

COPERNICUS OLYMPIAD
Physics and Astronomy – Category 1 Sample Questions

Q: Which of the followings exert pressure?
(a) Solids (b) Liquids (c) Gases (d) All of these

Q: The atmospheric pressure is due to the:
(a) Sky above our head
(b) Air mass surrounding Earth
(c) Gravitational force of sun and other planets
(d) Mass of the Earth

Q: Which of the followings minimizes the transference of heat in a thermos flask?
1. Conduction
2. Convection
3. Radiation

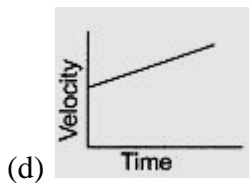
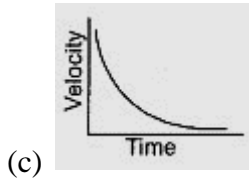
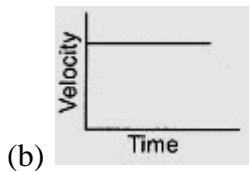
(a) 2 and 3 (b) 1 and 2
(c) 1,2 and 3 (d) 1 and 3

Q: If a body moves with uniform velocity, then
(a) Its initial velocity is zero
(b) Its final velocity is zero
(c) Its acceleration is non-zero
(d) Its change in velocity is zero

Q: A car traveling with a speed of 20km/hr comes into rest in 0.5 hrs. What will be the value of its retardation in km/hr^2 ?
(a) 40 (b) 50 (c) 34 (d) 32

Q: A body moves with uniform velocity. Which of the graphs shown here is a graph of velocity vs time for this motion?





Q: When a glass rod is rubbed with a piece of silk cloth the rod:

- (a) and the cloth both acquire positive charge.
- (b) becomes positively charged while the cloth has a negative charge.
- (c) and the cloth both acquire negative charge.
- (d) becomes negatively charged while the cloth has a positive charge.

Q: When you heat a system, its temperature _____ depending on the heat

- (a) Always increases
- (b) Sometimes decreases
- (c) May stay the same
- (d) Always goes up or down

Q: Choose the alternative, which is closely resembles the mirror image of the given combination.

ANS43Q12

- (1) AN24EQ12 (2) S1QEQ2NA
 (3) 2NAEQ12 (4) 12QEQ2NA

- (a) 1 (b) 2 (c) 3 (d) 4

Q: A temperature at which the substance burns is called

- (a) melting
- (b) boiling temperature

- (c) kindling temperature
- (d) evaporation

Q: During the formation of rain, when water vapours change back to liquid in the form of rain drops _____

- (a) Heat is absorbed
- (b) Heat is released
- (c) Heat is first absorbed, and then released
- (d) There is no exchange of heat

Q: The amount of heat energy produced on complete combustion of 1 kg of a fuel is called

- (a) calorific value
- (b) significant value
- (c) heat value
- (d) internal energy

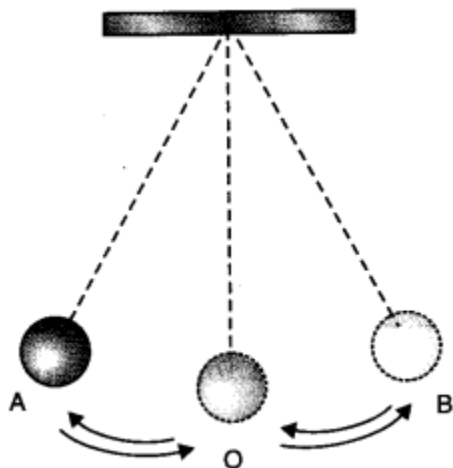
Q: Name the process in which a solid directly changes into gas on heating.

- (a) Vapourisation
- (b) Condensation
- (c) Sublimation
- (d) Deposition

Q: Acid rain contains mainly

- (a) oxygen and nitrogen gas
- (b) fluorine and chlorine gas
- (c) magnesium oxide
- (d) nitrogen oxide and sulphur dioxide

Q: Observe the figure given below:



The time period of a simple pendulum is the time taken by it to travel from

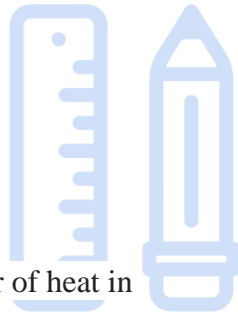
- (a) A to B and back to A
- (b) O to A, A to B and B to A
- (c) B to A, A to B and B to O
- (d) A to B

Q: 1 hertz is equal to

- (a) 1 vibration per minute
- (b) 10 vibrations per minute
- (c) 60 vibrations per minute
- (d) 600 vibrations per minute

Q: Alex walks to his school, which is at a distance of 3 km from his home in 30 minutes. On reaching, he finds that the school is closed and comes back by a bicycle with his friend and reaches home in 20 minutes. His average speed in km/h is ___

- (a) 8.3
- (b) 7.2
- (c) 5
- (d) 3.6



Q: Conduction is the method of transfer of heat in

- (a) liquids
- (b) solids
- (c) gases
- (d) vacuum

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Q: A beggar wrapped himself with a few layers of newspaper on a cold winter night. This helped him to keep himself warm because:

- (a) friction between the layers of newspaper produces heat.
- (b) air trapped between the layers of newspaper is a bad conductor of heat.
- (c) newspaper is a conductor of heat.
- (d) newspaper is at a higher temperature than the temperature of the surrounding.

Q: Which small objects revolve between the orbits of Mars and Jupiter?

- (a) Satellites
- (b) Comets
- (c) Asteroids
- (d) Meteorites

Q: 1 kilogram weight is equal to

- (a) 98 N
- (b) 9.8 N
- (c) 0.98 N
- (d) 0.098 N

Q: Static friction is less than

- (a) sliding friction
- (b) rolling friction
- (c) both (a) and (b)
- (d) none of these

Q: Whenever the surfaces in contact tend to move or move with respect to each other, the force of friction comes into play

- (a) only if the objects are solid.
- (b) only if one of the two objects is liquid.
- (c) only if one of the two objects is gaseous.
- (d) irrespective of whether the objects are solid, liquid or gaseous.

Q: In a cycling race, it is observed that a cyclist normally bends his body forward (as shown in the given figure).



The cyclist bends in order to

- (a) Feel comfortable
- (b) Reduce his weight
- (c) Reduce the air drag
- (d) Increase energy consumption

Q: Which of the following will rise the highest in the atmosphere?

- (a) Air at 10°C
- (b) Air at 40°C
- (c) Air at 20°C
- (d) Air at -50°C

Q: Which of the following is true of the 'eye' of a cyclone?

- (a) It is an area of high pressure
- (b) It is an area of low pressure
- (c) It has lots of clouds and rains

(d) It has high temperature

Q: If freezing point of ice is 32°F then find the freezing point of ice in Kelvin?

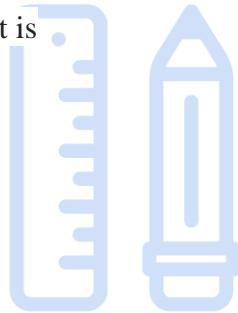
- (a) 0K
- (b) 273.15K
- (c) 272K
- (d) 373K

Q: The force required to produce an acceleration of 2 m/s^2 on a mass of 2 kg is

- (a) 4 N
- (b) 10 N
- (c) 22 N
- (d) 18 N

Q: The mass of a body is 2 kg. Its weight is

- (a) 19.6 N
- (b) 20 N
- (c) 30 N
- (d) 40 N



Q: The density of water in g/cm^3 is

- (a) 1
- (b) 10
- (c) 100
- (d) 1000

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Q: A bicycle has a speed of 6 m/s . What is its speed in km/h ? ($1\text{ km}=1000\text{ m}$)

- (a) 21.6 km/h
- (b) 16.67 km/h
- (c) 2.16 km/h
- (d) 1.67 km/h

Q: Normal human body's temperature is 98.6°F . In Kelvin scale, it is

- A. 320 K
- B. 300 K
- C. 308 K
- D. 310 K

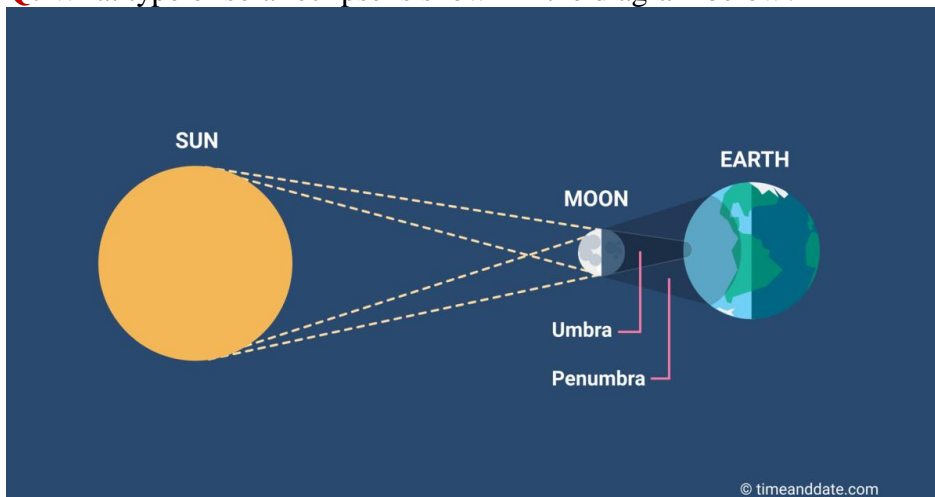
Q: What is the gravitational field strength of Earth?

- (a) 9.8 N/kg
- (b) 25 N/kg
- (c) 5 N/kg
- (d) 0 N/kg

Q: To which galaxy does our solar system belong?

- A. Andromeda
- B. Black Eye
- C. Milky Way
- D. Sombrero

Q: What type of solar eclipse is shown in the diagram below?



- A. annular
- B. partial
- C. penumbral
- D. total

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Q: Which planet is the farthest from Earth?

- A. Mercury
- B. Neptune
- C. Saturn
- D. Venus

Q: What is the largest moon in the solar system?

- A. Callisto
- B. Deimos
- C. Ganymede
- D. Titan

Q: Which planet is known to be the hottest due to the chemical composition of its atmosphere?

- A. Mars
- B. Neptune
- C. Saturn
- D. Venus

Q: The chemical makeup of the Sun is comprised mainly of _____

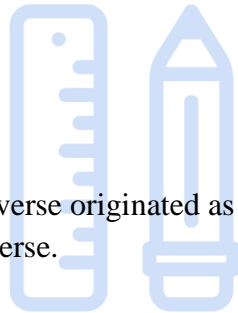
- A. Hydrogen and Helium.
- B. Hydrogen and Oxygen.
- C. Hydrogen and Sulfate.
- D. Oxygen and Helium.

Q: A galaxy that is moving toward Earth will show

- a. a decrease in brightness.
- b. an increase in light years.
- c. a blueshift in the spectrum.
- d. a redshift in the spectrum.

Q: The theory that proposes that the universe originated as a singularity, which subsequently exploded and expanded to form the universe.

- a. Magnitude Theory
- b. Milky Way Galaxy Theory
- c. Big Bang Theory
- d. Black Hole Theory



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Q: The first person to use a telescope for astronomy was

- a. Newton.
- b. Galileo.
- c. Copernicus.
- d. Kepler.

Q: What is the correct order of the layers of the Sun's atmosphere in order of innermost layer to outermost layer?



- a. corona, photosphere, chromosphere
- b. photosphere, corona, chromosphere
- c. photosphere, chromosphere, corona
- d. chromosphere, photosphere, corona



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