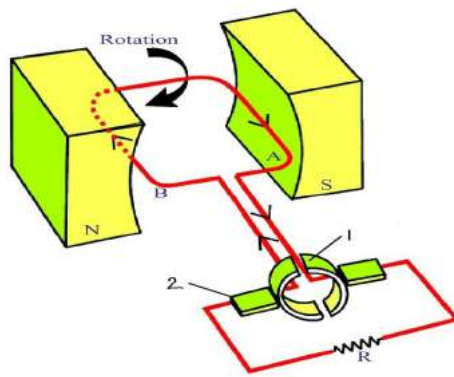
g)Name the current generated through the device shown in the above figure?

Ans: Alternating current

h)How can we get DC current using generator?

Ans: The ends of the coil are connected to split rings instead of slip rings

32) Observe the figure and answer the questions (Ch-10)



a) Name the diagram shown in the above figure?

Ans: DC generator

b) Name the parts labeled as 1 and 2 in the above figure?

Ans: Carbon brushes and Split rings(Commutator)

c)What changes do we need to make in an DC generator to be converted into AC generator?

Ans: If two slip rings are connected to ends of the coil instead of two half slip rings

d)Name the current generated through the device shown in the above figure?

Ans: Direct current

e) What changes do we need to make in an AC generator to be converted into a DC generator

Ans: If two half slip rings are connected to ends of the coil, the AC generator works as DC generator to produce DC current

33) Observe the table and answer the questions (Ch-11)

ORE	Formula	metal	ORE	Formula	metal
Bauxite	($Al_2O_3 \cdot 2H_2O$)	Al	Zincite	(ZnO)	Zn
Copper Iron Pyrites	($CuFeS_2$)	Cu	Rock salt	(NaCl)	Na
Zinc Blende	(ZnS)	Zn	Cinnabar	(HgS)	Hg
Magnesite	($MgCO_3$)	Mg	Magnetite	(Fe_3O_4)	Fe
Epsom salt	($MgSO_4 \cdot 7H_2O$)	Mg	Galena	(PbS)	Pb
Horn Silver	(AgCl)	Ag	Gypsum	($CaSO_4 \cdot 2H_2O$)	Ca
Pyrolusite	(MnO_2)	Mn	Lime stone	($CaCO_3$)	Ca
Haematite	(Fe_2O_3)	Fe	Carnallite	($KCl \cdot MgCl_2 \cdot 6H_2O$)	Mg

a)Give two examples for sulphide ores?

Ans: Copper iron pyrites, Zinc Blende, Cinnabar, Galena

b)Which method is used for concentration of Galena?

Ans: Froth Floatation

c)What is method used to convert Zinc blend to an oxide ore?

Ans: Roasting

d)What is the method used to convert Magnesite into an oxide ore?

Ans: Calcination

e)What is the metal present in Rock salt ?

Ans: Sodium

f)Which furnace is useful in extraction of Iron from Haematite?

Ans: Blast furance

g)What is the ore of Aluminum ?

Ans: Bauxite

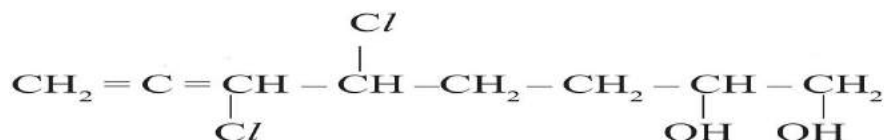
h)Which metal can be extracted from Cinnabar?

Ans: Mercury

i)What are metals present in Carnalite?

Ans: Potassium and Magnesium

34) Observe the structure and answer the questions (Ch-12)



a) What is the word root in the compound?

Ans: Oct

b) What is the functional group in the compound?

Ans: Alcohol

c) What is the name of the compound?

Ans: 5,6-di chloro-Oct- 6,7-di en 1,2-di ol

d) Which number is assigned for –OH group in the compound?

Ans: 1

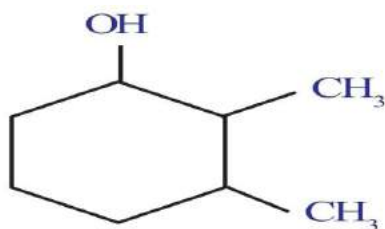
e) In which direction the numbering should be given?

Ans: Right to left

f) Is it an unsaturated compound. If Yes,why?

Ans: Yes, it has two double bonds

35) Observe the structure and answer the questions (Ch-12)



a)What is the functional group present in the compound?

Ans: Alcohol

b)What is the primary prefix in the compound?

Ans: Cyclo

c)What is the word root in the compound?

Ans: Hex

d)For which carbon do you assign number 1 ?

Ans: On OH Carbon

e)What is the name of the compound?

Ans: 2,3-di methyl cyclo hex an-1-ol

f)What is the suffix used for the functional group in IUPAC?

Ans: Ol

g)What type of reaction this compound would participate?

Ans: Substitution reaction

All the best.....

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