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### 8<sup>th</sup> Std Physical Science

#### I. Choose the Best Answer

##### 1. MEASUREMENT

1. Which one the following systems of unit is the British System of unit?  
a) CGS b) MKS c) FPS d) SI
2. Electric current is a \_\_\_\_\_ quantity  
a) base b) supplementary c) derived d) professional
3. SI unit of temperature is \_\_\_\_\_  
a) Celsius b) Fahrenheit c) kelvin d) ampere
4. Luminous intensity is the intensity of \_\_\_\_\_  
a) laser light b) UV light c) visible light d) IR light
5. Closeness of two or more measured values is called as \_\_\_\_\_  
a) accuracy b) precision c) error d) approximation
6. Which one of the following statement is wrong?  
a) Approximation gives accurate value.  
b) Approximation simplifies the calculation.  
c) Approximation is very useful when little information is available.  
d) Approximation gives the nearest value only

##### 2. FORCE AND PRESSURE

7. If we apply force against the direction of motion of the body, then the body will  
a) stop moving b) move with an increased speed  
c) move with a decreased speed d) move in a different direction
8. Pressure exerted by a liquid is increased by  
a) the density of the liquid b) the height of the liquid column  
c) Both a and b d) None of the above
9. Unit of pressure is  
a) Pascal b)  $\text{Nm}^{-2}$  c) Poise d) Both a and b
10. The value of the atmospheric pressure at sea level is

- a) 76 cm of mercury column b) 760 cm of mercury column  
c) 176 cm of mercury column d) 7.6 cm of mercury column
11. Pascal's law is used in  
a) hydraulic lift b) brake system c) pressing heavy bundles d) All the above
12. Which of the following liquids has more viscosity?  
a) Grease b) Water c) Coconut oil d) Ghee
13. The unit of viscosity is  
a)  $\text{Nm}^2$  b) poise c)  $\text{kgms}^{-1}$  d) no unit

### 3. LIGHT

14. Which of the following has curved reflecting surface?  
a) plane mirrors b) spherical mirrors c) simple mirrors d) None of the above
15. The spherical mirror with a reflecting surface curved inward is called  
a) convex mirror b) concave mirror c) curved mirror d) None of the above
16. The spherical mirror used as a rear view mirror in the vehicle is  
a) concave mirror b) convex mirror c) plane mirror d) None of the above
17. The imaginary line passing through the centre of curvature and pole of a spherical mirror is called  
a) centre of curvature b) pole c) principal axis d) radius curvature
18. The distance from the pole to the focus is called  
a) pole length b) focal length c) principal axis d) None of the above
19. If the image and object distance is same, then the object is placed at  
a) infinity b) at F c) between f and P d) at C.
20. If the focal length of a spherical mirror is 10 cm, what is the value of its radius of curvature?  
a) 10 cm b) 5 cm c) 20 cm d) 15 cm

### 9. MATTER AROUND US

21. The liquid metal used in thermometers is  
a) copper b) mercury c) silver d) gold
22. The pictorial symbol for water given by the alchemists was



23. Which one of the following element name is not derived from planet?

a) Plutonium b) Neptunium c) Uranium d) Mercury

24. Symbol of mercury is

a) Ag b) Hg c) Au d) Pb

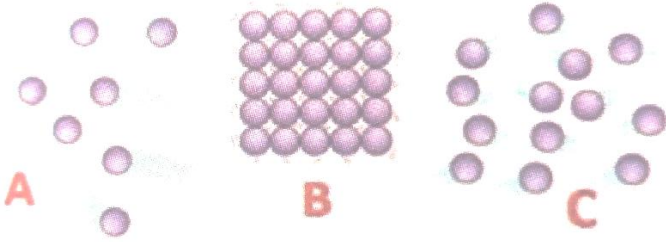
25. A form of non-metal which has high ductility is

a) nitrogen b) oxygen c) chlorine d) carbon

26. Pencil lead contains

a) graphite b) diamond c) aluminium d) sulphur

27. Identify the state of matter based on the arrangement of the molecules.



- a) A - Gas, B - Solid, C - Liquid
- b) A - Liquid, B - Solid, C - Gas
- c) A - Gas, B - Solid, C - Liquid
- d) A - Liquid, B - Gas, C - Solid

### 10. CHANGES AROUND US

28. The property which allows the metals to be hammered into their sheets is \_\_\_\_\_
- a) ductility b) malleability c) conductivity d) shining strength
29. The non-metal which conducts electric current is
- a) carbon b) oxygen c) Aluminium d) sulphur
30. Burning of paper is a \_\_\_\_\_ change.
- a) physical b) chemical c) physical and chemical d) neutral
31. Burning of matchstick is an example for chemical reaction caused by \_\_\_\_\_
- a) contact in physical states b) electricity c) light d) catalyst
32. \_\_\_\_\_ undergoes rusting.
- a) Tin b) Sodium c) Copper d) Iron
33. The pigment responsible for browning of apples is \_\_\_\_\_.
- a) hydrated iron (II) oxide b) melanin c) starch d) ozone
34. Brine is a concentrated solution of \_\_\_\_\_.

- a) sodium sulphate b) sodium chloride c) calcium chloride d) sodium bromide
35. Limestone contains \_\_\_\_\_ mainly.
- a) calcium chloride b) calcium carbonate c) calcium nitrate d) calcium sulphate
36. Which of the following factor induces electrolysis?
- a) Heat b) Light c) Electricity d) Catalysis
37. In Haber's process of producing ammonia \_\_\_\_\_ is used as a catalyst.
- a) nitrogen b) hydrogen c) iron d) nickel
38. Dissolved gases like sulphur dioxide and nitrogen oxides in rain water causes \_\_\_\_\_
- a) acid rain b) base rain c) heavy rain d) neutral rain.
39. \_\_\_\_\_ is/are responsible for global warming
- a) Carbon dioxide b) Methane c) Chlorofluorocarbons d) Carbon dioxide, Methane.

## II. Fill In The Blanks

### 1. MEASUREMENT

- The solid angle is measured in \_\_\_\_\_
- The coldness or hotness of a substance is expressed by \_\_\_\_\_
- \_\_\_\_\_ is used to measure electric current.
- One mole of a substance contains \_\_\_\_\_ atoms or molecules.
- The uncertainty in measurement is called \_\_\_\_\_.
- The closeness of the measured value to the original value is \_\_\_\_\_.
- The intersection of two straight lines gives us \_\_\_\_\_.

### 2. FORCE AND PRESSURE

- The pressure of a liquid column \_\_\_\_\_ with the depth of the column.
- Hydraulic lift works under the principle of \_\_\_\_\_.
- The property of \_\_\_\_\_ of a liquid surface enables the water droplets to move upward in plants.
- A simple barometer was first constructed by \_\_\_\_\_.

### 3. LIGHT

- The spherical mirror used in a beauty parlour as make-up mirror is \_\_\_\_\_.

13. Geometric centre of the spherical mirror is \_\_\_\_\_.
14. Nature of the images formed by a convex mirror is \_\_\_\_\_.
15. The mirror used by the ophthalmologist to examine the eye is \_\_\_\_\_.
16. If the angle of incidence is  $45^\circ$ , then the angle of reflection is \_\_\_\_\_.
17. If an object is placed between two mirrors which are parallel to each other, the number of images formed is \_\_\_\_\_.

### ***9. MATTER AROUND US***

18. The element which possesses the character of both metals and non metals are called \_\_\_\_\_.
19. The symbol of tungsten is \_\_\_\_\_
20. Melting point of most metal is \_\_\_\_\_ than non-metal.
21. Water contains \_\_\_\_\_ and \_\_\_\_\_ element.
22. \_\_\_\_\_ is used as semiconductor.

### ***10. CHANGES AROUND US***

23. Photosynthesis is a chemical reaction that takes place in the presence of \_\_\_\_\_.
24. Iron objects undergo rusting when exposed to \_\_\_\_\_ and \_\_\_\_\_.
25. \_\_\_\_\_ is the basic material to manufacture urea.
26. Electrolysis of brine solution gives \_\_\_\_\_ gases.
27. \_\_\_\_\_ is a chemical substance which alters the speed of a chemical reaction.
28. \_\_\_\_\_ is the enzyme responsible for browning of vegetables and fruits.

### **III. State true or false. If false, correct the statement**

#### ***1.MEASUREMENT***

1. Temperature is a measure of total kinetic energy of the particles in a system.
2. If one coulomb of charge is flowing in one minute, it is called 'ampere'.
3. Amount of substance gives the number of particles present in a substance.
4. Intensity of light coming from a candle is approximately equal to one 'candela'.
5. Quartz clocks are used in GPS devices
6. Angle formed at the top of a cone is an example for 'plane angle'.
7. The number 4.582 can be rounded off as 4.58

## **2. FORCE AND PRESSURE**

8. Force acting on a given area is called pressure.
9. A moving body comes to rest due to friction alone.
10. A body will sink if the weight of the body is greater than the buoyant force.
11. One atmosphere is equivalent to 1,00,000 newton force acting on one square metre.
12. Rolling friction is slightly greater than the sliding friction.
13. Friction is the only reason for the loss of energy.
14. Liquid pressure decreases with the decrease of depth.
15. Viscosity depends on the pressure of a liquid.

## **10. CHANGES AROUND US**

16. A chemical reaction is a temporary reaction.
17. Decomposition of lead nitrate is an example for a chemical reaction caused by light.
18. Formation of slaked lime from quicklime is an endothermic reaction
19. CFC is a pollutant.
20. Light energy may come out due to chemical reaction.

#### IV. Match The Following.

##### 1. MEASUREMENT

1. Temperature - Closeness to the actual value
2. Plane angle - Measure of hotness or coldness
3. Solid angle - Closeness to two or more measurements
4. Accuracy - Angle formed by the intersection of three or more planes
5. Precision - Angle formed by the intersection of two planes

##### 2. FORCE AND PRESSURE

- |  |  |
|--|--|
| a.   | b.   |
| 6. Static friction - Viscosity                                 | 11. Barometer - reduce friction                          |
| 7. Kinetic friction - Least friction                           | 12. Increasing area of contact -<br>Atmospheric pressure |
| 8. Rolling friction - Objects are in motion                    | 13. Decreasing area of contact- cause of<br>friction     |
| 9. Friction between the liquid layers -<br>Objects are sliding | 14. Lubricants - increases friction                      |
| 10. Sliding friction - Objects are at rest                     | 15. Irregular surface – decreases friction               |

##### 3. LIGHT

16. Convex mirror - Radio telescopes
17. Parabolic mirror Rear – view mirror
18. Snell's law - Kaleidoscope
19. Dispersion of light -  $\sin i/\sin r = \mu$
20. Refractive index – Rainbow

##### 9. MATTER AROUND US

- |    |    |
|----|----|
| a. | b. |
|----|----|



- |   |   |
|---|---|
| 21. Iron - For making wires                     | 25. Atom - Building block of matter         |
| 22. Copper- Sewing needle                       | 26. Element - Atoms of different kinds      |
| 23. Tungsten - As a fuel for ignition in rocket | 27. Compound - Atoms of the same kind       |
| 24. Boron - Making the filament of a bulb       | 28. Molecule - Smallest unit of a substance |

### **10. CHANGES AROUND US**

- |  |                               |
|--|-------------------------------|
| a.   | b.                            |
| 29. Rusting - Photosynthesis               | 34. Spoilage - Decomposition  |
| 30. Electrolysis - Haber's process         | 35. Ozone - Biocatalyst       |
| 31. Thermolysis - Iron                     | 36. Tarnishing - Oxygen       |
| 32. Food - Brine                           | 37. Yeast - Chemical reaction |
| 33. Catalysis - Decomposition of limestone | 38. Calcium oxide - Food      |

**V. Consider the statements given below and choose the correct option.**

#### **1. MEASUREMENT**

1. Assertion: The SI system of units is the suitable system for measurements.

Reason: The SI unit of temperature is kelvin.

2. Assertion: Electric current, amount of substance, luminous intensity are the fundamental physical quantities.

Reason: They are independent of each other.

3. Assertion: Radian is the unit of solid angle.

Reason: One radian is the angle subtended at the centre of a circle by an arc of length equal to its radius.

#### **2. FORCE AND PRESSURE**

4. Assertion: Sharp knives are used to cut the vegetables.

Reason: Sharp edges exert more pressure.

5. Assertion: Broad straps are used in bags.

Reason: Broad straps last for long.

6. Assertion: Water strider slides easily on the surface of water.

Reason: Water strider experiences less buoyant force.

- a. Both assertion and reason are true and reason is the correct explanation of the assertion.
- b. Both assertion and reason are true but reason is not the correct explanation of the assertion.
- c. Assertion is true, but reason is false.
- d. Both assertion and reason are false

### VI. Complete the analogy.

- 1. Knot in a thread : \_\_\_\_\_ friction :: Ball bearing : \_\_\_\_\_ friction
- 2. Downward force : Weight :: Upward force offered by liquid : \_\_\_\_\_

### VII. Answer Very Briefly.

#### *1. MEASUREMENT*

- 1. How many base quantities are included in SI system?
- 2. Give the name of the instrument used for the measurement of temperature.
- 3. What is the SI unit of luminous intensity?
- 4. What type of oscillations are used in atomic clocks?
- 5. Mention the types of clocks based on their display.
- 6. How many times will the 'minute hand' rotate in one hour?

7. How many hours are there in a minute?

## **2. FORCE AND PRESSURE**

8. Give two examples to verify that a force Changes the shape of a body.

9. Give two examples to verify that a force tends To change the static condition of a body.

10. How do you feel when you touch a nail Immediately after it is hammered into a Wooden plank? Why?

11. How does the friction arise between the Surfaces of two bodies in relative motion?

12. Name two instruments which help to Measure the pressure of a fluid.

13. Define one atmosphere.

14. Why are heavy bags provided with broad straps?

15. How does surface tension help a plant?

16. Which has greater viscosity, oil or honey? Why?

## **9. MATTER AROUND US**

17. What is ductility?

18. Write the constituent elements and their symbols for the following compounds.

a) Carbon monoxide b) Washing soda

19. Write the symbols for the following elements.

a) Oxygen b) Gold c) Calcium d) Cadmium e) Iron

20. Which non-metal is essential for our life and all living beings?

21. Why are bells made of metals?

22. What does a chemical symbol represent?

23. Give two examples for metalloids.

24. Mention any three compounds that exist in liquid state.

25. Write three properties of metalloids.

**VIII. Answer briefly****1. MEASUREMENT**

1. What is measurement?
2. Name the three scales of temperature.
3. Define – Ampere.
4. What is electric current?
5. What do you mean by luminous intensity?
6. Define – Mole.
7. What are the differences between plane Angle and solid angle?

**2. FORCE AND PRESSURE**

8. Define friction. Give two examples of the Utility of friction in day to day life.
9. Mention any three ways of minimising Friction.
10. State Pascal's law and mention its applications.
11. Why is a ball bearing used in a cycle hub?

**3. LIGHT**

12. Define focal length.
13. Give any two applications of a concave and convex mirror.
14. State the laws of reflection.
15. Define the refractive index of a medium.
16. State Snell's law of refraction

**9. MATTER AROUND US**

17. Can you store pickle in an aluminium Utensil? Give reason.
18. Tabulate the differences between metals and non-metals.
19. Why are utensils made up of aluminium and brass?
20. Define Alchemy.
21. Name the elements with the following Symbols.  
a) Na b) W c) Ba d) Al e) U
22. Name six common non-metals and write Their symbols.
23. Mention any four compounds and their uses.
24. Name the metals that are used in jewellery.
25. Mention the uses of the following compounds.  
a) Baking soda b) Bleaching powder c) quick lime

**10. CHANGES AROUND US**

26. Define a chemical reaction.
27. Mention the various conditions required for a chemical reaction to occur.
28. Define catalysis.
29. What happens when an iron nail is placed in copper sulphate solution?

30. What is pollution?
31. What is tarnishing? Give an example.
32. What happens to the brine during electrolysis?
33. On heating, calcium carbonate gives calcium oxide and oxygen. Is it an exothermic reaction or an endothermic reaction?
34. What is the role of a catalyst in a chemical reaction?
35. Why photosynthesis is a chemical reaction?

## **IX. Answer in detail.**

### ***1. MEASUREMENT***

1. List out the base quantities with their units.
2. Write a short note on different types of clocks.

### ***2. FORCE AND PRESSURE***

3. Friction is a necessary evil - Explain.
4. Give the different types of friction and explain each with an example.
5. Describe an experiment to prove that friction depends on the nature of a surface.
6. Explain how friction can be minimised.
7. Describe an experiment to prove that the pressure in a liquid increases with depth.

### ***3. LIGHT***

8. Explain the images formed by a concave mirror.
9. What is reflection? Write a short note on regular and irregular reflection.
10. Explain the working of a periscope.
11. What is dispersion? Explain in detail.

## ***10. CHANGES AROUND US***

12. Explain the environmental effects of chemical reactions?
- 13.. Explain how food items are spoiled by chemical reactions?
14. Explain any three conditions that is required for a chemical reaction to take place. Give example.

## **X. Numerical Problem**

### **2. FORCE AND PRESSURE**

1. A stone weighs 500 N. Calculate the Pressure exerted by it, if it makes contact with a surface of area 25 cm

### **3. LIGHT**

2. The radius of curvature of a spherical mirror is 25 cm. Find its focal length.
3. If two plane mirrors are inclined to each other at an angle of  $45^\circ$ , find the number of images formed.
4. Speed of light in air is  $3 \times 10^8 \text{ m s}^{-1}$  and the refractive index of a medium is 1.5. Find the speed of light in the medium.

## **XI. Higher Order Thinking Questions**

### **1. MEASUREMENT**

1. Your friend was absent to school yesterday. You are enquiring about his absence. He told that he had fever and it was measured to be  $100^\circ\text{C}$ . Is it possible to have  $100^\circ\text{C}$  fever? If he is wrong, try to make him understand.

### **2. FORCE AND PRESSURE**

2. Why is it not advisable to use a fountain pen while travelling in an aeroplane?
3. Is there any possibility of making a special device to measure the magnitude of friction directly?

4. Vidhya feels that mercury is costly. So, instead of mercury she wants to use water as a barometric liquid. Explain the difficulty of constructing a water barometer.

## **XII. Given reason**

### **10. MATTER AROUND US**

1. Give reasons for the following.
  - (a) Aluminum foils are used to wrap food items.
  - (b) Immersion rods for heating liquids are made up of metallic substances.
  - (c) Sodium and potassium are stored in kerosene.
  - (d) Mercury is used in thermometers.
2. Why wires cannot be drawn from materials such as stone or wood?

## **XIII. Value Based Questions.**

### **10. CHANGES AROUND US**

1. Kumar is going to build a house. To purchase the iron rods required for construction, he visited an iron and steel shop nearby. The seller showed him some iron rods which are fresh and good. He also showed him little older iron rods which are brownish in appearance. The price of fresh rods is more than the older ones. The seller also gave some offer to older ones. Kumar's friend Ramesh advised him not to buy the cheaper rods.

- a) Is Ramesh right in his suggestion?
- b) Could you explain the reason for his suggestion?
- c) What are the values shown by Ramesh?

2. Palanikumar is a Lawyer. He lives in a luxurious flat. Due to high rent, he wants to shift his residence to a place where he has a chemical industry nearby. There the rent is very cheap and the area is less populated also. His son Rajasekar, studying VIII, does not like this and likes to go to some other place.

- a) Is Rajasekar right in his attitude?
- b) Why did he refuse to go there?
- c) What are the values shown by Rajasekar?