



INDIAN SCHOOL SOHAR
FINAL EXAMINATION (2019 -20)
SUBJECT: SCIENCE

CLASS: IX

Max. Marks: 80

DATE: 01/03/2020

Duration: 3Hrs

General Instructions:-

- i. The question paper comprises of **three** Sections -**A, B** and **C**. Attempt **all** the sections.
- ii. The question paper consists of a total of 30 questions. **All** questions are compulsory.
- iii. All questions in Section **A** are **one-** mark questions comprising MCQ, VSA type and assertion and reasoning type questions. They are to be answered in one word or in one sentence.
- iv. All questions in Section **B** are **three-**mark short-answer type questions. These are to be answered in about 50-60 words each.
- v. All questions in Section **C** are **five-**mark, long-answer questions. These are to be answered in about 80-90 words each.
- vi. Internal choice is given in each section.
- vii. Wherever necessary the diagrams drawn should be neat and properly labelled.

SECTION A

1. Name the kingdom which includes unicellular eukaryotic organisms. 1
2. Which property of gas is used in supplying oxygen cylinders to hospitals? 1
3. **Answer question numbers 3(a) – 3(d) on the basis of your understanding of the following paragraph and related studied concepts.**



Ultrasounds are high frequency waves (frequency more than 20 kHz) which can penetrate deep inside and even in the presence of obstacles. Ultrasound imaging, or sonography, is the use of high-frequency sound waves to visualize soft tissues such as internal organs. The procedure is capable of generating real-time images that reveal movement of the tissues or blood flow, according to the U.S. Food and Drug Administration.

An ultrasound machine consists of a handheld device that produces ultrasonic sound waves (above the range of human hearing) that reflect off different layers of body tissue. The transducer converts the echoes into electrical signals that are used to create an image and display it on a screen. The image is based on the frequency and strength of the sound signal and the time it took for the echoes to return, according to the FDA.

Ultrasound-excited thermography is a superior method for the detection of cracks in wood boards, panels and surfaces. The ultrasonic thermography provides a highly accurate, precise and fast detection without destructing the inspected material.

- 3(a) What is the range of frequencies associated with ultrasound? 1
- 3(b) Why cannot we use longer wavelengths for the industrial applications of ultrasound? 1
- 3(c) State the relationship between frequency and time period of a wave. 1
- 3(d) Which kind of sound does an earthquake produce before the main shock wave begins? 1

4. Question numbers 4(a) –4(d) are based on the table given below. Analyse the following table showing number of protons and neutrons of elements A, B, C, D and answer the following questions:

S.No.	Element	Number of protons	Number of neutrons
1	A	17	18
2	B	13	14
3	C	6	6
4	D	4	5

- 4(a) Write the electronic configuration of an element B. 1
- 4(b) What would be the valency of element C. Also, name the element. 1
- 4(c) Calculate the mass number of element D. 1
- 4(d) Draw the atomic structure of element A. 1
5. Rocket works on the principle of conservation of
- (a) mass (b) time (c) momentum (d) velocity
- OR**
- Which one among the following has the least inertia?
- (a) 1kg stone (b) 2kg potato (c) a five rupee coin (d) a bicycle 1
6. Area below the v-t graph is a measure of
- (a) acceleration (b) displacement (c) speed (d) angular acceleration 1
7. In which of the following cases of motion the distance moved and the magnitude of displacement are equal.
- (a) a car is moving on a straight road (b) a car is moving in a circular path
- (c) the pendulum is moving to and fro (d) the earth is revolving around the sun 1
8. Which of the following is **NOT** a physical change?
- (a) Melting of iron metal (b) Bending of an iron rod
- (c) Drawing a wire of iron (d) Rusting of iron
- OR**
- What happens when a beam of light is passed through a colloidal solution?
- (a) It is reflected (b) It is absorbed
- (c) It is scattered (d) It is refracted 1
9. Which one will **NOT** increase the rate of evaporation of a liquid?
- (a) Increase of humidity (b) Increase of temperature
- (c) Increase of surface area (d) Increased wind speed
- OR**
- The melting point of a substance is defined as the constant temperature at 1 atmospheric pressure when,
- (a) only solid is present (b) both the solid and liquid exist together
- (c) only liquid is present (d) the solid is completely changed into liquid 1
10. Which of the following disease is not transmitted by mosquitoes?
- (a) dengue (b) malaria (c) pneumonia (d) brain fever. 1
11. The plant tissue present in the husk of coconut is.
- (a) Aerenchyma (b) Parenchyma (c) Sclerenchyma (d) Collenchyma. 1

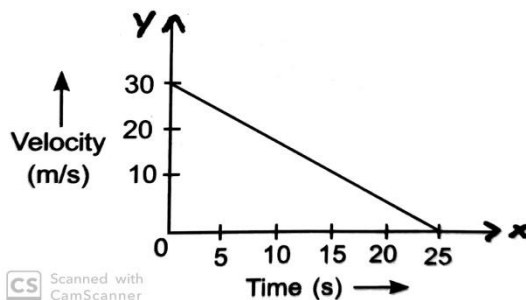
12. Kala-azar is caused by:
(a) Ascaris (b) Trypanosoma (c) Bacteria (d) Leishmania 1

For question numbers 13 and 14, two statements are given- one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below.

- i. Both **A** and **R** are true and **R** is the correct explanation of the Assertion.
 - ii. Both **A** and **R** are true but **R** is not the correct explanation of the Assertion.
 - iii. **A** is true but **R** is false.
 - iv. **A** is false but **R** is true.
13. **Assertion:** The particles of a suspension can be seen by naked eye.
Reason: When a suspension is left undisturbed, it becomes stable. 1
14. **Assertion:** The recoil velocity of a gun is much less than that of a bullet.
Reason: Each force acts on a different object that may have different mass. 1

SECTION B

15. a) What is an echo?
b) Calculate the minimum distance to hear an echo. Speed of sound in air is 344m/s at 22°C.
c) Why are the ceilings of concert halls curved? 3
16. a) Name the physical quantity that corresponds to the rate of change of velocity and write its SI unit.
b) Why is the motion in a circle with constant speed called accelerated motion?
c) Draw the velocity time graph for an object in uniform motion. 3
17. Give reason for the following:
(a) Doctors advise to put strips of wet cloth on the forehead of a person having high temperature.
(b) Steam produces more severe burns as compared to boiling water.
(c) Smell of perfume travels a few yards away. 3
18. a) State Newton's law of motion that provides the formula for measuring force.
b) Velocity time graph of a 50g marble rolling on floor is given below.



- Find the, (i) Negative acceleration produced in it.
(ii) Force acting on the marble.

OR

- a) State the law of conservation of momentum.
b) A body of mass 3kg, initially moving with a velocity of 10m/s, collides with another body of mass 4kg at rest. After collision the velocity of first body becomes 2m/s. Find the velocity of the second body? 3

19. List three main features of Rutherford's nuclear model of an atom.

OR

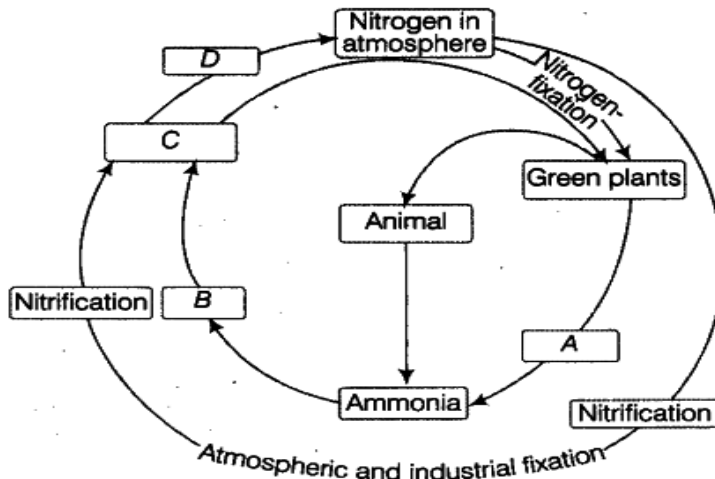
(a) Mention one use of each of the following:

- (i) Isotope of Uranium (ii) Isotope of Iodine

(b) State the postulates put forward by Neil's Bohr in order to overcome the objections raised against Rutherford's model of an atom. 3

20. (a) Study the given figure of nitrogen cycle and mention what **A**, **B**, **C** and **D** represent.

(b) Write the role of nitrogen fixing bacteria in the biosphere. 3



21. (a) Why are antibiotics not effective for treating common cold?

(b) How do children in many parts of India get immune to hepatitis A by the time they are 5 years old? 3

22. Identify the phylum of animals having:

(a) Soft body with open circulatory system.

(b) Spiny body and radial symmetry.

(c) Cylindrical body and pseudo coelomate. 3

23. (a) What is the chemical composition of cell wall in plants and fungi?

(b) What will happen if RBC cell is kept in hypertonic solution? 3

24. (a) Why do cattle breeders choose to cross-breed Jersey cow with Red Sindhi cow?

(b) What is pasturage? How is it related to honey production?

OR

(a) What is organic farming? Write two advantages of it.

(b) Name any two factors for which variety improvement is done. 3

SECTION C

25. (a) Differentiate between thrust and pressure (Give two points)

(b) Give two applications of Archimedes' principle.

(c) Relative density of gold is 19.5. The density of water is 1000kg/m^3 . What will be the density of gold in SI unit and in cgs unit?

OR

(a) What are the two differences between mass of a body and its weight?

(b) How is Newton's second law of motion related to universal law of gravitation?

(c) What is the distance covered by a freely falling body during the first three seconds of its motion? ($g=10\text{m/s}^2$) 5

26. (a) Derive an expression for kinetic energy of an object.
(b) State the commercial unit and SI unit of electrical energy.
(c) If an electric iron of 1600W is used for 45 minutes every day, find the electric energy consumed in the month of June. 5

27. (a) Write a chemical formula of a compound using zinc ion and phosphate ion.
(b) Calculate the mass of 3.011×10^{24} molecules of O_2 (Atomic mass of O = 16u)
(c) Calculate the molar mass of : a) Ammonia b) Ozone (Atomic mass of N = 14u and H = 1u)

OR

- (a) Identify the dispersed phase and dispersing medium in the following colloids
(i) Coloured gemstone (ii) Milk of magnesia
(b) (i) Draw and label the apparatus which is used to separate oil from water.
(ii) State the principle involved in this process. 5
28. (a) State two principles of treatment of disease.
(b) It was diagnosed that Sham was suffering from Japanese encephalitis, which organ of his body was affected?
(c) Name the microbe that causes this disease.
(d) What symptoms were shown by Shyam? 5

29. Farmer 'X' planted soya bean+ maize in the same field simultaneously in a set row pattern. Farmer 'Y' planted cereal crop in one season and leguminous plants in next season on the same piece of land in preplanned succession.
(a) Name the cropping pattern followed by Farmers 'X' and 'Y' respectively.
(b) State two advantages of the cropping pattern.

OR

Raju visited a fish farm and saw a combination of 5 to 6 species of fishes reared in a single pond.

- (a) Name the type of fish culture observed by Raju.
(b) State two advantages of using such fish culture.
(c) What is the main problem that arise in such type of fish culture? Suggest one method to overcome it? 5
- 30.(a) What is meant by concentration of a solution? A solution contains 50 g common salt in 350 g of water. Calculate the concentration of the solution.
(b) Suggest a suitable separation technique to separate the components of the following mixtures:
i) Dyes in black ink
ii) Butter from cream
iii) Ammonium chloride and common salt
iv) Iron filings and sand
(c) List down any two applications of centrifugation. 5
