

**Class: 9**  
**Subject: Science**  
**Topic: ASK1509SA2**  
**No. of Questions: 20**

**Physics**

Q1. A coolie carries a load of 500 N to a distance of 100 m. The work done by him is

- (a) 5 N
- (b) 50,000 Nm
- (c) 0
- (d) 1/5 N

Sol. (c)

Q2. The P.E. of a body at a certain height is 200 J. The kinetic energy possessed by it when it just touches the surface of the earth is

- (a) > P.E.
- (b) < P.E.
- (c) = P.E.
- (d) Cannot be known

Sol. (a)

Q3. Power is a measure of the \_\_\_\_\_

- (a) Rate of change of momentum
- (b) Force which produces motion
- (c) Change of energy
- (d) Rate of change of energy

Sol. (d)

Q4. Two objects of masses  $1 \times 10^{-3}$  kg and  $4 \times 10^{-3}$  kg have equal momentum. What is the ratio of their kinetic energies?

- (a) 4 : 1
- (b) 2 : 1
- (c) 16 : 1
- (d)  $\sqrt{2}$  : 1

Sol. (a)

Q5. A 40 newton object is released from a height of 10 m. Just before it hits the ground, its kinetic energy, in joules is \_\_\_\_\_

- (a) 400
- (b) 3920
- (c) 2800
- (d) 4000

Sol. (a)

Q6. If the speed of an object is doubled then its kinetic energy is \_\_\_\_\_

- (a) doubled
- (b) quadrupled
- (c) Halved
- (d) Tripled

Sol. (b)

Q7. 1.5 kW = \_\_\_\_\_ watts

- (a) 1500
- (b) 150
- (c) 15000
- (d) 15

Sol. (a)

Q8. An iron sphere of mass 30 kg has the same diameter as an aluminium sphere whose mass is 10.5 kg. The spheres are dropped simultaneously from a cliff. When they are 10 m from the ground, they have the same \_\_\_\_\_.

- (a) Acceleration
- (b) Momentum
- (c) Potential energy
- (d) Kinetic energy

Sol. (a)

- Q9. A 1 kg mass has a kinetic energy of 1 joule when its speed is
- (a) 0.45 m/s
  - (b) 1 m/s
  - (c) 1.4 m/s
  - (d) 4.4 m/s

Sol. (c)

- Q10. If air resistance is negligible, the sum total of potential and kinetic energies of a freely falling body \_\_\_\_\_
- (a) Increases
  - (b) Decreases
  - (c) Becomes zero
  - (d) Remains the same

Sol. (d)

- Q11. Name the physical quantity which is equal to the product of force and velocity.
- (a) work
  - (b) Energy
  - (c) Power
  - (d) Acceleration

Sol. (c)

- Q12. A source of frequency of 500 Hz emits waves of wavelength 0.4 m, how long does the waves take to travel 600 m?
- (a) 3s
  - (b) 6s
  - (c) 9s
  - (d) 12s

Sol. (a)

- Q13. Sound and light waves both
- (a) Having similar wavelength
  - (b) Obey the laws of reflection
  - (c) Travel as longitudinal waves
  - (d) Travel through vacuum

Sol. (b)

Q14. The method of detecting the presence, position and direction of motion of distant objects by reflecting a beam of sound waves is known as \_\_\_\_\_.

- (a) RADAR
- (b) SONAR
- (c) MIR
- (d) CRO

Sol. (b)

Q15. The technique used by bats to find their way or to locate food is \_\_\_\_\_.

- (a) SONAR
- (b) RADAR
- (c) Echolocation
- (d) Flapping

Sol. (c)

Q16. An ultrasonic wave is sent from a ship towards the bottom of the sea. It is found that the time interval between the sending and receiving of the wave is 1.6 s. What is the depth of the sea, if the velocity of sound in the seawater is 1400 m/s?

- (a) 1120 m
- (b) 560 m
- (c) 1460 m
- (d) 112m

Sol. (a)

Q17. An example for mechanical wave.

- (a) Radio wave
- (b) Light wave
- (c) Infrared radiation
- (d) Sound wave

Sol. (d)

Q18. Which of the following quantities is transferred during wave propagation?

- (a) Speed
- (b) Mass
- (c) Matter
- (d) Energy

Sol. (d)

Q19. If a vibrator strikes the water 10 times in one second, then the frequency of wave is \_\_\_\_\_.

- (a) 10 Hz
- (b) 0.5 Hz
- (c) 5 Hz
- (d) 0.1 Hz

Sol. (a)

Q20. Unit of wavelength is \_\_\_\_\_.

- (a) Newton
- (b) Erg
- (c) Dyne
- (d) Angstrom

Sol. (d)

### Chemistry

Q1. The fundamental particle discovered by Goldstein is \_\_\_\_.

- (a) Position
- (b) Neutron
- (c) Proton
- (d) Electron

Sol. (c)

Goldstein discovered proton when he passed electric discharge into an inter gas at low pressure taken in a discharge tube.

Q2. The law of constant proportion is applied to \_\_\_\_\_.

- (a) Any element
- (b) Any chemical compound
- (c) Pure chemical compound
- (d) Impure chemical compound

Sol. (c)

According to law of constant proportion, a pure chemical compound always consist of the same elements that are combined together in a fixed proportion by mass.

Q3. The atomicity of noble gases is \_\_\_\_.

- (a) 2
- (b) 1
- (c) 4
- (d) 6

Sol. (b)

Noble gases are mono atomic gases.

Q4. The number of valence electrons in helium atom are \_\_\_\_

- (a) 1
- (b) 0
- (c) 2
- (d) 3

Sol. (c)

Atomic number of helium atom is 2. So, number of valence electrons are 2.

Q5. The number of valence electrons in neon atom are \_\_\_\_

- (a) 10
- (b) 8
- (c) 2
- (d) 6

Sol. (b)

In neon atom there are 8 valence electrons.

Q6. 100 g of water consists of 11 g of hydrogen and 89 g of oxygen in fixed proportion. Which law does it prove?

- (a) Law of conservation of mass
- (b) Law of definite proportions
- (c) Dalton's law
- (d) Law of multiple proportions

Sol. (b)

Law of definite proportions states that every pure substance contains the same elements combined in a fixed proportion by weight.

Q7. The indivisibility of atom was proposed by\_\_\_\_\_.

- (a) Rutherford
- (b) Dalton
- (c) Bohr
- (d) Einstein

Sol. (b)

According to Dalton's theory, an atom cannot be created, or destroyed as a result to a chemical change.

Q8. The number of valence electrons in lithium atom are \_\_\_\_.

- (a) 1
- (b) 0
- (c) 2
- (d) 3

Sol. (a)

The electronic configuration of lithium atom is 2, 1. So, number of valence electrons is 1. Since, valence electrons is number of electrons present in the last shell.

Q9. The number of electrons in an atom of elements is equal to \_\_\_\_.

- (a) Atomic mass
- (b) Atomic size
- (c) Mass number
- (d) Atomic number

Sol. (d)

Q10. The maximum number of electrons that can be accommodated in N – shell are \_\_\_\_.

- (a) 2
- (b) 8
- (c) 18
- (d) 32

Sol. (d)

N – Shell is fourth shell and can accommodate a maximum of 32 electrons. Since, number of electrons in a shell is given by  $2n^2$ .

For  $n = 4$

$$2n^2 = 2 \cdot 4^2$$

= 32

Q11. The electronic configuration of oxygen atom is \_\_\_\_

- (a) 2,4
- (b) 2,5
- (c) 2,6
- (d) 2,2

Sol. (c)

The atomic number of oxygen is 8. Therefore, the electronic configuration of oxygen atom is 2,6.

Q12. Which metal was used by Rutherford in his scattering ray experiment?

- (a) Gold
- (b) Silver
- (c) Iron
- (d) Platinum

Sol. (a)

Rutherford used gold foil in his scattering ray experiments.

Q13. How many molecules of sulphur ( $S_8$ ) are there in 16g of solid sulphur?

- (a)  $3.76 \times 10^{23}$
- (b)  $37.6 \times 10^{23}$
- (c)  $37.6 \times 10^{23}$
- (d)  $3.76 \times 10^2$

Sol. (d)

Molar mass of  $S_8 = 32 \times 8$   
= 256 g

Number of moles of  $S_8 = \frac{\text{Mass of } S}{\text{Molar mass of } S_8}$

$$= \frac{16}{256}$$

1 mole has  $6.022 \times 10^{23}$  molecules, hence, number of molecules in  $S_8$

$$= \frac{16 \times 6.022 \times 10^{23}}{256}$$

$$= 3.76 \times 10^{22}$$

Q14. The formula unit mass of  $K_2CO_3$  is \_\_\_\_.

- (a) 114 amu
- (b) 130 amu



- (c) 138 amu
- (d) 140 amu

Sol. (c)  
The formula unit mass of  $K_2CO_3$   
 $= (2 \times 39) + (1 \times 12) + (3 \times 16)$   
 $= 138 \text{ amu}$

- Q15. The spaces between a proton and electron in an atom is \_\_\_\_.
- (a) Filled with air
  - (b) Filled with a liquid
  - (c) Filled with inert gas
  - (d) Empty

Sol. (d)

- Q16. Two electrons move around a nucleus in circular orbits of radii  $r$  and  $4r$ . Ratio of their frequencies is
- (a) 1 : 4
  - (b) 4 : 1
  - (c) 8 : 1
  - (d) 1 : 8

Sol. (c)

- Q17. Half life of a radioactive material is 2 days. If the original material is 1 kg, then how much of it will left after 6 days?
- (a) 125 gms
  - (b) 250 gms
  - (c) 500 gms
  - (d) 750 gms

Sol. (a)

- Q18. A sample of ammonia molecule irrespective of source, contains 82.35% of nitrogen and 17.65% of hydrogen by mass. This data supports:
- (a) Law of conservation of mass

- (b) Law of definite proportions
- (c) Law of multiple proportions
- (d) Avagadro's Law

Sol. (b)  
Law of Definite proportions

Q19. Which of the following will have maximum mass?

- (a) 0.1 mole of  $\text{NH}_3$
- (b) 1022 atoms of carbon
- (c) 1022 molecules of  $\text{CO}_2$
- (d) 1 gm of Fe

Sol. (a) 0.1 mole of  $\text{NH}_3$

Q20. Binding energy of deuterium is 2.23 MeV. Mass defect in amu is

- (a) 0.0012
- (b) 0.0024
- (c) 0.0036
- (d) -0.0012

Sol. (b)

### Biology

Q1. Which is not contributory cause of a person acquiring a water – borne disease?

- (a) A attack by bacteria
- (b) Poor nourishment
- (c) Genetic susceptibility to the diseases.
- (d) Lack of clean drinking water.

Sol. (a)  
Bacterial attack is a direct cause of the disease and a contributory cause.

Q2. If the patients' organ system is not functioning properly it is the symptom of \_\_\_\_.

- (a) Invading organisms
- (b) Behavior
- (c) Disease
- (d) Social problems

Sol. (c)

When a person get a disease, the organ systems, stop functioning property.

Q3. Which of the following is true about non – infectious diseases?

- (a) They are also called communicable diseases.
- (b) They are present right from birth.
- (c) They are not restricted to person suffering from them.
- (d) They do not spread from an infected person to a healthy person.

Sol. (d)

Non – infectious diseases are restricted to the patient and do not spread to a healthy person.

Q4. The scientific name of rice is *Oryza sativa*. What do you understand from this information?

- (a) Rice is the principal cereal in many parts of india.
- (b) Rice gives a large amount of energy.
- (c) Rice belongs to genus *Oryza* and species – *sativa*.
- (d) Rice is a monocotyledon.

Sol. (c)

From the scientific name of rice, we can understand the genus and species to which it belongs.

Q5. Plants belongs to thallophyta are commonly called -----.

- (a) Algae
- (b) Fungi
- (c) Virus
- (d) Bacteria

Sol. (a)

Plants belonging to thallophyta are commonly called algae. According to the pigments present, they may be called red, brown, purple and green algae.

Q6. In birds, why are the bones of endoskeleton are light and spongy?

- (a) Since they have less matrix.
- (b) Due to presence of less minerals in their bones.
- (c) Due to presence of air cavities
- (d) Since their bones are not supplied with blood.

Sol. (c)

Birds possess air cavities in their bones so as to make them light and spongy. This is an adaptation for flying.

- Q7. The skeleton in proifera is \_\_\_\_
- (a) Internal
  - (b) External
  - (c) Surface
  - (d) Chitinous

Sol. (a)  
The skeleton is internal and is made up of spicules.

- Q8. Plants and animals are classified separately based on \_\_\_\_.
- (a) Number of body cells
  - (b) Mode of nutrition
  - (c) Organization of body cells
  - (d) Capacity of move

Sol. (b)  
Plants are autotrophic and capable of preparing their own food. Animals are heterotrophic and obtain their nutrition from outside. Being able to produce one's food versus having to get food from outside, would make very different body designs necessary. Hence, the mode of nutrition is an important determining factor in classification of plants and animals.

- Q9. Which of the following is not seen in monerans?
- (a) Small nucleus
  - (b) Big nucleus
  - (c) Undefined nucleus
  - (d) Definite nucleus

Sol. (d)  
Definite nucleus is absent in monerans, since they are prokaryotes.

- Q10. The advantage of having membrane bound organelles in eukaryotic cells are they \_\_\_\_.
- (a) Provide endoskeleton to the cell
  - (b) Allow cellular processes to be carried out efficiently
  - (c) Keep the various parts of the cell within the cell
  - (d) Do not provide any particular advantage to the cell

Sol. (b)  
In eukaryotic cells, membrane bound organelles allow cellular process to be carried out efficiently in isolation from each other. In prokaryotic cells, all the cellular processes have to be carried out in the cytoplasm, without any isolation.

Q11. Microbial conversion of ammonia to nitrate is termed as \_\_\_\_

- (a) Ammonification
- (b) Nitrification
- (c) Denitrification
- (d) Nitrogen fixation

Sol. (b)

Microbial conversion of ammonia to nitrate is termed as Nitrification and is carried out by nitrifying bacteria like Nitrosomonas and Nitrobacter.

Q12. The three states of water on earth is \_\_\_\_

- (a) Ground water, lakes and clouds
- (b) Liquid water, frozen water and water vapour
- (c) Gas, steam and vapour
- (d) Ground water, oceans and ice

Sol. (a)

Groundwater, lakes and clouds are the three states of water on earth.

Q13. It is difficult to make anti – viral medicines, because \_\_\_\_

- (a) Viral cells work in a manner similar to human cells
- (b) Viral cells have few bio – chemical mechanisms of their own and use host cellular machinery
- (c) The cellular machinery of the viral cells are highly advanced and cannot be hampered using our present knowledge.
- (d) Viral cells can detoxify the anti – viral medicines

Sol. (b)

Viral cells have few bio – chemical mechanism of their own. They enter into our body cells and use our cellular machinery for their life processes.

Q14. In which of the following way does penicillin kill bacteria?

- (a) It interferes with metabolic reactions.
- (b) It makes holes in the cell membrane.
- (c) It inhibits protein synthesis.
- (d) It weakens the cell wall of the bacteria.

Sol. (d)

Penicillin inhibits the enzymes that are involved in the formation of the bacteria cell wall. Bacteria with weak cell wall are more easily damaged by immune reaction.

- Q15. Organisms with appendages are commonly found in the kingdom \_\_\_\_
- (a) Monera
  - (b) Protista
  - (c) Archaeobacteria
  - (d) Fungi

Sol. (b)  
Appendages like cilia and flagella are seen in Protista.

- Q16. Gymnosperms are \_\_\_\_.
- (a) Thallus
  - (b) Perennial
  - (c) Achlorophyllus
  - (d) Amphibians

Sol. (b)  
Perennial means long living plants and pine is the best example of this type.

- Q17. Acid rain is caused by the excessive release of \_\_\_\_
- (a)  $\text{CO}_2$  by combustion and animal respiration
  - (b)  $\text{NH}_3$  by industry and coal gas
  - (c)  $\text{NO}_2$  and  $\text{SO}_2$  from burning fossils fuels
  - (d)  $\text{CO}$  in complete combustion

Sol. (c)  
Acid rains occurs when  $\text{SO}_2$  and  $\text{NO}_2$  dissolves in water vapour of the atmosphere and forms nitrous and sulphuric acids.

- Q18. In which of the following way does penicillin kill bacteria?
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  - (b) It makes holes in the cell membrane.
  - (c) It inhibits protein synthesis.
  - (d) It weakens the cell wall of the bacteria.

Sol. (d)  
Penicillin inhibits the enzymes that are involved in the formation of the bacteria cell wall. Bacteria will weak cell walls are more easily damaged by immune reaction.

- Q19. Disease transmitted through droplets is \_\_\_\_
- (a) Pneumonia
  - (b) Tuberculosis
  - (c) Syphills
  - (d) Malaria

Sol. (b)  
Tuberculosis is transmitted mainly by inhalation of infection droplets product by persons with pulmonary or laryngeal tuber culosis during coughing, laughing and shouting or sneezing.

- Q20. Biogeochemical cycles are also called \_\_\_\_
- (a) Nutrient cycles
  - (b) Cycles of matter
  - (c) Environment cycle
  - (d) Ecological pyramid

Sol. (a)  
Biogeochemical cycle primarily involves the cycling of the nutrients from the abiotic to biotic components and it runs in cyclic manner.