

NORTH-EX PUBLIC SCHOOL
(Senior Secondary, Affiliated To CBSE)
School Block, Jain Nagar, Sector-38, Rohini, Delhi – 81
FINAL EXAMINATION (2019–20)
SUBJECT – SCIENCE
CLASS – IX

TIME: 3hr

MM: 80

General Instructions:

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

SECTION A

1. What is the maximum number of electrons which can be accommodated in 'N' shell?
DIRECTION : For question numbers 1 and 2, two statements are given- one labelled the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below :
 - (a) Both A and R are true and R is correct explanation of the assertion.
 - (b) Both A and R are true but R is not the correct explanation of the assertion.
 - (c) A is true but R is false.
 - (d) Both A and R are false.
 2. **Assertion (A) :** The particles of a solution are smaller than 1 nm (10⁻⁹ metre) in diameter
Reason (R) : Solution can scatter a beam of light passing through it
 3. **Assertion (A) :** In solids, molecules are tightly packed.
Reason (R) : Force of attraction between molecules in solids is very weak.
 4. Rocket works on the principle of _____.
 - a) Newton's third law
 - b) Newton's second law
 - c) Newton's fourth law
 - d) Newton's first law
- OR**
- “Action and reaction are equal and opposite but even then they do not cancel each other” the above statement is
- a) partially false.
 - b) False
 - c) partially true
 - d) true
5. To compare the pressure exerted by the solid iron cuboid, a student took two cuboids having the same dimension and same nature of material. After performing the experiment with both the cuboids, she found
 - a) $P_1 = 2P_2$
 - b) $P_2 = 3P_1$
 - c) $P_1 = P_2$
 - d) $P_2 = 2P_1$

6. In a watch P. E of wound spring is converted into
- Chemical energy
 - Kinetic energy
 - Mechanical energy
 - Electrical energy
7. The frequency of sound is 100 Hz. How many times does it vibrate in a minute?
- 6000 Hz
 - 600 Hz
 - 5000 Hz
 - 60 Hz

OR

What are ultrasonic sounds?

- $F > 20 \text{ Hz}$
 - $F < 20000 \text{ Hz}$
 - $F < 20 \text{ Hz}$
 - $F > 20000 \text{ Hz}$
8. What does the area of a velocity—time graph give ?
- Distance
 - Acceleration
 - Displacement
 - None of these
9. Which one of the following is a leguminous green fodder commonly available in winter:
- Elephant grass
 - Cowpea
 - Rice and Jowar
 - Berseem and lucerne
10. Name the disease that affects our lungs.
- AIDS
 - Polio
 - Tuberculosis
 - Rabies

OR

Penicillin is capable of one of the following. Which one ?

- Interfere in the biological pathway of bacteria.
 - An antibiotic that can kill bacteria
 - Both A and B
 - None of these
11. Physical state of water at 25degree celcius
- Solid
 - Liquid
 - Vapour
 - Ice

OR

Separation techniques you would apply for the separation of butter from curd:

- Evaporation
- Chromatography
- Sublimation
- centrifugation

12. What is the chemical formula of ammonium phosphate ?

OR

How many atoms are present in a PO_4^{3-}

- a) 1 phosphorus and 4 oxygen
 - b) 3 phosphorus and 2 oxygen
 - c) 2 phosphorus and 5 oxygen
 - d) 2 phosphorus and 4 oxygen
13. A metal which can be cut with a knife.
- a) Mercury
 - b) Gallium
 - c) Sodium
 - d) graphite

14. Read the passage and answer the following questions.

Rohan has a brother who is an athlete. One day Rohan had gone to see his brother in a racing competition. The race starts and after sometime, Rohan sees his brother in pain and not able to run properly. He sees that the doctor immediately applies ice on his knees



- a) Rohan is confused as to why the doctor is applying ice on his brother's knees. Can you clear his confusion by stating an appropriate reason ?
- b) State one function of a skeletal connective tissue
- c) What is ligament
- d) What values are shown by Rohan ?

SECTION B

15. A body starts from rest and moves with a uniform acceleration of 2 m/s^2 - until it travels a distance of 625 m. Find its velocity.

16.

- a) Why does a passenger jumping out of a rapidly moving bus fall forward with his face downwards?
- b) Why is it difficult for a fireman to hose, which ejects large amount of water at a high velocity?

OR

Describe in brief an activity to illustrate the property of inertia of rest.

17.

- a) The mass of the body on earth is 60 kg, what is its weight on the earth and on moon ?
- b) How is the weight of an object related to its mass ?

18.

- a) What amount of energy in kWh is consumed in 10 h by a machine of power 500 W?
- b) An archer stretches the string of his bow to shoot an arrow. Name :

- (i) The type of energy he uses in the process.
(ii) The type of energy into which it is converted.
(iii) The energy transformation taking place when the arrow is shot.
- c) If a body is thrown vertically upward, its velocity goes on decreasing. What happens to its kinetic energy when it stops at the top and its velocity becomes zero ?
- 19.
- a) With the help of labeled diagram show the cycling of nitrogen in nature.
b) Name two organisms which play vital role in nitrogen fixation.
20. Answer the following
- a) Write any two exotic breeds of cow.
b) Difference between milch and drought animal.
c) Name one indigenous and one exotic breed of fowl.
21. Find;
- a) Number of molecules in 90g of H₂O.
b) Number of moles in 19g of H₂O₂.
c) Formula unit mass of Al₂(CO₃)₃.
[Atomic mass of Al= 27u,C=12u,O= 16u,H= 1u and Avogadro no. =6.022*10²³ mol⁻¹]
- OR**
- State any four postulates of Dalton's atomic theory of matter. Which of his postulates does not hold correct at present?
- 22.
- a) Why is AIDS considered to be a 'syndrome' and not a disease?
b) A person is suffering from loss of appetite with feeling of nausea and is passing dark yellow urine. Identify the disease and suggest two methods of controlling it.
23. State reason for the following;
- a) Why lysosomes are known as scavengers of the cell'.
b) Dry apricot are left for some time in pure water and later transferred to sugar solution
c) Inner membrane of mitochondria is deeply folded.
- OR**
- Draw the diagram of animal cell and label the following:
- a) Factory of ribosomes
b) Waste disposal system of the cell
c) Direction/ brain/control centre of the cell
24. You are provided with a mixture of naphthalene and sodium chloride by your teacher .suggest and activity to separate them with well labeled diagram.

SECTION C

25. Distinguish among the true solution, suspension and colloid in a tabular form under the following heads:
- a) Stability
b) Filterability
c) Type of mixture
- II. Give the expression for the concentration of a solution. How will you prepare a 10% solution of glucose by mass in the water?
26. Answer the following
- a) Which method is commonly used for improving cattle breeds and why?
b) Differentiate between layers and broilers.
c) How are the two cropping patterns different from each other?
27. Complete the table :

Element	No. of electrons	No. of protons	No. of neutrons
A	4		4
B	10	11	
C	17		18
D	17	17	
E	18		22
F	19	19	

- a) An atom of noble configuration
b) A pair of isobars
c) A pair of isotopes
- I. Why did Rutherford select a gold foil in his alpha rays scattering experiment?

OR

- a) On the basis of Thomson's model of atom, explain how the atom is electrically neutral.
b) Two elements are represented as ${}_{17}\text{X}^{35}$ and ${}_{12}\text{Y}^{24}$. Which of these elements will lose electrons and gain electrons?
c) State two rules suggested by Bohr and Bury for the distribution of electrons into different orbits (shells) of an atom.

28. Answer the following

- (i) Derive the relation $s = ut + \frac{1}{2}at^2$, graphically.
(ii) A motorcyclist drives from A to B with a uniform speed of 30 km/h and returns back with a speed of 20 km/h. Find its average speed.

OR

- (i) With the help of a graph, derive the relation $v^2 - u^2 = 2as$.
(ii) A bus starting from rest moves with a uniform acceleration of 0.1 ms^{-2} for two minutes. Find (a) the speed acquired, (b) the distance travelled.

29. Give one example of each of the following:

- a) A reptile with four-chambered heart.
b) An egg-laying mammal.
c) A fish with a skeleton made entirely of cartilage.
d) Some fungal species live in permanent mutually dependent relationship with blue-green algae (cyanobacteria).
e) Amphibians of the plant kingdom.

OR

Draw a flow chart to show different divisions of kingdom- plantae and answer the following:

- a) Which division has the simplest plants?
b) To which divisions pinus and cycas belong?
c) What is the other name given to flowering plants? Classify them on the basis of number of cotyledons present in seed.

30.

- a) Write the formula to find the magnitude of the gravitational force between the earth and an object on the earth's surface.
b) Derive how does the value of gravitational force F between two objects change when
(i) distance between them is reduced to half and
(ii) mass of an object is increased four times.