MODERN SCIENCE ACADEMY
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7. "PROPERTIES OF MATTER"

Sr.	Statements	A	B	C	D
1	In which of the following state, molecules do not leave their position?	solid	liquid	gas	plasma
2	Which of the substances is the lightest one?	copper	mercury	aluminum	lead
3	SI unit of pressure is pascal, which is equal to:	10^4 Nm^{-2}	1 Nm^{-2}	10^2 Nm^{-2}	10^3 Nm^{-2}
4	What should be the approximate length of a glass tube to construct a water barometer?	0.5 m	1 m	2.5 m	11 m
5	According to Archimedes principle, upthrust force is equal to:	weight of dis-placed liquid	volume of displaced liquid	mass of displaced liquid	none of these
6	The density of a substance can be found with the help of:	Pascal's law	Hooke's law	Archimedes Principle	Principle of floatation
7	According to Hooke's law:	stress×strain= constant	stress/strain = constant	strain/stress = constant	stress= strain
8	Water exist in the states:	1	2	3	4
9	SI unit of density is:	kgm^{-3}	kgm^{-2}	kgm^{-1}	kgs^{-1}
10	How many phases of matter are there?	1	2	3	4
11	In which of the materials, particles have only vibrational motion?	solid	liquids	gases	no such matter exist
12	Which will exert greater pressure?	3 g needle of tip area 1 mm^2	4000 kg elephant of feet area 0.5m^2	40 kg girl wearing high heel of 0.5 cm^2	ship of mass 2.2×10^7 kg having area 600 m^2
13	The applied perpendicular force on unit area is:	stress	pressure	strain	none
14	At sea level, the atmospheric pressure is:	101,300 Pa	104,100 Pa	100,400 Pa	112,000 Pa
15	Mercury is ___ times heavier than water.	13.6	14.6	15.6	16.6
16	The ratio between stress and tensile strain is:	elastic modulus	bulk modulus	shear modulus	Young's modulus
17	The unit of Young's modulus is:	N	Nm^{-2}	m	Nm
18	Pressure of liquid in a container increases with:	base	volume	depth	mass
19	Pressure is a _____ quantity.	scalar	vector	fixed	base
20	A stone in air weighs 20 N. Its weight measured again when immersed in a liquid is 12 N. The buoyant force acting on it is:	20 N	32 N	8 N	12 N
21	Ice floats on water surface because:	its density is greater than water	its density is greater than water	it displaces more water when placed in water	none of them
22	Atmospheric pressure is measured by:	hygrometer	barometer	manometer	thermometer
23	A mass of 2 kg is hung by spring which displaces it through 5 cm. What is spring constant?	392 N/m	40 N/m	4 N/m	4000 N/m
24	Young's modulus has the same unit as that of:	force	strain	pressure	no unit
25	Which will experience greater buoyant force?	1 kg of helium balloon	1 kg of wood	1 kg of iron	all experience same
26	The volume of a submerged object is equal to the _____ of liquid displaced.	weight	mass	buoyancy	voume
27	A container having volume of 6m^3 is full with a liquid, having density of 30 kgm^{-3}. The mass of the liquid is:	180 kg	24 kg	5 kg	0.2 kg

28	Liquids and gases are collectively categorized as:	solids	liquids	pascals	fluids
29	Which of the following cannot be used to measure pressure?	atm	Pa	bar	kgm^{-3}
30	Pressure at depth in fluid:	increases	decreases	remains same	none
31	The unit used for pressure in weather maps is:	atm	Pa	bar	psi
32	A rock weighs 25.7 N in air and 21.8 N in water. What is the buoyant force of the water?	4.1 N	3.9 N	1.18 N	0.84 N
33	The unit of strain is:	$kg\ m^{-3}$	Pa	Nm^{-2}	no unit
34	A burning candle is an example of _____ state of matter.	gas	liquid	solid	all three
35	During which process a gas becomes a liquid?	melting	freezing	condensing	boiling
36	According to kinetic molecular theory, the pressure exerted by a gas is caused by the:	bombardment of the gas molecules on the walls of the container.	collision between gas molecules.	large distances between gas molecules.	random motion of the gas molecules.
37	In a liquid, some energetic molecules break free from the surface even when the liquid is too cold for bubbles to form. What is the name of this process?	boiling	condensation	evaporation	convection

"Important Short Questions"

1) Write three differences between solid and gas.
2) How does heating, affect the motion of molecules of a gas?
3) Does there exist a fourth state of matter? What is that?
4) What is meant by density? What is its SI unit?
5) Mass of 200 cm^3 of stone is 500g. Find its density.
6) What is hydrometer? Can we use a hydrometer to measure the density of milk?
7) Define the term pressure. Writes its SI unit.
8) A girl is walking on a carpet wearing high heel shoes, it leaves deep impressions on the carpet. Why?
9) A nail can penetrate a hard surface easily compared to wide bolt. Why?
10) Walnuts can be broken in the hand by squeezing two together but not one. Why?
11) Explain how and why camels have adapted to allow them to walk more easily in desert conditions?
12) Define atmosphere. What is a barometer?
13) Why water is not suitable to be used in a barometer?
14) Why does the atmospheric pressure vary with height?
15) If you climbed a mountain carrying a mercury barometer, would the level of the mercury column in the glass tube of the barometer increase or decrease as you climb the mountain? Explain.
16) Why dams are made thick at its bottom?
17) How does a sharp knife cut vegetables easily?
18) What does it mean when the atmospheric pressure at a place fall suddenly?
19) Why water tanks are constructed at the highest level in our houses?
20) What changes are expected in weather if the barometer reading show a sudden increase?
21) An inflated balloon is placed in a large glass jar. What will happen to the volume of the balloon if we start evacuating the glass jar?
22) Why reading on barometer decrease when we travel to higher altitude areas?
23) If a liquid has density three times the density of mercury, what will be height of the liquid column in barometer?
24) How do we sip water from glass using straw? Can we sip water with straw on moon?
25) What makes a sucker to be pressed on a smooth wall?
26) You would have probably experienced your ears 'popping' while driving in the mountains. Why ears 'pop'?
27) State Pascal's law. Draw figure also.

28) If you filled an airtight balloon at the top of a mountain, would the balloon expand or contract as you descend the mountain? Explain.
29) State Archimedes principle.
30) State principle of floatation.
31) How a submarine moves up the water surface and down into water?
32) Why does a piece of stone sink in the water but a ship with huge weight floats?
33) How can fork lifter lift cars heavier than itself?
34) Why a large ship floats on water but its anchor sinks in water?
35) A rowboat is floating in a swimming pool when the anchor is dropped over the side. When the anchor is dropped, will the water level in the swimming pool increase, decrease, or remain the same? Explain.
36) What is meant by elasticity?
37) What is meant by deforming force?
38) Define stress and strain.
39) What is Hooke's law? What is meant by elastic limit?
40) Explain about the Young's modulus.
41) Which material is more elastic, steel or rubber and why?

"Important Long Questions"

1) What is meant by term pressure? Derive an expression for pressure in liquids.
2) State Pascal's law. Explain working of hydraulic press.
3) State Archimedes principle. Derive its formula.
4) What is buoyancy. Explain principle of floatation.
5) What is Hooke's law? Explain Young's modulus.