AS$_4$ Questions-10th class Physical Science

1.Fill in the table

Eye defect	?
Used lens	Convex lens
Focal length of the lens	100cm
Power of the lens	?
Far point of the lens	?

2.Fill in the table

Current in ampere	Effect
0.001	
0.005	
0.010	
0.015	

3.Complete the table

Element	Atomic number	Group number	Period number	Valance
Mg				
K				
C				
Ar				

4.Complete the table

Shell	K			
n value		2		

5.Fill the table

Orbit	No.of electrons
K	
	8
N	

6.Fill in the table

l	Orbital	Number of subshells
0		
2		

7.Complete the table

Subshell	No.of orbitals	Maximum number of electrons
s		
p		
d		
f		

8.Complete the table

S.No	Chemical name	Formula
1	Hydrochloric acid	
2		H_2SO_4
3	Ammonium hydroxide	
4		KOH

9. A student wrote the four quantum numbers for an electron.

n	l	m_l	m_s
1	0	0	$+\frac{1}{2}$

Is possible? Not? Why?

10.

Lens	Focal length
A	+20cm
B	-15cm

From

In atom, four quantum number of an electron given.Name the orbital which it belongs?

11.

n	l	m_l	m_s
1	0	0	$-\frac{1}{2}$

12. Observe the table. Given the temperatures of A and B substances in different cases.

Case\nSubstance	1	2	3	4	5
A	0° C	30° C	27° C	100° C	60° C
B	100K	273K	300K	373K	360K

a) In which cases, heat energy is transferred from A to B ?

b) In which cases, heat energy is transferred from B to A ?

c) In which cases, substances A and B are in thermal equilibrium state?

d) In the cases of thermal equilibrium positions of A and B substances, 0° C temperature is equal in Kelvin scale?

e) Write the relation between Celcius and Kelvin scales?

f) 0° C=_____K

13. Observe the table and answer the following questions

a) Which is having highest specific heat and which is having lowest specific heat substances among all given in the table

b) How much heat energy is requires to convert 1 g of water at 1° C

c) Write the SI unit of specific heat?

d) Convert 1 cal/g- °C

e) Which metal is slowly heated up among all given in the table?

f) Why different substances have different specific heats?

g) Write the relation between specific heat and rise in temperature?

h) Mention the specific heat of substance based on the units?

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

14. Heat energy is continuously supplied to 1 kg of ice at -5°C till it boils. By noting Temperature, Time and Temperature-Time graph is drawn as follows. Answer the following questions

a) Why the temperature not changes in states of BC and DE

b) Mention the state and temperature at C?

c) Latent heat of fusion of ice is 80 cal/g ,how much heat energy is required 1 kg of substances from B to C ?

d) How much heat energy is required, when 1kg of water at 0°C convert to 100°C of water?

e) What is melting point of ice?

f) What is boiling point of water?
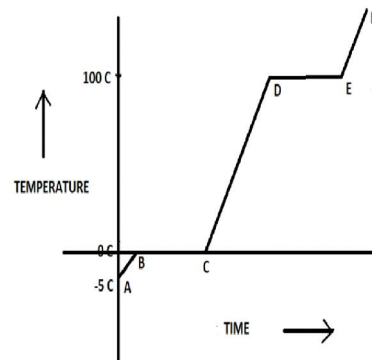
15. Observe the table and answer the following questions

Substance	Kerosene	Ice	Water	Sea water
Specific heat(cal/g- °C)	0.50	0.50	1.0	0.95

a) Which of the kerosene and ice heats up quickly? Why?

b) Which of the quickest extinguisher in Water, Sea water and Ice?

16. Observe the table and answer the following questions

Substance	Colour indicated by blue litmus	Colour indicated by red litmus
A	Red	No change
B	No change	Blue
C	No change	No change
D	Red	No change

a) Which are the acids in the given table?

b) Which is neutral substance A, B, C and D ?

c) Which are the bases in the given table?

d) What happens when some drops of phenolphthalein solution is added to substance B?

17. Based on the given table, answer the following questions.

Solution	pH	Reaction with phenolphthalein solution	Reaction with methyl orange solution
HCl	1	No change in colour	Change in Red colour
NaOH	13	Change inPink colour	Change in Yellow colour
Distilled Water	7	No change in colour	No change in colour
Lemon juice	2.5	No change in colour	Change in Red colour
NaCl	7	No change in colour	No change in colour
Baking soda	8	Change in Pink colour	Change in Yellow colour

a) Mention the acids and their pH values in the given table?
b) Mention the nature of the solution, when react with phenolphthalein solution to give pink colour?
c) Write the neutral solutions in the given table?
d) Write the solutions in ascending order based on their pH values?

18. In the experiment done to find the focal length of symmetrical convergent lens by object distance(U) and image distance (V)are record as follows

U (cm)	V (cm)
20	20
30	15
40	13.3
50	12.5

a) What is the focal length of the lens?
b) When object distance is 60cm, where will be the image formed?
c) Write the characteristics of image when object is kept at 25cm in the front of the lens?
d) What type of image is formed when object is kept at 5 cm?
e) We get image at infinite distance, Where will be the object is placed?
f) To get virtual image , at what least distance should keep the object from lens?
g) What is the object distance to get same size image as object?
h) To get enlarged and real image, Write the highest and lowest object distances?

19. Recorded the values of angle of incidence(i) and angle of deviation(d) in the experiment of finding the refractive index of prism as follows

Answer the following questions based on given information

i	d
20^0	37^0
25^0	35^0
30^0	32^0
35^0	30^0
40^0	32^0
45^0	36^0
50^0	39^0

a) What is the angle of minimum deviation from the table?
b) What is the angle of emergence at angle of minimum deviation?
c) Find the angle of prism?
d) Find the refractive index of a prism?
e) What is the shape of i-d graph?

20. The quantum numbers of an electron are given below.

n	l	m_l	m_s
3	1	0	$+\frac{1}{2}$

Answer the following questions using the above values given in the table.
a) Which shell is the above said molecule in?
b) Which orbital is the above said molecule in?
c) If the above said molecule is in 3rd orbit and s-orbital, what is the value of l ?
d) What indicates m_l from the above table?

21. Answer the following questions from the given figure
a) Which molecule's electronic configuration was shown in the given figure?
b) Write electronic configuration of that molecule.
c) How many protons are present in that molecule?
d) What happens if there is a loss of one electron in that molecule?
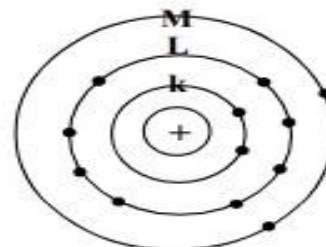
22. Electronic configurations of S,X,Y and Z are given below.
    S=2,8,1   X=2,6   Y=2   Z=2,8,2
a) What is an atom that is full of electrons in 2 shells?
b) Which is an atom with an electron configuration of 2,8,2 ?
c) Which atom has four electrons in the valence orbit, filled with three orbits electrons ?
d) Which atom has four electrons in the valence orbit, filled with two orbits electrons?

23. Observe the table and answer the following questions
   a)Which element belongs to 2nd group?
   b)Which element belongs to 3rd period ?
   c)Which element is noble gas?
   d)Which elements belong to same period?

Element/Atom	Atomic mumber
A	6
B	8
C	10
D	12
E	14
F	16

24.

V (volt)	1.5	3.0	4.5	6.0	7.5
I (ampere)	0.2	0.4	0.6	0.8	1.0

   Based on above information. Answer the following questions
   a)What is the nature of V-I graph?
   b)Is Ohmic conductor used or Non ohmic conductor used?
   c)What is value of resistance?
   d)Find the electric current in the circuit, if potential difference is 12V ?

25.Given figure is V-I graph.
   Observe the graph and answer the following questions
      a)Which law is verified this graph?
      b)This graph applies to any materials
      c)What is the resistance of the material used in the experiment ?
      d)If potential difference is 50V, then find the electric current?
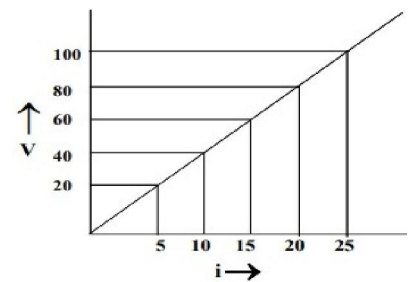
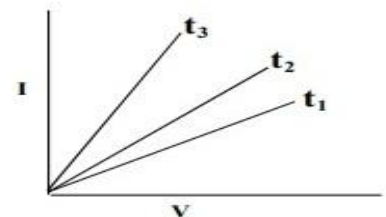26.Write ACDBA,EFDCE, EFBAE loop equations according to
   Kirchhoff's loop law
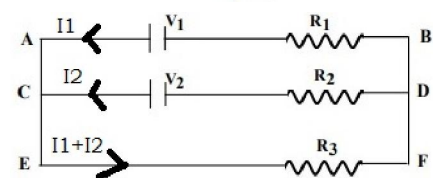
27.Find electric current drawn from the battery of emf 16V
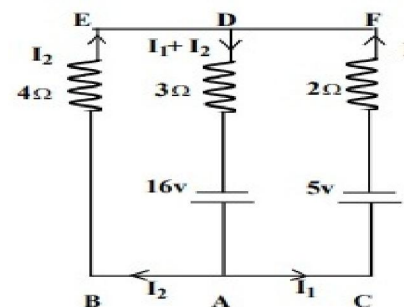
28.The graph below shows the V-I graphs of a Nichrome at
   t_1, t_2 and t_3 temperatures

   A) The resistance value at t_1 is greater than at t_2 and t_3
   B) $t_1<t_2$ and $t_2<t_3$
   C) $t_1<t_2$ and $t_3<t_2$
   D) The value of t_3 is greater than t_2 and t_1

29. Given the specific resistances of some materials.
   Answer the following questions based on the information in the table

Material	$\rho_{(\Omega-m)}$ 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) Which of the above materials is the most resistant material?
   b) Which of the following is a good conductor of Copper and Alumimium?
   c) What is the alloy in the above materials?
   d) What is the material used in heating electrical equipment? Why?
   e) What is the filament used in the bulb?
   f) What is the relationship between the resistivity of materials and their conductivity?
   g) What is unit of resistivity?
   h) Which of the above materials is a semi conductor? It is used for what?

30.

Material	Resistivity(Ω-m)
Silicon	6.4×10^{2}
Germanium	4.6×10^{-1}
Rubber	1.0×10^{13}
Silver	1.6×10^{-8}

   1) What is the nature of Germanium and Silicon?   (   )
      A) Conductors B) Insulators C) Semi conductors D) None of the above
   2) If the materials given in the table have same length and same area of cross section, which material has the less resistance   (   )
      A) Germanium   B) Silver   C) Rubber   D) Silicon

31. Observe the circuit and answer the questions given below.
    i) Are resistors 1 and 2 in series?
    ii) Are resistors 3 and 4 in series?
    iii) Is the battery in series with any resistor?
    iv) What is the potential drop across the resistor 3?
    v) What is the total emf in the circuit if the potential drop across resistor 1 is 6V?
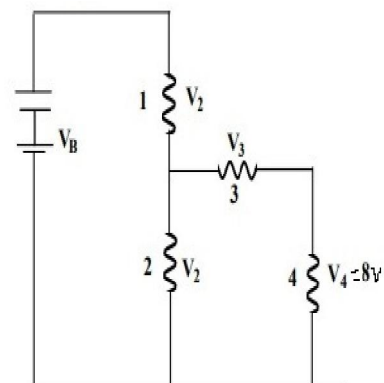
32. Fill the blanks in the following table about Alkenes and answer the following questions

S.NO	Alkene	Molecular formula	Number of carbons
1	Ethylene	C_2H_4	
2		C_3H_6	3
3		C_4H_{10}	
4	Pentene		5

   a) Write the general formula of the Alkenes from the above table
   b) How many $\prod$ bonds are there in C_2H_4 totally?
   c) What hierarchy do you recognize in the above technique?

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