
CBSE Sample Paper -03
SUMMATIVE ASSESSMENT –II
SCIENCE (Theory)
Class – IX

Time allowed: 3 hours

Maximum Marks: 90

General Instructions:

- a) All questions are compulsory.
- b) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- c) Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
- d) Questions 4 to 7 in section A are two marks questions. These are to be answered in about 30 words each.
- e) Questions 8 to 19 in section A are three marks questions. These are to be answered in about 50 words each.
- f) Questions 20 to 24 in section A are five marks questions. These are to be answered in about 70 words each.
- g) Questions 25 to 42 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you

Section A

1. What is the use of hydrometer?
 2. What are the charge and mass of the neutron?
 3. What is haemocoel? Which group of animals have haemocoel?
 4. Explain why sheet of paper falls slowly than a coin under gravity through air.
 5. The number of electrons in the outermost shell of chlorine is 7. What is its valency and why?
 6. Which organisms are called primitive and how are they different from the so-called advanced organisms?
 7. Define pressure and its SI Unit. The dimensions of a metallic cuboid are 30 cm x 20 cm x 15 cm and its mass is 30 kg. If the acceleration due to gravity be 10 m/sec^2 , Calculate the pressure exerted by the cuboid, when it is resting on the face having sides 20cm x 15 cm on a table.
 8. Water is falling on the blades of a turbine at the rate of $8 \times 10^2 \text{ kg}$ per minute, height of fall is 50m. calculate the power given to turbine. ($g = 10 \text{ m/s}^2$)
 9. Give an example in each case where work done by a force is :
 - a. Zero
 - b. Positive
 - c. Negative
-

-
10. Manoj's Grandfather is very fond of gardening so he waters the plant in their garden everyday. Manoj asks him why does he do so. Grandfather explains him and says plant help us to derive energy from the sun as sun is the center of all energy. Manoj again ask how this is possible. Grandfather tells him how plants prepare food and store energy, which is used by us as food or fuel.
- (a) In what form do we obtain energy of the sun directly?
- (b) How does growing more plants help to derive solar energy?
- (c) What do you infer about qualities of Manoj?
11. Can an object have momentum even if its mechanical energy is zero. Explain.
12. (a) Why are the roof and walls of an auditorium /hall generally covered with sound absorbent materials?
- (b) The sound of ringing bell inside a vacuum chamber can't be heard. Why?
13. Write the chemical formula, using criss cross method:
- a. Ammonium sulphate
- b. Magnesium bicarbonate
- c. Barium nitrate
14. What is meant by the term mole? Calculate the number of moles in
- a. 3.011×10^{23} atoms of C
- b. 32 g of oxygen gas
- [$N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$, At. Mass of O = 16 u and C = 12 u]
15. Describe the characteristics of the division Thallophyta.
16. On what basis plants and animals are divided into two different categories?
17. List the names of three diseases caused by virus stating their mode of communication in each mode.
18. A. why is making of anti-viral medicines harder than anti-bacterial medicines?
- B. how can we prevent exposure to infectious microbes?
19. A silver ornament of mass 'm' gram is polished with gold equivalent to 1% of the mass of silver. Compute the ratio of the number of atoms of gold and silver in the ornament.
20. What are the causes, symptoms and the methods of prevention and control of rabies.
21. What do you mean by work? Give an example of negative work done? What is the work to be done to increase the velocity from 18km/hr to 19km/hr, if the mass of the car is 2000 Kg.
22. (a) State two factors on which the magnitude of buoyant force acting on a body immersed in a fluid depends.
-

(b) Will buoyant force exerted by a liquid increase, if its volume increased?

(c) Name the devices based on Archimedes principle.

23. OTBA

24. OTBA

Section B

25. In the reaction between copper sulphate and sodium sulphide solutions, when 15.9 g copper sulphate completely reacts with 7.8 g of sodium sulphide it is observed that 9.5 g of copper sulphide is formed. What is mass of sodium sulphate solution formed?

26. Name the stages in life cycle of mosquito.

27. The mass of a body is 10 kg at a place where $g=10\text{m/s}^2$, its weight is

a. 1000 N

b. 100 N

c. 10 N

d. 1 N

28. The law of conservation of mass for the reaction between sodium bicarbonate and dilute hydrochloric acid can be verified only when it is carried in a closed container because

(a) The reaction does not occur in an open vessel.

(b) The rate of reaction is very high in a closed container.

(c) In an open container, the gaseous product carbon dioxide will escape in to the atmosphere and the observed final mass will be less than the actual final mass.

(d) In an open container the gas will escape in to the atmosphere and catch fire.

29. The mouth of flask used for proving law of conservation of mass should be:

a. Open because gases formed can escape out.

b. Covered so that contents of reaction do not escape.

c. Covered so that contents of solution do not spill out.

d. It can be kept either open or closed.

30. In the legume seed, food is stored in

a. cotyledons

b. endosperm

c. perisperm

d. seedcoat

31. Foot, seta and capsule are the parts of

a. gametophyte of moss

b. sporophyte of moss

c. both of these

d. sporophytes of ferns

32. Biologists think that arthropoda are the most successful of all animals because of

a. presence of chitinous covering that prevents desiccation

b. segmented body

- c. open circulatory system
- d. compound eye
33. Earthworm mainly feeds on
 - a. dried leaves
 - b. soil rich in humus
 - c. small insects
 - d. plant sap
34. The minimum time gap between the two sounds to be heard distinctly must be
 - a. 0.1 s
 - b. 0.15 s
 - c. 2.0 s
 - d. 2.5 s
35. Mass of a body is defined as
 - a. the force with which a body is attracted towards the centre of the earth
 - b. the quantity of matter contained in the body
 - c. force acting on a body divided by velocity produced in the body
 - d. none of the above
36. S.I unit of Thrust is
 - a. kg wt
 - b. Dyne
 - c. joule
 - d. newton (N)

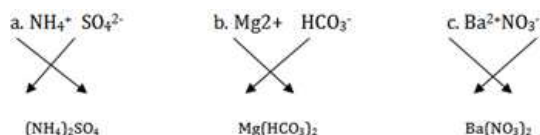
CBSE Sample Paper -03
SUMMATIVE ASSESSMENT –II
SCIENCE (Theory)
Class – IX

Solution

1. To find density of water
 2. Neutron does not have any charge. Its mass is 1.675×10^{-27} kg.
 3. Haemocoel is a pseudocoel with blood. It is found in arthropods and molluscs.
 4. Air resistance depends on surface area which is more in case of sheet of paper.
 5. Its valency is one because it can gain one electron to become stable like noble gases.
 6. Pressure is defined as thrust per unit area. Its SI unit is pascal.(Pa)
 $m = 30 \text{ kg}$
 $A = 20\text{cm} \times 15 \text{ cm}$
 $= 300 \text{ cm}^2 = 0.03\text{m}^2$
 $g = 10 \text{ m/s}^2$
 $P = mg/A = 30 \times 10 / 0.03 = 10^4 \text{ Pa}$
 7. $h = 50 \text{ m}$
 $g = 10 \text{ m/s}^2$
 $m = 8 \times 10^2 \text{ kg}$
 $t = 1 \text{ min} = 60 \text{ s}$
 $\text{Power} = W/t = mgh / t = 8 \times 10^2 \times 10 \times 50 / 60 = 6.67 \times 10^3 \text{ W}$
 8. a. work done by gravity on a rolling ball.
b. hitting a stationary ball.
c. work done by a friction of a rolling ball.
 9. a. Heat and light
b. Plants store energy in the form of ATP's which is used as food (directly or indirectly) or fuel (in the form of fossil fuels).
c. Manoj is curious, inquisitive and courageous to ask questions.
 10. Yes, when the object is thrown up, P.E(in the form of mechanical energy) is non-zero at the highest point of a projectile, even if kinetic is zero due to zero velocity.
 11. a. If absorbent materials are absent there will be multiple echoes due to which sound cannot be heard clearly.
b. Sound waves are mechanical waves and cannot pass through vacuum.
-

12. The group of organisms which have ancient body designs and have not changed much are called “Primitive” organisms. They are different from the advanced organisms as advanced organisms are group of organisms which have acquired their particular body designs recently.

13.



14. Mole is defined as counting unit and is equal to 6.022×10^{23} atoms.

a. number of moles of carbon = $\frac{\text{number of atoms}}{6.022 \times 10^{23}}$
 $= \frac{3.011 \times 10^{23}}{6.022 \times 10^{23}}$
 $= \frac{1}{2} = 0.5 \text{ mol}$

b. number of moles of oxygen gas = $\frac{\text{given mass}}{\text{molar mass}} = \frac{32}{32} = 1 \text{ mole}$

15. The characteristics features of Thallophyta are :

- The plant body consists of individual thallus.
- The sex organs are single celled.
- After fertilization, no embryo is formed.

16. Plants and animals are put into different categories on the following basis:

- plants are stationary while animals are not.
- plants make their own food whereas animals eat plants or animals as food.
- plants grow indefinitely whereas animals stop growing after attaining a certain size.
- plant cells are surrounded by a cell wall whereas animals cells are not.
- plant cells contain chlorophyll while animals cells do not.

17. Jaundice – Contaminated food and water

Rabies – Saliva of infected animal

AIDS – Through sexual contact, blood transfusion, contaminated needle from mother to foetus.

18. (a) Antibiotics block the bacterial process that build cell wall in bacteria. As a result, the growing bacteria become unable to make cell wall and die easily. Viruses do not have biochemical mechanisms of their own. They enter our cells and use our machinery for their life processes. Therefore making of anti viral medicine is difficult than anti bacterial medicine.

(b) We can prevent exposure to air borne microbes by providing living conditions that are not overcrowded. Exposure to water borne microbes can be prevented by providing safe drinking water. This can be done by treating the water to kill any microbial contamination. Exposure to vector-borne infections can be prevented by providing clean environments.

19. Mass of silver in the ornament =m gram

Mass of gold in the ornament =m x 1/100 = 0.01 m gram

108 g of Ag contains 6.022×10^{23} atoms

M gram of Ag Contains $(6.022 \times 10^{23}/108) \times m$

$m/108 \times 6.022 \times 10^{23}$

197 g of Au contains 6.022×10^{23} atoms

m/100 g of Au contains $(6.022 \times 10^{23}/197) \times m/100$ atoms

ratio of number of atoms of gold and silver = Au : Ag

= $(6.022 \times 10^{23}/197) \times m/100 : (6.022 \times 10^{23} \times m)/108$

= 108 : 19700 = 1:182.41

20. Cause: Rabies is a viral disease caused by rabies virus, present in the saliva of the infected animal, particularly Dog.

Symptoms:

- (a) Severe Headache
- (b) Painful Contraction of muscles of throat and chest.
- (c) High fever and restlessness.
- (d) Difficulty in taking even liquid food.

Prevention:

- (a) Wound caused after the bite should be immediately washed with carbolic soap and clean water and antiseptic medicine should be applied. Then a doctor should be soon consulted.
- (b) All dogs, cats and pet dogs in the neighborhood should be immunised.
- (c) The rabies animal showing excessive salivation and seeking isolation must be killed.

Control: A course of five anti-rabies vaccines are prescribed at an interval of 0-3-7-14-30 days of dog bite. This is called Pasteur's treatment.

21. Work is said to be done when a force applied on an object moves it in its own direction.

Example of negative work- When a body is sliding on a surface, work done by force of friction is negative.

m = 2000 Kg

u= 18 Km/hr

v= 90Km/hr

= $(18 \times 5/18)$ m/s= 5 m/s

v= $(90 \times 5/18)$ = 25 m/s

Work done to increase velocity,

$$W = \frac{1}{2} m(v^2 - u^2)$$

$$= \frac{1}{2} \times 2000 (25^2 - 5^2)$$

$$= 1000 (625 - 25) = 6 \times 10^5 \text{ J}$$

22. (a) Buoyant force = Weight of liquid displaced

$$= (\text{Volume immersed}) \times (\text{Density of liquid}) \times (\text{acceleration due to gravity})$$

So, density of liquid and volume immersed affect buoyant force.

Buoyant force exerted by liquid does not depend upon its volume.

(B) Hydrometer and lactometer are based on Archimedes' principle. Submarines are also designed according to Archimedes' principle.

23. OTBA

24. OTBA

25. Mass of (copper sulphate + sodium sulphide) = Mass of (copper sulphide + sodium sulphate)

$$15.9 \text{ g} + 7.8 \text{ g} = 9.5 \text{ g} + x$$

$$x = 23.7 \text{ g}$$

26. The stages during the life cycle of mosquito is :

(a) eggs (b) Larva (c) Pupa (d) adult

27. (c)

28. (c)

29. (a)

30. (b)

31. (a)

32. (b)

33. (a)

34. (b)

35. (d)
