Astronomy

Sun-centered universe	Copernicus, Nicholaus
Planets' true orbits	Kepler, Johannes
Other planets have moons	Galilei, Galileo
Distance to the sun	Cassini, Giovanni
Galaxies	Herschel, William
	Wright, Thomas
Black hole	Schwarzschild, Karl
	Wheeler, John
Expanding universe	Hubble, Edwin
The Big Bang	Gamow, George
Quasar	Sandage, Allan
Pulsar	Bell, Jocelyn
	Hewish, Antony
Dark matter	Rubin, Vera
Planets around other stars	Mayor, Michel
	Queloz, Didier
Universe is accelerating	Perlmutter, Saul

Chemistry

Boyle's Law	Boyle, Robert
Oxygen	Priestley, Joseph
Electrochemical bonding	Davy, Humphrey
Molecules	Avogadro, Amedeo
Atomic light signatures	Bunsen, Robert
	Kirchhoff, Robert
Periodic Table	Mendeleyev, Dmitri
Radioactivity	Curie, Marie and Pierre
Radioactive dating	Boltwood, Bertram
Isotopes	Soddy, Frederick

Physics

Levers and buoyancy	Archimedes
Law of falling objects	Galilei, Galileo
Air pressure	Torricelli, Evangelista
Universal gravitation	Newton, Isaac
Laws of motion	Newton, Isaac
Nature of electricity	Franklin, Benjamin
Conservation of matter	Lavoisier, Antoine
Nature of heat	Rumford, Count
Infrared	Herschel, Frederick
Ultraviolet	Ritter, Johann
Atoms	Dalton, John
Electromagnetism	Oersted, Hans
Calorie	Joule, James
Conservation of energy	Helmholtz, H. von
Doppler effect	Doppler, Christian
Electromagnetic radiation	Maxwell, James
X-rays	Roentgen, Wilhelm
Energy equation	Einstein, Albert
Relativity	Einstein, Albert
Superconductivity	Onnes, Heike
Atomic bonding	Bohr, Niels
Quantum theory	Born, Max
Uncertainty Principle	Heisenberg, Werner

Biology

Cells	Hooke, Robert
Fossils	Steno, Nicholas
Bacteria	Leeuwenhoek, Anton van
Taxonomy system	Linnaeus, Carl
Photosynthesis	Ingenhousz, Jan
Dinosaur fossils	Buckland, William
	Mantell, Gideon
Germ theory	Pasteur, Louis
Deep-sea life	Thomson, Charles
Cell division	Flemming, Walther
Virus	Beijerinick, Martinus
	Ivanovsky, Dmitri
Cell structure	Claude, Albert
Origins of life	Miller, Stanley
Nature of dinosaurs	Bakker, Robert
Human anatomy	Vesalius, Andreas
Evolution	Darwin, Charles
Heredity	Mendel, Gregor
Mitochondria	Benda, Carl
Genetic mutations	Morgan, Thomas
Neurotransmitters	Loewi, Otto
	Walder-Hartz, Heinrich
Human evolution	Dart, Raymond
Coelacanth	Smith, J. L. B
Jumping genes	McClintock, Barbara
DNA	Crick, Francis
	Watson, James
	Franklin, Rosalind
Complete evolution	Margulis, Lynn
Human genome	Venter, Craig

Speed of light	Michelson, Albert
Antimatter	Dirac, Paul
Neutron	Chadwick, James
Strong force	Yukawa, Hideki
Nuclear fission	Meitner, Lise
	Hahn, Otto
Semiconductor transistor	Bardeen, John
Definition of information	Shannon, Claude
Nuclear fusion	Bethe, Hans
	Spitzer, Lyman
Quarks	Gell-Mann, Murry
Weak force	Rubbia, Carlo
Gulf Stream	Franklin, Benjamin
	Humboldt, A. von

Complete evolution	Franklin, Rosalind	Gulf Stream	Franklin, Benjamin
Human genome	Margulis, Lynn		Humbolt, A. von
	Venter, Craig	Erosion (weathering)	Hutton, James
	Watson, James	Ice ages	Agassiz, Louis
Human circulatory system	Harvey, William		Milankovich, Milutin
Vaccinations	Montagu, Lady Mary Wortley	Atmospheric layers	de Bort, L. Teisserenc
	Jenner, Edward	Fault lines	Reid, Harry
Anesthesia	Davy, Humphry	Earth's core	Gutenberg, Beno
Chloroform (anesthesia)	Simpson, Young	Continental drift	Wegener, Alfred
Ether (anesthesia)	Long, Crawford	Ecosystem	Tansley, Arthur
Blood types	Landsteiner, Karl	Seafloor spreading	Hess, Harry
Hormones	Bayliss, William	Chaos theory	Lorenz, Ed
	Starling, Ernest		
Vitamins	Hopkins, Frederick		
	Eijkman, Christiaan		
Antibiotics	Ehrlich, Paul		
Insulin	Banting, Frederick		
Penicillin	Flemming, Alexander		
Genes	Beadle, George		
Metabolism (Krebs Cycle)	Krebs, Hans		
Blood plasma	Drew, Charles		

LIST OF SCIENTIFIC INSTRUMENTS AND THEIR USES

Scientific Insruments	Uses	Inventors
Altimeter	**An instrument used in aircrafts for measuring altitudes**	**French physicist Louis Paul Cailletet**
Ammeter	**Measures electric current**	**Friedrich Drexler**
Anemometer	**Used to measure the speed, direction and pressure of the wind.**	**Leon Battista Alberti**
Audiometer	**Measures intensity of sound**	**Georg von Békésy (1899-1972; winner of the Nobel Prize), a Hungarian-American physicist.**
Barograph	**Continuous recording of atmospheric pressure**	**Frenchman Lucien Vidi**
Barometer	**Measures atmospheric pressure and conditions.**	**Evangelista Torricelli**
Binoculars	**An optical instrument used for magnified view of distant objects.**	**J. P. Lemiere**
Bolometer	**Measures infra-red (Heat)**	**Samuel Pierpont Langley**

	radiation.	
Callipers	Measures diameters of thin cylinder/wire.	Pierre Vernier
Calorimeter	Measures quantity of heat	Antoine Lavoisier and Pierre-Simon
Carburettor	Used for charging air with petrol vapours in an internal combustion engine.	The first carburetor was invented by Samuel Morey in 1826. Later, Enrico Bernardi developed another carburetor at the University of Padua in 1882
Cardiogram(ECG)	Traces movements of the heart , recorded on a Cardiograph	Willem Einthoven
Cathetometer	Determines heights and levels	French physicists P. Dulong and A. Petit(1816)
Chronometer	Determines longitude of a vessel at sea.	John Harrison
Cinematograph	Used for projecting pictures on the screen.	Auguste Lumière
Colorimeter	Compares intensity of colours	John T. Stock
Commutator	Used in generators to reverse the direction of electric current.	British scientist William Sturgeon in 1832
Crescograph	Used for measuring growth in plants.	Jagadish Chandra Bose
Cryometer	Measurement of low temperature.	
Cyclotron	Used for accelerating charged particles in microwave oscillator	Ernest Lawrence
Dilatometer	Measures change in volume of substances	Abbe and Fizeau in the second half of 19th century

Dynamo	Coverts mechanical energy into electrical energy	Michael Faraday
Electrometer	Measures very small but potential difference in electric currents	William Snow Harris
Electrometer	Used for measuring electrical potential difference.	
Electroscope	Detects presence of an electric Charge	William Gilbert
Electron microscope	Used to obtain a magnifying view of very small objects (20,000 times).	Max Knoll and Ernst Ruska
Endoscope	To examine internal parts of the body	Bozzini
Fathometer	Measures depth of the ocean	Herbert Grove Dorsey (April 24, 1876 – 1961)
Fluxmeter	Measures magnetic flux	Muller Martin
Galvanometer	Measures electric current	Johann Schweigger
Gramophone	Used to reproducing recorded sound.	French inventor Édouard-Léon Scott de Martinville
Hydrometer	Measures the relative density of liquids	William Nicholson
Hydrophone	Measure sound under water	Reginald Fessenden
Hygrometer	Used to measure the moisture content or the humidity of air or any gas.	Horace Bénédict de Saussure
Hygroscope	Shows the changes in atmospheric humidity	Robert Hooke

Hypsometer	Determines boiling point of liquids.	Wayne R Norman
Lactometer	Measures the relative density of milk.	Mr. Dicas
Machmeter	Determines the speed of an aircraft relative to the speed of sound	Angst Walter
Manometer	Compares magnetic movement and fields	Otton von Guerick
~~Manometer~~	~~Used to measure atmospheric pressure~~	
Micrometer	Coverts sound waves into electrical vibration	William Gascoigne
Microphone	Converts sound waves into electrical signals.	Emile Berliner
Microscope	Used to obtain a magnified view of small objects	Zacharias Janssen
Nephetometer	Measures the scattering of light by particles suspended in a liquid	Theodore William Richards
Odometer	An instrument attached to the wheel of a vehicle, to measure the distance travelled.	Benjamin Franklin
Ohmmeter	Measures electrical resistance of objects	Osvold Robert Harold
Ondometer	Measures the frequency of electromagnetic waves(radio waves)	

Optometer	Used for testing the refractive power of the eye.	Dr Jules Badal
Otoscope	Used for visual examination of the eardrum.	E. Seigle
Periscope	Used to view objects above sea level (Used in submarines).	Hippolyte Marié-Davy
Phonograph	Used for reproducing sound.	Thomas Edison
Photometer	Compares the luminous intensity of the two sources of light	Dmitry Lachinov
Polygraph	It simultaneously records changed in physiological processes such as heartbeat, blood pressure & the respiration (used as lie detector)	William Moulton Marston
Pyrheliometer	Used for measuring Solar radiation.	C. G. ABBOTT
Pyrometer	Measures very high temperature.	Josiah Wedgwood
Quadrant	Measures altitudes and angles in navigation and astronomy	John Hadley
Radar	Radio, Detection and Ranging.	Heinrich Hertz
Rain Gauge	Measures Rainfall.	King Sejong the Great
~~Refractometer~~	~~Measures salinity of solutions~~	Ernst Abbe
Refractometer	Measures a Refractive Index of a substance.	Carl Zeiss

Sextant	Used by navigators to find the latitude of place by measuring the elevation above the horizon of the sun or another star; also used to measure the height of very distant objects	John Campbell
Sextant	Used for measuring angular distance between two objects.	
Siesmograph	Used for recording the intensity and origin of earthquakes shocks.	John Milne
Spectroscope	Used for Spectrum analysis.	Robert Wilhelm Bunsen
Speedometer	An instrument used for measuring speed of the vehicle.	Croatian Josip Belušić in 1888
Spherometer	Measures curvature of spherical objects.	Robert-Aglaé Cauchoix
Sphygmomanometer	Measures blood pressure.	Samuel Siegfried Karl Ritter von Basch in 1881
Stethoscope	Used for hearing and analysing the sound of Heart.	René Laennec
Tachometer	To determine speed, especially the rotational speed of a shaft(rpm)	James W. Allen
Tangent galvanometer	Measure the amount of direct current(DC)	André-Marie Ampère
Telemeter	Records physical happenings at a distant place(space)	C. Michalke
Telescope	Used for magnified view of distant objects.	Hans Lippershey
Thermometer	Measures Temperature	Galileo Galilei
Thermostat	Automatically regulates temperatures at a constant point.	Warren S. Johnson
Tonometer	Measures the pitch of a sound	John Austin
Transformer	An apparatus used for converting high voltage to low and vice-versa without change in its frequency.	Ottó Bláthy
Transponder	To receive a signal and transmit a reply immediately in satellites.	Charles M Redman
Venturimeter	Measures the rate of flow of liquids	Clemens Herschel
Vernier	Measures Small sub-division of scale.	Pierre Vernier
Viscometer	Measures Viscosity of liquid.	Edward H Zeitfuchs
Voltmeter	Used to measure electric potential difference between two points	Andrew Kay
Wattmeter	To measure electric power	Ottó Bláthy
Wavemeter	To measure the wavelength of a radiowave(high frequency waves)	Paul D Zottu

nanometers, angstrom, picometre, ...

Unit of measurement of astronomical distances is ***Light Year***.

It is the "distance travelled by light in one year".

$$1 \text{ light year} = 9.46 \times 10^{15} \text{ m}$$

An **Astronomical Unit (AU)** is "the mean distance from the centre of the earth to the centre of the sun".

$$1 \text{ A.U} = 1.495 \times 10^{11} \text{ m}$$

...tronomical unit

$1^\circ = 60$ min

The closest star is more than 1 par...

A ***nautical mile*** is equal to one minute of a latitude and it is based on the circumference of the earth. This unit is used for charting and navigation.

1 nautical mile= 1.1508 statute miles

A ***knot*** is one nautical mile per hour. i.e., 1 Knot = 1.1508 miles/hr.

...was used by sailors of 17th century ...called

- Conversion formulas:
  - (i) Celsius to Fahrenheit : $°F = 9/5\,(°C) + 32$
  - (ii) Kelvin to Fahrenheit : $°F = 9/5(°K - 273) + 32$
  - (iii) Fahrenheit to Celsius: $°C = 5/9\,(°F - 32)$

$\frac{C}{5} = \frac{F-32}{9}$

The gravitational force with which the sun attracts the earth:
(i) is less than the force with which the earth attracts the sun.
(ii) is the same as the force with which the earth attracts the sun.
(iii) is more than the force with which the earth attracts the sun.
(iv) varies with distance between them.

$F = \frac{GMm}{r^2}$

Which one of the above statements is/are correct?
(a) Only 1 (b) 1 and 4
(c) 2 and 4 (d) 3 and 4

Power - rate of doing work = Work / time = $\frac{M \times a \times d}{t} = \frac{M L T^{-2} L}{T}$

The dimensional formula for power is:
(a) ML^2T^{-3} (c) ML^2T^2
(b) MLT^{-2} (d) ML^2T^{-1}

The Avogadro's number gives the number of molecules in 1 mole of a substance and its equivalent value is:
(a) 6.00000×10^{23} (c) 6.022045×10^{21}
(b) 6.022045×10^{23} (d) 6.0331×10^{23}

Which two sets of physical quantities have the same SI units?
(a) Force and weight
(b) Momentum and angular velocity
(c) Work and energy of charged capacitor
(d) *a* and *c*

Force = Mass x acceleration = kg x m/s^2 = Newton.
Wt = mass x g = kg x m/s^2 = N.
rad/s. Joule
Work = Mad = kg m/s^2 . m. = kg m^2/s^2
Momentum = mass x velocity = kg x m/s.

The dimensions of the quantities in the following pairs is same in the case of:
(a) Torque and work
(b) Angular momentum and work
(c) Energy and Young's Modulus
(d) Light year and frequency

Nm → J. Nm N/m^2 per sec (Hz) m.
Torque = Force x distance from the pivot = moment of inertia x angular acceleration
Angular momentum = moment of inertia x angular vel. = mr^2 x rad/s. = kg x m^2 x rad/s. = kg m^2/s

The dimensions of light year are:
(a) LT^{-2} (c) L
(b) T (d) MLT^{-1}

Energy per unit volume expresses:
(a) Thrust (b) Force
(c) Work (d) Pressure

$\frac{\text{Energy}}{\text{Vol}} = \frac{Mad}{\text{Vol}} = \frac{Mad}{d^3} = \frac{Ma}{d^2} = \frac{F}{A}$

Which of the following are not correctly matched?
(a) Force : Newton (b) Energy : Joule
(c) Power : Weber (d) Pressure : Pascal

Watt. 1 J/s = Watt.

(a) Force : Newton (b) Energy : Joule
(c) Power : Weber (d) Pressure : Pascal

Nano-science is based on the measuring scale of a nanometer that is equal to:
(a) 10^{-3} (b) 10^{-12}
(c) 10^{-6} (d) 10^{-9}

If the distance between the earth and the sun were twice what it is now, the gravitational force exerted on the earth by the sun would be :
(a) one-fourth of what it is now
(b) four times as large as it is now
(c) half of what it is now
(d) twice as large as it is now

The branch of Physics that deals with the movement of liquid and gases:
(a) Mechanics (b) Cryogenics
(c) Fluid Physics (d) Acoustics

The Indian scientist who was awarded noble prize who is famous for his contribution of Inelastic scattering of light by molecules is:
(a) C. V. Raman (b) Abdus Salam
(c) S. Chandershekhar (d) H.J. Bhabha

Match the following:

	A		B
1.	X-rays	A.	de Broglie
2.	Electron	B.	J. J. Thomson
3.	Wave Nature of Matter	C.	W. K. Roentgen
4.	Wave Theory of light	D.	Christian Huygens

(a) 1-A, 2-C, 3-B,4-D (b) 1-C, 2-B, 3-A,4-D
(c) 1-B, 2-C, 3-A,4-D (d) 1-C, 2-A, 3-B,4-D

Astronomical unit is the unit of:
(a) time (b) distance
(c) mass (d) acceleration

Einstein got his noble prize for:
(a) theory of relativity (b) existence of neutrons
(c) gravitational law (d) none of the above

The Navy uses this technique that is used to detect the submarines in oceans:
(a) Periscope (b) Radar
(c) SONAR (d) Telescope

A unit less quantity:
(a) never has a non zero dimension
(b) always has a non zero dimension
(c) may have a non zero dimension
(d) does not exist

One Horse-power is equal to:
(a) 846 W (b) 724 W
(c) 964 W (d) 746 W

Which of the sets given below ...

(a) 846 W (b) 724 W
(c) 964 W (d) 746 W

Which of the sets given below may represent the magnitudes of three vectors adding to zero?

(a) 4,8,16 (b) 2, 4, 8
(c) 1, 2, 1 (d) 0.5, 1, 2

Consider the following statements:

1. A mercury thermometer uses mercury as it expands quickly with a rise in temperature and it freezes at -39°C.
2. Alcohol is appropriate to be used as the liquid in thermometers in countries with low temperatures.

Which of the above statements is /are correct?

(a) Only 1 (b) Only 2
(c) Both 1 and 2 (d) Neither 1 nor 2

Given below are the two columns:

	A		B
1.	Mercury thermometer	(i)	-250°C to 850°C
2.	Electrical resistance thermometer	(ii)	35°C to 42°C
3.	Pyrometers	(iii)	-35°C to 356°C
4.	Clinical thermometer	(iv)	-40°C to 3500°C

Select the proper codes to give the correct answer:

(a) 1-i, 2-iv, 3- ii, 4-iii (b) 1-iii, 2-i, 3- iv, 4-ii
(c) 1-i, 2-iii, 3- ii, 4-iv (d) 1-i, 2-iv, 3- ii, 4-iii

Consider the following statements about a mercury in glass thermometer:

1. Mercury used is a liquid metal and has high density.
2. Mercury is opaque and shiny and does not stick to the walls of the thermometer.
3. It can temperatures in the range of -35°C to 356°C.
4. It can be used in cold countries as Hg freezes at -39°C.

Which of the above statements is /are correct?

(a) Only 3 and 4 (b) Only 2
(c) 1, 2 and 3 (d) Only 4

Consider the following statements:

1. The human body maintains a normal temperature of 37°C even when the atmospheric temperature is higher.
2. Evaporation of sweat helps in cooling.

Which of the above statements is /are correct?

(a) Both 1 and 2
(b) Neither 1 nor 2
(c) Only 1
(d) Only 2

The science dealing with the study of physical events at very low temperatures is known as:

(a) Refrigenics (b) Cytogenics
(c) Frozenics (d) Cryogenics

The temperature of the top of a frozen lake is −15°C. What is the temperature of the water in the lake in contact with the ice layer?

(a) 0°C (b) 4°C
(c) −15°C (d) −7.5°C

Consider the following statements:

1. An ordinary bulb has a filament made up of tungsten and it is filled with argon gas.
2. Heat from the filament is transmitted by radiation.

Which of the above statements is /are correct?

(a) Both 1 and 2 (b) Neither 1 nor 2
(c) Only 1 (d) Only 2

The quantity of water vapour that the atmosphere can hold:

(a) is independent of temperature
(b) increases with increase of temperature
(c) decreases with increase of temperature
(d) fluctuates with increase of temperature.

It takes much longer time to cook things in the mountains than in the plains because:

(a) Due to low atmospheric pressure in the hills, the boiling point of water rises and therefore water takes longer to boil.
(b) In the hills, the atmospheric temperature is low and therefore a lot of heat is lost to the atmosphere.
(c) In the hills the atmospheric pressure is lower than that in plains and therefore water boils at lower temperature.
(d) In the hills, the humid atmosphere absorbs a lot of heat, leaving very little for the cooking.

A dilatometer is an instrument used to measure:

(a) the relative density of liquids
(b) the purity of milk
(c) relative humidity
(d) anomalous expansion of water

Which of the following statements is incorrect?

(a) A solar cooker uses glass to focus the sun's radiations.
(b) A solar cooker is convex in nature.
(c) A glass absorbs the ultra violet radiations and radiates back the infra red rays.
(d) A body that absorbs all the radiation falling on it is called a black body radiation.

Consider the following statements:

1. Ether if falls on our skin burns it
2. Ether if falls on our skin causes cooling sensation
3. Ether is volatile and on absorbing heat from our body evaporates

Which of the above statements is /are correct?

(a) 1 and 2
(b) 2 and 3
(c) Only 1
(d) All of the above

Food is cooked faster in a pressure cooker because:

(a) heat cannot escape from the cooker
(b) steam is hotter than the boiling water
(c) due to high pressure, the boiling point of water is raised.
(d) in the cooker water starts boiling at a lower temperature.

Cryogenic engines find application in:

(a) space travel, surgery and magnetic levitation
(b) surgery, magnetic levitation and telemetry
(c) space travel, surgery and telemetry
(d) space travel, magnetic levitation and telemetry

Consider the following statements:

1. A cloudy night is warmer than a clear night sky because the heat radiated from the earth is reflected by the clouds back to the earth.
2. The IR radiations are responsible for heating effects and are radiated out by all objects at all the temperatures.

Which of the above statements is /are correct?

(a) 1 and 2
(b) Only 2
(c) Only 1
(d) All of the above

Consider the following statements:

1. Radio signals can be received anywhere on the earth.
2. Radiowaves are able to penetrate the ionosphere.

Which of the above statements is /are correct?

(a) 1 and 2 (b) Only 2
(c) Only 1 (d) All of the above

Why does the radio reception improve slightly during the night?

(a) The outside noise is reduced at night.
(b) Unlike the daytime, only few radio stations broadcast during the night.
(c) Sunlight affects radio broadcast to some extent during the day.
(d) The magnetic field of the earth acts with reduced intensity during the night, thereby reducing its impact on broadcasts.

Which of the under given statement(s) is /are incorrect?

(a) The thermal conductivity of oils and pure metals decreases with rise of temperature.
(b) The thermal conductivity of alloys and water increases with rise of temperature.
(c) Hot water takes lesser time to cool down from 80°C to 70°C than in cooling from 30°C to 20°C.
(d) A thermos flask has double walls and vacuum that prevents heat loss by conduction.

We see the lightning first and hear the thundering later because:

(a) light is composed of photons and they are highly energetic and luminescent.
(b) light travels at a speed of 186,000 miles/sec.
(c) light can travel through the clouds easily whereas sound gets obstructed by the moisture content.
(d) None of the above

Consider the following statements:

1. A plane mirror produces an image that is erect, real and forms behind the mirror at the same distance as the object is in front of it.
2. The convex lens is used at the blind curves in mountain.

Which of the above statements is /are correct?

(a) Only 1 (b) Only 2
(c) Both 1 and 2 (d) Neither 1 nor 2

The twinkling of stars is attributed to:

(a) Reflection of light by the earth
(b) Refraction from the air
(c) Extremely large distances between earth and the stars
(d) The composition of stars includes radium that makes it shine

Given below are the two columns:

	A		B
1.	Rainbow in the sky	(i)	Diffraction
2.	Rainbow pattern on CD	(ii)	Scattering
3.	Rainbow colours in thin oil films	(iii)	dispersion
4.	Blue colour of the sky	(iv)	interference

Select the proper codes to give the correct answer:

(a) 1-iv, 2-ii, 3- iii, 4-i (b) 1-iv, 2-i, 3- iii, 4-ii
(c) 1-i, 2-iii, 3- ii, 4-vi (d) 1-iii, 2-i, 3- iv, 4-ii

In the following list of colours:

1. Blue 2. Green
3. Red 4. Yellow

Which are the three primary colours?

(a) 1, 2, and 3 (b) 1, 2 and 4
(c) 2, 3 and 4 (d) 1, 3 and 4

The dyer wishes to dye the cloth in magenta colour. He should make the following mix of colours:

(a) Red + Green (b) Red + Blue
(c) Blue + Green (d) Red + Cyan

The accommodation of the eye is produced by:

(a) Change in the size of the pupil
(b) Contraction of the iris
(c) The ciliary muscles
(d) The forward movement of the retina

When a person enters a dark room from bright light, he/she is not able to see clearly for a little while because the:

(a) eye is unable to adjust itself immediately
(b) retina becomes insensitive momentarily
(c) iris is unable to dilate the pupil immediately
(d) distance between the lens and retina takes time to adjust

The bats are able to move freely in a dark room without colliding with the walls because:

1. they have sensory organs to detect the UV radiations
2. they emit ultrasonics and use them for navigating

Which of the above statements is /are correct?

(a) Only 1 (b) Only 2
(c) Both1 and 2 (d) None of the two

A speeding vehicle is monitored by:

(a) Doppler radar (b) Doppler laser
(c) Doppler fibre (d) LIDAR

A device used for controlling the temperature is:

(a) Thermistor (b) Thermometer
(c) Thermapp (d) Thermostat

Given below are the two columns:

A	B
1. Dynamo	(i) Mechanical energy to electrical energy
2. Generator	(ii) Converts DC to AC
3. Inverter	(iii) Electrical energy to mechanical energy
4. Transformer	(iv) Alters the voltages

Select the proper codes to give the correct answer:

(a) 1-iii, 2-i, 3- ii, 4-iv (b) 1-v, 2-i, 3- iii, 4-ii
(c) 1-i, 2-iii, 3- ii, 4-iv (d) 1-v, 2-iv, 3- ii, 4-iii

Which of the following is mostly commonly used semiconductor in solar power generation?

(a) Silicon (b) Germanium
(c) Antimony (d) Rhodium

LEDs are made up of substances like:

(a) Silicon
(b) Gallium , Indium chloride
(c) Gallium, indium phosphide
(d) Gallium, Tellurium

A compact fluorescent lamp is most recommended in the 'Go Green' scheme because:

(i) No waste of electric energy takes place
(ii) Amount of UV produced is much lesser than present in daylight.
(iii) Does not contribute to global warming

Select the proper code to give the correct answer:

(a) Only I (b) ii and iii
(c) i and iii (d) All of the above

Which one of the statements given below is incorrect?

(a) Connecting a number of electrical appliances a socket is advisable to save electrical energy.
(b) Overloading is a condition in which the current flowing through an appliance exceeds the rating of the protective devices.
(c) Flickering lights are an indication of overloading
(d) During overloading the current flowing through an aplliance exceeds the over rating of the appliance

During a short circuit:

(a) the live wire and the neutral wire come in contact with each other
(b) the resistance of the circuit becomes infinity
(c) a small current flows to cause heating effect
(d) it occurs between earthing and the live wires.

In India the electric current is transmitted in the following pairing:

(a) 120 V and 50 Hz (b) 220 V and 60 Hz
(c) 220 V and 50 Hz (d) 120 V and 60 Hz

These days walls are painted with a special type of paint in which iron dust is added because:

1. magnet can stick to these walls
2. iron is a ferromagnetic material
3. iron produces smoothening effect in the finishing

Select the proper code to give the correct answer (s):

(a) Only 1 (b) 2 and 3
(c) 1 and 2 (d) All of the above

If the current flowing through a heater coil is doubled the heat produced will becomes:

(a) double (b) thrice
(b) become half (d) four times

Earth exhibits the properties of a bar magnet. It is because:

(a) The motion of the charges (ions and electrons) in the outer core of the earth creates the magnetic field.
(b) There is a pseudo bar magnet inside the core of the earth
(c) Earth's rotation along its axis contributes to the magnetic properties
(d) Domains of magnets exist in the core of the earth

A magnetometer measures

(a) the earth's magnetic field
(b) field declination and field inclination
(c) strength of the magnet
(d) orientation of the magnets with respect to the earth

Read the following statement about the earth's magnetism and select the correct answer using the proper codes:

1. The earth's magnetic field saves the earth from the solar winds that can completely deplete the ozone layer.
2. It attracts the celestial objects like meteors.
3. It supports the motion of artificial satellites for communication.

Codes:

(a) Only 1 (b) 1 and 3
(c) 2 and 3 (d) All of the above

Given below are the two columns:

A	B
1. Electric filament in bulbs	(i) aluminium
2. Filament in room heaters	(ii) tungsten
3. Wire in the fuse	(iii) nichrome
4. Wires in solar panels	(iv) silver

Select the proper codes to give the correct answer:

(a) 1-iii, 2-i, 3- ii, 4-iv (b) 1-v, 2-i, 3- iii, 4-ii
(c) 1-ii, 2-iii, 3- i, 4-iv (d) 1-v, 2-iv, 3- ii, 4-iii

One should not connect a number of electrical appliances to the same power socket because:

1. this can damage the appliance
2. this can damage the domestic wiring due to over heating
3. the appliances will not receive complete voltage

Which of the above is / are correct reasons?

(a) Only 2 (b) Only 3
(b) 1 and 2 (d) 2 and 3

In our houses we get 220V AC. The value 220 represents:

(a) constant voltage (b) effective voltage
(c) average voltage (d) peak voltage