SUMMATIVE ASSESSMENT – II SCIENCE Class – IX [code: PFD7HGR] CPS

SECTION-A

1. What do you mean by the word 'mole' ?

2. From the symbol $^{40}_{18}Ar$ write down the number of neutrons present in the nucleus of the atom.

3. Name any two groups of microorganisms from which antibiotics can be extracted.

4. Explain how an ultrasound is used to clean spiral tubes and machinary parts located in a place hard to reach.

5. The volume of a 40 g body is 20 cm3. If the density of water is 1 g/cc will the body float or sink in water ?

6. State two examples in each case and write their chemical formulae :

(a) Molecules having one kind of atoms only. (b) Molecules having two different kinds of atoms.

(c) Molecules having three different kinds of atoms.

7. What were the conclusions of Rutherford's α -particle scattering experiment.

8 . (a) Write difference between O_2 and 2O.

(b) Give one example in each of the following cases :

(i) Monoatomic molecule (ii) Diatomic molecule (iii) Tri atomic molecule (iv) Tetraatomic molecule

9. (a) What is the scientific name of humans ? (b) To which class of vertebrates does it belong ?

(c) Mention any two characteristic features of this group.

10. Differentiate between communicable and non-communicable diseases in two points. Give one example of each.

11.(a) Identify and name the kingdoms that comprise of :

(i) Unicellular prokaryotes (ii) Multicellular eukaryotes without cell wall (iii) Multicellular heterotrophs with cell wall

(b) Identify the phylum with the following features :

(i) spiny – skinned (ii) jointed appendages (iii) cylindrical body

12 . Name and define the S.I. unit and commercial unit of energy. Establish a relationship between the two.

13. (a) Define relative density. (b) Find the relative density of mercury if its density is 13.6 x 10^3kg/m3.

14. What is reverberation. How can it be reduced? Give two applications of reflection of sound wave.3

15 .Define potential energy. Give its SI unit. State two factors on which the magnitude of potential energy depend. Give one example each for the change in potential energy due to : (i) position (ii) configuration of the body

16. Hiten received a heavy electricity bill. His friend suggested him some ways to cut down on the high electricity units consumption. Hiten followed those suggestions and was able to cut down on the expenditure.
(a) Suggest any two ways which help in saving electricity. (b) What can you learn from the attitude of his friend ?

17. (a) Define Valency. What conclusions can be drawn about the reactivity of an atom from its valency ?

(b) Why does an atom of Argon have zero valency ? Explain using the electronic configuration of Argon.

18. Explain the meaning of the terms and give an example in each of the following :

(a) symbiotic relationship (b) cotyledons (c) cryptogam (d) saprophytic (e) prokaryotic

19. How do infectious diseases spread in a community ? Make a list of all the possible means of spread of diseases.

20. (a) Distinguish between Music and Noise. (Mention any three points).

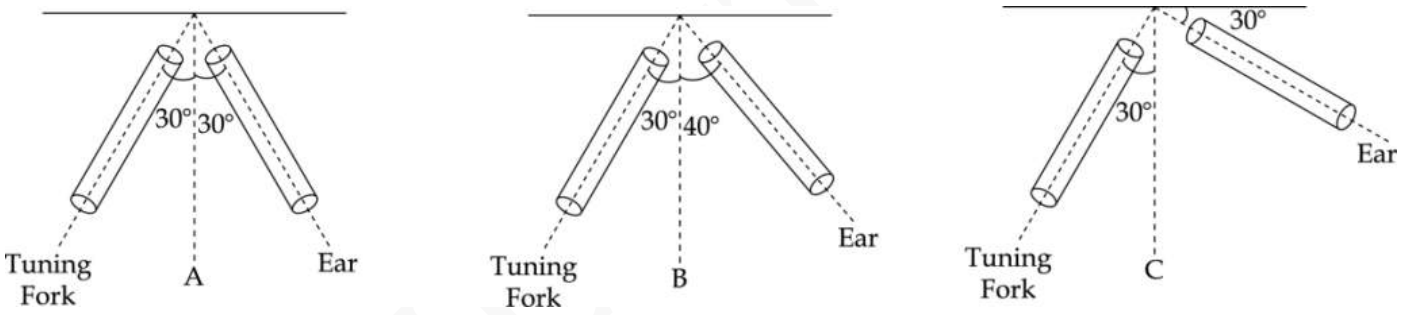
(b) Name two animals who use ultrasound for navigation and location of food in the dark. State the process.

21. (a) Define the work done by a constant force. Write its SI unit and define this unit.

(b) A 3000 kg truck moving at a speed of 72km/h stops after covering some distance. The force applied by brakes is 24000 N. Compute the distance covered and work done by this force.

Section – B

22. Three students performed an experiment on verifying the laws of reflection of sound using a tuning fork as a source of sound. Their experimental setup is shown in figures A, B, and C.



The setup in which the sound of the vibrating tuning fork will be heard the most clearly is :

(a) A (b) B (c) Both A and B (d) C Ans: (A)

23. A man weighing 80 kg exerts pressure P1 when standing on both the feets on the ground and pressure P2 when lying on the ground. The relation between P1 and P2 is

(a) P1> P2 (b) P1 < P2 (c) P1 = P2 (d) P1 = P2/4 Ans: (A)

24. tudents in a class were asked to produce transverse waves. They will do so by :

(i) dropping a pebble in calm water. (ii) moving stretched slinky at right angle to the length of slinky.

(iii) compressing the free end of the slinky. (iv) striking the tuning fork with a hard rubber pad.

The correct method/methods are :

(a) (iii) and (iv) (b) (i) and (ii) (c) only (iv) (d) only (i) Ans: (b)

25.Chloroplast present in spirogyra are :

(a) book shaped (b) irregular in shape (c) ribbon shaped (d) spiral shaped Ans (C)

26. When we add lead nitrate solution to sodium chloride solution, a precipitate of lead chloride and sodium nitrate solution are obtained. To prove the law of conservation of mass, which of the following statements is correct?

(a) Mass of lead nitrate = Mass of sodium chloride

(b) Mass of lead nitrate + Mass of sodium chloride = Mass of lead chloride + Mass of sodium nitrate

(c) Mass of lead chloride + Mass of sodium chloride = Mass of lead nitrate + Mass of sodium nitrate

(d) Mass of sodium chloride + Mass of sodium nitrate = Mass of lead chloride + Mass of lead nitrate Ans: (b)

27. In the following chemical equation, the co-efficient of O2 in accordance with the law of conservation of mass is:-

$C_5H1_2 + O_2$ ----------> $5CO_2+6H_2O$ (a) 2 (b) 6 (c) 4 (d) 8 Ans: (d)

28. A group of four students Lovish, Rahul, Bhavya and Shourya observed the roots and leaves of mustard plant and reported it as follows. The correct observation is :

(a) tap root and parallel venation (b) tap root and reticulate venation

(c) fibrous root and parallel venation (d) fibrous root and reticulate venation Ans: (b)

29. Anshu identified that the following is characteristic shown by a dicotyledonous plant :

(a) fibrous root system (b) pentamerous flower (c) trimerous flower (d) parallel venation Ans:(b)

30. The process of changing of a Pupa into an adult mosquito is known as :

(a) metamorphosis (b) moulting (c) laying (d) embryology Ans(a)

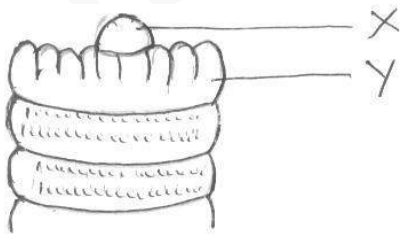
31. You are given two measuring cylinders of least count 1.0 mL and 2.5 mL respectively. Which one will you prefer to determine the density of a solid more accurately and why? 2

Ans: Measuring cylinder having L.C. 1.0 mL because device having less least count can measure/determine more accurately.

35. Rohan observed that the mass of solid body is more in air as compared to the mass of solid body in water. Explain the observation.

Ans: It means water is exerting some upward force on the solid body such that the net reading in the spring balance is the difference of true weight of the solid body and the upward force.

36. Identify X and Y in the diagram of the part of earthworm drawn above. What function is performed by X ?



Ans: X - Prostomium Y - Peristomium It acts as a sensory device

Solution:

1. It is defined as the amount of a substance which contains the same number of particles as the number of carbon atoms present in 12 grams of C – 12 isotope of carbon.

2. neutron = 40 – 18 = 22

3. Fungi and bacteria

4. The spiral tubes are dipped in a liquid. The ultrasonic waves are passed through this liquid. These waves force the dirt or any other impurity out from the spiral tube and hence the tube is cleaned.

5. Density = mass/volume = 40 g/20 cc = 2 g/cc

Since density > density of water i.e. 1 g/cc so it will sink.

6. (a) Chlorine molecule(C l2) Hydrogen molecule (H2) Oxygen molecule (O2)

(b) Water molecule(H2O) Carbon dioxide molecule (CO2) Ammonia molecule (NH3)

(c) Zinc sulphate(ZnSO4) carbonate (NaCO3) Copper sulphate (CuSO4)

7. Conclusions of Rutherford's α-particle scattering experiment were :

(a) Most of the space inside the atom is empty because most of the -particles passed through the gold foil without getting deflected.

(b) Very few particles were deflected from their path, indicating that the positive charge of the atom occupies very little space.

(c) A very small fraction of -particles were deflected by 180 , indicating that all the positive charge and mass of the gold atom were concentrated in a very small volume within the atom.

8 .(a) O2 - one molecule of oxygen 2O - 2 atoms of oxygen

(b) (i) Monoatomic – He, Ne (ii) Diatomic – O2, CO, HCl

iii) Triatomic – O3, H2S,C O2 (iv) Tetraatomic – NH3, PCl3 (any one example each)

9. (a) Scientific name of humans – Homo sapiens (b) Mammalia (c) Warm blooded animals ,four chambered Heart

10 Infections/communicable disease - spread easily , affects community

Non infections/Non communicable disease - Does not spread , does not affect community only host body at threat

Examples – Communicable Cold, pneumonia, TB - Non Communicable- Cancer, Heart attack

12 . S I unit is joule 1 – Energy used per second is called 1 J

Commercial unit - kilowatt hour

1 kilowatt hour (kwh) - 1 kW h is the energy used in one hour

1 kW h = 1 kW ×1 h = 1000 W × 3600 s = 3600000 J = 3.6 x 10^6 joule (J)

13 (a) The relative density of a substance is the ratio of its density to that of water

(b) R.D = Density of mercury/ Density of water = 13600/1000 = 13.6

14 The repeated reflection that results in the persistence of sound is called reverberation. It can be reduced (i) Roof and walls of auditorium are covered by sound absorbent material.

Two applications of reflection of sound waves (a) Echo. (b) In Megaphones.

15. Potential energy possessed by the object is the energy present in it by virtue of its position or configuration.

SI unit is jule. Factors are (a) mass of the object (b) height of the object

(i) Raising an object to a height (ii) Stretched catapult

16 . (a) Switch off the fan if not used, Do not light bulb in day time

(b) Cautious; Aware (or any other)

17 (a) Valency – The combining capacity of an atom is known as its valency.

Valency is the no. of electrons in outermost shell of an atom. The no. of electrons gained or lost or shared gives us the combining capacity of an atom and this decides whether an atom is reactive or not ?

(b) The atomic number of Argon= 18,i.e., it has 18 electrons. Hence, its electronic configuration will be 2, 8, 8

Since it has 8 electrons in its valence shell, So, its valency = 8-8= 0 (zero)

18. (a) A close association where both the species are dependent on each other *eg*. lichens.

(b) Seed leaves-present in angiosperms as in pulses, beans, pea etc.

(c) hidden reproductive organs. eg. of any bryophyte, pteridophyte, algae

(d) Fungi live on dead and decaying organic matter.

(e) do not have proper nucleus and nuclear membrane is absent in bacteria, cyanobacteria.

19. (a) Direct Transmission : Contact with infected person , Air borne diseases, Contact of open wound with soil Animal bites, Through placenta

(b) Indirect Transmission : By carrier/vectors , Through blood , Through food and water , Through sexual contact, Through unhygienic conditions

20. Music : It is pleasant to hear, Continuous and uniform sound., eg. sound produced by sitar violin, piano etc.

Noise : It is unpleasant to hear. , Sound produced by irregularly vibrating body. eg. sound of vehicles on the road, sound other then musical sound. (b) Bat and porpoise. By emitting and detecting reflection of ultrasonic curves.

21. (a) Work is said to be done when a force acts on an object and the object covers some distance. its SI unit is Joule. One joule : When a force of 1 N moves a body through a distance of 1 metre the direction of force.

(b) U = 72Km/h = 20m/s , v = 0; F = – 24000 N; m = 3000 kg $\Rightarrow$ F = ma $\Rightarrow$ a = F/m = =24000/3000 = – 8 m/s2
Also v2 – u2 = 2 as S = 25 m Now, W = FS = – 24000 × 25 = – 600000 Jouls = 600KJ – ve sign shows retarding force.