General Science Paper - I
Sub: Physical Sciences
(English Version)

Time: 2½ hours **Max Marks:50**

Instructions:

1. **Answer the questions under part - A on a seperte answer book.**
2. **Write the answer to the questions under part-B on the question paper iteself and attach it to the answer book of part-A**

Time: 2 hours **Max Marks:35**

Section - I

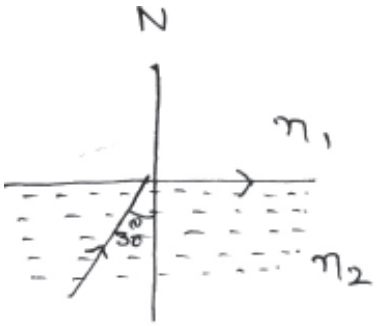
Part-A **5 × 2 = 10**

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

2. **Each question carries two marks.**

Group - A

1. Look at the picture,



a) What is the refractive index of the denser medium.

b) Find the refractive index of denser medium with respect to rarer medium

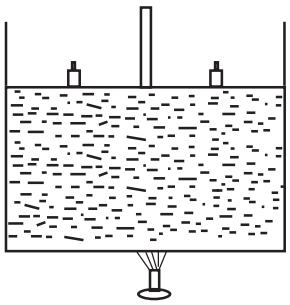
2. Unpolished shoes appears dull, while polished shoes shines brightly guess the reason?

3. When an electron and a neutron are moving through uniform magnatic field with velocity 'v' perpendicular to the direction of magnetic field 'B'

a) Whcih particle deflects? Why?

b) What is the path of the deflected particle?

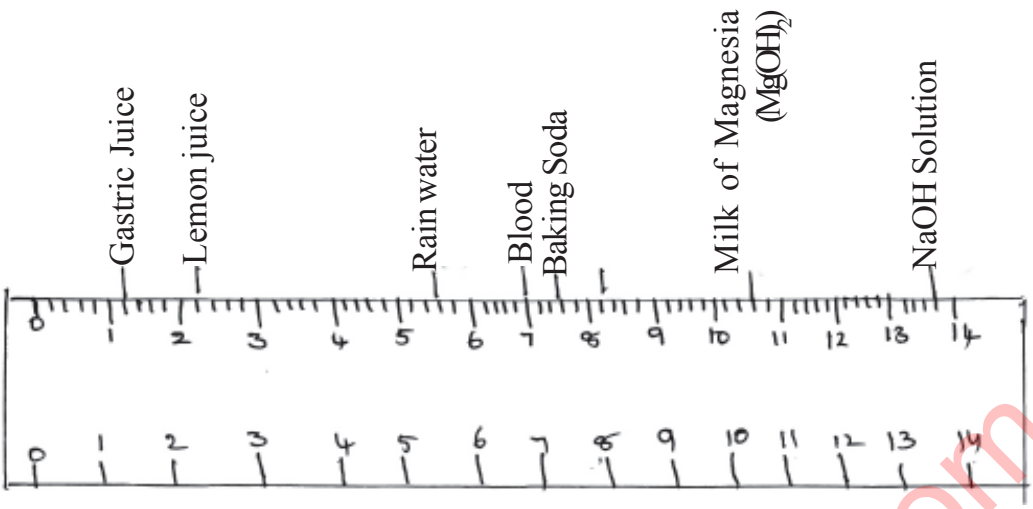
4. Consider a cylinder vessel containing water. A frictionless movable piston is arranged to the cylinder as shown in figure weights are placed on the piston . Heat the system.



a) When do you say that boiling process takes place?

b) Guess, what happens to boiling point when weights are increased?

5.



By observing the above pH scale, answer the following

(i) Whcih of the body fluid have basic in nature
(ii) Is lemon juice a strong acid or weak acid?
(iii) Whcih of the above liquid have strong basic character?
(iv) What is the pH of distilled water? (As4)

6. Write the four quantum numbers for the electron that enters last in potassium atom? (AS1)

7. 'X' is an element O belongs to '3rd' period and 13th group then answer the following
   (i) Write the electron configuration of 'X'?
   (ii) What is the valency of 'X'? (AS2)

8. How do you appreciate the role of Buck minister Pfullerin medicine ? (AS6)

Section - II

$4 \times 1 = 4$

Note: **1. Answer any four questions of the following.**
2. Each question carries two marks.

9. Ekambaram is doing an experiment using mirrors to understand the concept of magnification. He identified the situation where the magnification is found to be greater than.
   a) What type of mirror is he used in this experiment?
   b) What is type position of the object for the above situation?

10. What is the reason for using Tungsten as a filament in electric bulb?

11. When we are inside the water, we use goggle's to see the things clearly? Give reason?

Chemistry

12. What are the compounds formed along with lead oxide when Lead Nitrate is heated? (AS1)

13. How do you appreciate the role of toothpaste in preventing the tooth decay? (AS6)

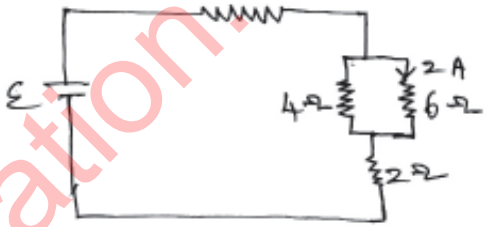
14. How can you support that Silicon is a metalloid?

Section - III

4 × 4 = 16

Note: **1. Answer any four questions choosing atleast two from each group.**
2. Each question carries four marks.

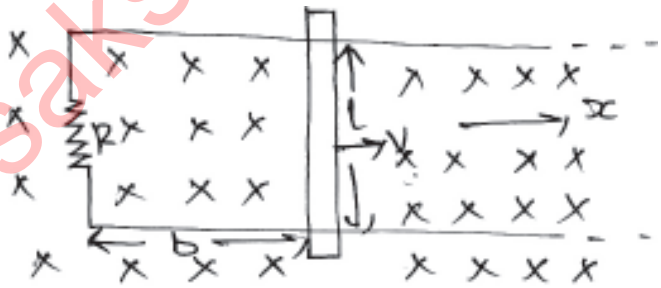
15. Observe the circuit and answer the following questions.



a) Calculate the current flowing through ..... resistor?
b) What is the current drawn from the battery?
c) What is the emf of the battery?

16. Suresh can see the objects clearly which are beyond 3m. So he consulted the doctor and the doctor suggested him some lens.
a) What type of eye defect he has?
b) What kind of lens, doctor suggested him to overcome the eye defect?
c) What is the focal length of the lens?

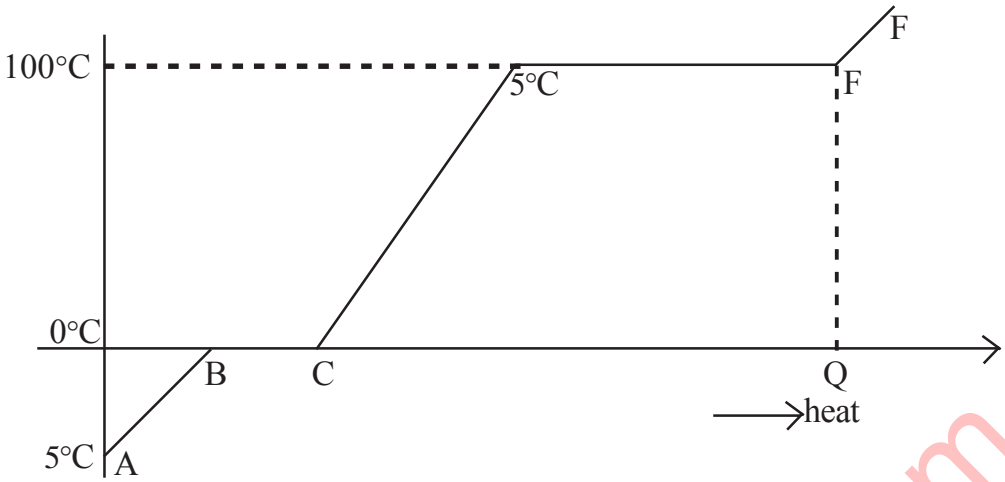
17.



Uniform magnatic field 'B' is acting vertically downwards as shown in figure. A circuit of unthreaded wire with resistance R is kept in the magnatic field. A conductor of length *l* is placed on the circuit and is moving in *x*-direction.

a) If the conductor is moving in positive *x*-direction with velocity υ, what is the change in flux in one second.
b) What is magnitude and direction of current in the circuit?
c) What is the power dissipation in the resistor?

18.



The graph given above shows that an ice of 1kg. at -5°C is heated till it vaporises completely.

a) What is the state of ice at C?

b) What does the port DE in the graph represent? explain?

c) What is the value of Q (heat energy) at E shown in graph?

Group - B

19. What are the rules to be followed while filling the electrons in atoms whcih contains more than one electron? How do you fill the electrons in degenerate orbitals, explain? (AS1)

20. Guess the reasons why Ionic compound have more melting and Boiling points when compared to covalent compounds?

21. Explain a chemical reaction to show the differenc between Ethyl alchol and Acetic Acid? (AS3)

22. Sudheer has observed change of colour in pieces of apple after cutting and also rusting of iron for the iron gate at his home. What could be the reason for all these? Explain the same type of situations in our daily life? (AS6)

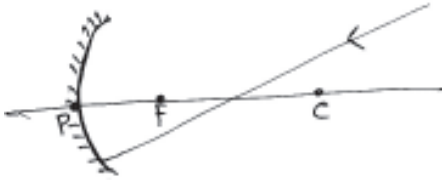
Section - IV

$1 \times 5 = 5$

Note: **1. Answer any one question of the following questions.**

2. Each question carries five marks.

23. As shown in figure, light ray incident on concave mirror. Using ray rules, construct reflected ray for a given incident ray (Don't use normal).
Complete the diagram and explain the steps for getting the reflected ray.



24. We know the ratio of Hydrogen and oxygen in water is 2:1, what type experimental arrangement you prefer in order to prove the above fact? Explain with diagram?

General Science Paper - I
Sub: Physical Sciences
(English Version)

Time: 2½ hours **Max Marks:50**

Part-B **5 × 2 = 10**

Attach Part- B questions paper to the main answer book of part-A

Time: 30 minutes **Marks:15**

Instructions:

1. **Answer all the quetions.**
2. **Each question carries ½ marks.**
3. **Answers are to be written in the question paper only.**
4. **Marks will not be awarded in case of any over writing and rewriting or erased answers.**

I Write the capital letter showing the correct answer for the following questions in the brackets provided against them.

1. 10g of ice at 0°C is mixed with 10g of water at 60°C the resultant temperture of the mixes is (consider the heat tranfer between these two systems only) ( )

   A) -20°C B) -10°C C) 0°C D) 20°C

2. An object is kept at the distnce of 10 cm from the mirror. If the object is moved 6cm towards the mirror then the difference the distances of object and image in the two cases is ( )

   A) 8cm B) 4cm C) 10cm D) 16cm

3. Which of the following is not true for a biconvex lens ( )

   A) The focal length of biconvex lens is always positive

   B) The focal length of biconvex lens depends on material of the lens used and the medium in which it is kept.

   C) Biconvex lens can form both virtual and real images for real objects.

   D) It is used to correct hyper metropia

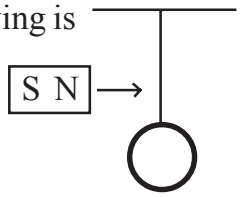
4. An real object is kept at 20 cm from the convex lens and its real image is found at 20cm only. What is the focal length of the lens. ( )

   A) 20cm B) 10cm C) 5cm D) 15cm

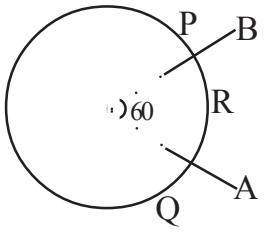
5. In an experiment Brahmanandam took 9cm thickness of glass slab, he calculated the vertical slab as 1cm. What is the refractive index of glass slab ( )

   A) $\frac{9}{8}$ B) $\frac{8}{9}$ C) $\frac{4}{3}$ D) $\frac{9}{7}$

6. A coil is suspended from the ceiling as shown in the figure. A bar magnet is moving towards the coil then which of the following is not correct ( )



A) With respect to bar magnet the direction of current in the coil is anti clock wise
B) The field due to coil is opposite to the field due to bar magnet
C) The current generated in the coil depends on the velocity of the bar magnet
D) The emf generated in the coil depends on the resistance of the coil

7. 

Let the resistance between P and Q is R. Find the equivalent resistance between A and B ( )

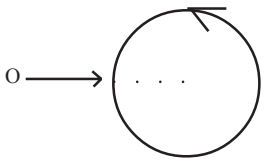
A) B) C) D)

8. Whch of the following is not true for refraction ( )

A) During refraction frequency of light does not change.
B) When light ray moves from denser medium to rarer medium the angle of refraction is greater than angle of incidence
C) During refraction the light always bends at the interface of two medium
D) A fish in a pond appears closer than its original distance when viewed from top of the pond.

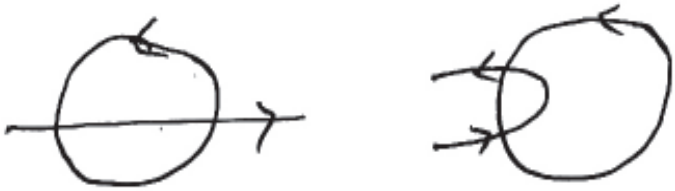
9. An iron box at 60°C contains H_2 gas at 30°C initially which of the following is not true. ( )

A) Heat flows from Iron box to gas
B) The heat lost by the iron depends on specific heats of iron and H_2 gas and masses of the box and gas.
C) the system never comes to thermal equilibrium .
D) At thermal equilibrium the average kinetic energy of iron atom is equal to average kinetic energy of the hydrogen molecule.

10. 

As shown in the figure an electron is projected perpendicular to the solenoid axis (gaps are available between the turns) The current in the solenoid is anti clock wise assume the magnetic field due to solenoid is uniform. Which of the following diagram is true. ( )

A) 

C) 

11. $CuSO_4 + Fe \rightarrow FeSO_4 + Cu$, equation indicates ( )
A) displacement B) decomposition
C) combination D) Double displacemnet

12. $NaHCO_3$ means ( )
A) Baking Soda B) Washing Soda
C) Di Sodium Hydrogen Carbonate D) All the above

13. Magnetic quantum number values of 3d orbital ( )
A) -1, 0, +1 B) -2, -1, 0, +1, +2 C) 0 D) -3, -2, -1, 0, +1, +2+3

14. Element with atomic number '15' belongs to ____ block in periodic table ( )
A) S-bolck B) P-block C) d-block D) f-block

15. Nature of substance applied on skin when we stung honey bee ____ ( )
A) Strong acid B) Strong base C) Weak acid D) Weak base

16. Which method is useful to remove imputies from Zinc Blende___ ( )
A) Hand Picking B) Wsshing C) Froth floatation D) Magnetic Separation

17. Which among the following is an or of sulphide_____ ( )
A) Carnalite B) Horn Silver C) Cinnabar D) Magnesite

18. During poting process while using green wood the released reducing gases prevent the metal from____ ( )
A) Reduction B) Oxidation C) neutralisation D) liquation

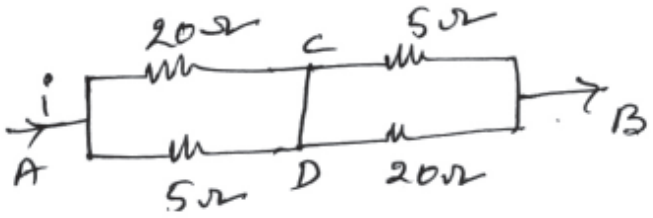
19. $\begin{array}{ccc} CH2 & - CH & - CHO \\ | & | & \\ Cl & Cl & \end{array}$, IUPAC Name of the compound is

A) Cyclo butane B) 2,3 - Di chloro propanal
C) 3, 2 Di chloro propanal D) 2 Chloro butanadehyde

20. Atomic weight of Beryllium is 9. Then equivalent weights ( )
A) 13.5 B) 9 C) 4.5 D) 2

Fill in the blanks with suitable answers each question carries ½ marks

10 × ½ = 5 marks

21. 

The potential difference between C and D _____

22. The cause of RAINBOW is _____

23. 

A biconvex lens of total length *f* is cut vertically as shown in the figure the focal length of each part in _____

24. A room temperature is 27°C. Its value in kelvin scale is _____

25. Cones is a Eye recognise _____

Section - III

Match the Following

26.	$CaOCl_2$	( )	a) Hydrated salt
27.	$CuSO_4\ 5H_2O$	( )	b) first synthesized compound
28.	C_6H_{10}	( )	c) Rusting
29.	Fe_2O_3	( )	d) Bleaching power
30.	NH_2CONH_2	( )	e) Alkyne
			f) Alkene
			g) De hydrated salt.