

1

PRACTICE PAPER

9-12 2020

[Time Allowed: 3 Hours]

[Maximum Marks: 80]

General Instructions: Questions 1-20 (1 Mark), 21-30 (3 Marks), 31-36 (5 Marks)

- Choose the correct statement out of the following.
 - Conversion of solid into vapours without becoming liquid is called evaporation.
 - Conversion of vapours into solid without becoming liquid is called sublimation.
 - Conversion of solid into liquid is called sublimation.
 - Conversion of liquid into vapours is called fusion.
- Rutherford's scattering experiment fails for very small scattering angles because
 - whole nuclear charge of the target atom is not screened by its electrons at all.
 - the impact parameter between the α -particle source and the nucleus of target is very large as compared to the size of nucleus.
 - the velocity of α -particles is large.
 - the gold foil is thin.

Or

Which of the following statement is correct about proton?

- It is a nucleus of deuterium
 - It is an ionised hydrogen atom
 - It is an ionised hydrogen molecule
 - α -Particles consist of He^+ ions
- Air is a mixture of gases with the following gas in maximum percentage
 - Nitrogen
 - Oxygen
 - Hydrogen
 - Carbon dioxide
 - Continuous use of fertilisers can destroy soil fertility because
 - organic matter is not replenished.
 - microbes in the soil are harmed.
 - soil becomes hard.
 - both (a) and (b).
 - For a uniformly accelerated body with initial and final velocities as u and $v \text{ ms}^{-1}$, the average velocity is
 - $\frac{u}{2}$
 - $\frac{v}{2}$
 - $\frac{u+v}{2}$
 - $\frac{v-u}{2}$

6. The least value of apparent weight of a body in a fluid is
(a) > 0 (b) $= 0$
(c) < 0 (d) depends on the density of solid and fluid
7. The diseases where microbes are the immediate causes, are called
(a) infectious diseases (b) non-infectious diseases
(c) chronic diseases (d) acute diseases.
8. Kingdom Fungi are
(a) Prokaryotic, unicellular
(b) Prokaryotic, multicellular
(c) Eukaryotic, unicellular
(d) Eukaryotic, multicellular.
9. A man holds and displaces a 20 kg mass horizontally in his stretched hand.
(a) He does zero work against force of gravity
(b) He does 200 joules of work per metre
(c) The work done against gravity cannot be estimated but non-zero
(d) The work done against gravity is equal to the muscular energy.
10. Sound of crackers is heard during festival days, but the sound of supernova explosion in space is not heard on the surface of earth because of
(a) large distance (b) absence of a medium
(c) lesser gravity (d) the influence of the other planets

Direction (Q.11 and Q.12): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

- (a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
(c) Assertion is true but the Reason is false.
(d) The statement of the Assertion is false but the Reason is true.
11. **Assertion:** Cell is the structural and functional unit of life.
Reason: Robert Hooke coined the term cell.
12. **Assertion:** Cork floats in water.
Reason: An object will float in a liquid if its density is less than that of the liquid.
13. What is the physical state of water at 250°C ?
14. Name any two air-borne diseases.
15. When does a work done by force can be zero?

Or

By how much will the kinetic energy of a body increases if its speed is tripled?

16. Write the main function of xylem.
17. The energy of a body due to its position or change in shape is known as _____ energy.
18. The temperature at which a liquid changes into gas or vapour is known as _____.

19. If a displacement-time graph is drawn, then it will specifically represent speed. [True/False]
20. In Thallophyta, sex organs are simple and single celled. [True/False]
21. (a) Why do cold drink bottles break when kept in freezer?
(b) Describe an activity to prove that particles of matter are continuously moving.
22. (a) State differences between homogeneous and heterogeneous mixture. Give one example of each.
(b) How will you separate sugar and salt?
(c) Why crystallisation is better than evaporation?

Or

- (a) Define Tyndall Effect.
(b) Why is water considered a compound? Mention two points.
23. (a) Why is petroleum refined by fractional distillation?
(b) How are physical changes different from chemical changes? Give one example of each.
(c) What is meant by emulsion? Give one example.
24. A force of 5 N gives a mass m_1 , an acceleration of 10 m/s^2 and a mass m_2 , an acceleration of 20 m/s^2 . What acceleration would it give if both the masses were tied together?
25. Suppose the mass of the earth somehow increases by 10% without any change in its size. What would happen to your weight? Suppose the radius of the earth becomes twice its present radius without any change in its mass. What will happen to your weight?

Or

- (a) Centripetal force is required for a body to move on a circular path. What provides this force to the moon to move around the earth? Write an expression for it.
(b) A stone is released from the top of a tower 19.6 m high. Calculate the final velocity just before touching the ground.
26. Discuss the law of conservation of energy in context of a freely falling body.
27. (a) Define disease.
(b) Explain briefly the two groups of causes of diseases.

Or

Name diseases which are caused by – (two for each)

- (a) virus (b) bacteria (c) protozoa

[CBSE 2012]

28. List in the tabular form any three differences between the Aves and the Mammalia group.
29. (a) How are diseases spread through water?
(b) What is the importance of vaccination?
30. (a) Name the months during which *Kharif* crop is grown.
(b) List any four factors for which crop variety improvement is done.
31. (a) While verifying the law of conservation of mass, a student carried out a reaction between sodium chloride and silver nitrate in a conical flask. Name the compound which will form as precipitate.
(b) Define formula unit mass of a compound. Calculate the formula unit mass of the following compound:
(i) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (ii) CuSO_4
[At. mass of Na = 23, C = 12, O = 16, Cu = 63.5, S = 32 u]
- (c) What is meant by unified mass.

Or

- (a) Define atomic mass unit.
- (b) Distinguish between molecular mass and molar mass.
- (c) Give an example of
- (i) diatomic, and (ii) triatomic molecule of compounds.
- (d) Calculate the number of oxygen atoms in 0.10 mole of $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$.
32. (a) From the symbol ${}^{40}_{18}\text{Ar}$, write down the number of neutrons in the nucleus of an atom. Also find the number of electrons, protons and its valency.
- (b) Write the main postulates of Bohr's model of atom.
33. (a) Derive the equation of motion $v = u + at$, using graphical method.
- (b) A train starting from rest attains a velocity of 72 km/h in 5 minutes. Assuming the acceleration is uniform, find
- (i) the acceleration.
- (ii) the distance travelled by the train for attaining this velocity.
34. (a) Why is the ceiling and wall behind the stage of good conference halls or concert halls made curved?
- (b) Which property of sound leads to the formation of echoes? Briefly explain.
- (c) What is reverberation? What will happen if the reverberation time in a big hall is too long? How can we reduce it?

Or

- (a) A sound wave has frequency of 3 kHz and a wavelength 45 cm. How long will it take to travel 1.8 km?
- (b) Define amplitude and give its SI unit.
- (c) How is frequency of wave related to its time period?
35. (a) State two factors responsible for weathering of rocks.
- (b) Why is the biosphere called the largest ecological system?
- (c) Name a pollution free source of energy.
36. Why is mitochondria called 'power-house' of cell? Give three similarities and one difference between mitochondria and plastid.

Or

What are the main functional regions of a cell? Explain with the help of a diagram.

2

PRACTICE PAPER

9th 2020

[Time Allowed: 3 Hours]

[Maximum Marks: 80]

General Instructions: Same as Practice Paper - 1.

1. A tuning fork when sounded close to the mouth of a pipe produces
 - (a) a constant frequency as water is filled
 - (b) varying frequencies as water is filled
 - (c) no sound
 - (d) increased frequencies as water is filled

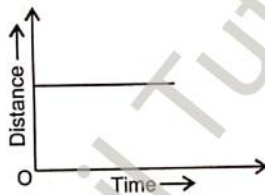
Or

A pulse

- | | |
|-------------------------------------|---------------------|
| (a) is a short duration disturbance | (b) does not repeat |
| (c) can travel | (d) remains at rest |

2. Bee pasturage refers to
 - (a) the trees where bees make the hives
 - (b) the flowers available for nectar collection by the bees.
 - (c) the hives where honeybees live and deposit honey.
 - (d) the worker bees in a hive, who collect honey.
 - (e) the substances added to improve the taste of honey.
3. Which of the following is a chemical change ?
 - (a) Melting of wax
 - (b) Mixing of iron filings with sulphur powder
 - (c) Cooking of food
 - (d) Dissolving salt in water
4. The combining capacity of an element is called
 - (a) Valency
 - (b) Atomicity
 - (c) Atomic number
 - (d) Valence electron
5. A wristwatch works on the basis of energy possessed by
 - (a) a pendulum
 - (b) a spring
 - (c) a battery only
 - (d) can be (b) or (c)
6. Which of the following pair of animals are warmblooded?
 - (a) Birds and Amphibians
 - (b) Birds and Mammals
 - (c) Amphibians and Pisces
 - (d) Amphibians and Reptiles

7. A permanent tissue is described as complex tissue when it has
- one type of cells, performing two or more different functions
 - more than one type of cells, performing different functions
 - one type of cells, performing one function
 - more than one type of cells, performing one common function
8. Plants can be made disease-resistant by
- hybridisation.
 - genetic modification.
 - both (a) and (b).
 - use of antibiotics.
9. The atmosphere is held to the earth by
- gravity
 - wind
 - clouds
 - earth's magnetic field.
10. Area below $v - t$ graph is a measure of
- Acceleration
 - Displacement
 - Angular speed
 - Angular acceleration
11. Suggest what kind of motion is represented by the following graph:



12. Define crop rotation.
13. Name the branch of science which deals with the identification, nomenclature and classification of organisms.
14. State the SI unit of (a) work, (b) power.
15. Sand, common salt and ammonium chloride can be separated by sublimation. Ammonium chloride will sublime. Dissolve common salt and sand in water and filter it. Sand will be residue. Evaporate the filtrate to get salt back. [True/False]
16. Pressure is the area acting perpendicularly on a unit force of the object. [True/False]
17. The poultry reared for obtaining meat is called _____.
18. The cause of the motion of planets is the _____ force which the sun exerts on them.

Direction (Q.19 and Q.20): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

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- The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.
- Assertion is true but the Reason is false.
- The statement of the Assertion is false but the Reason is true.

19. Assertion: Bronze is a mixture and not compound.

Reason: Bronze is made up copper and tin, not chemically combined in fixed ratio.

20. Assertion: Epithelial tissue is the simplest tissue.

Reason: It is the protective tissue of the animal body.

Or

Assertion: Blood is a fluid connective tissue.

Reason: It flows and connects different parts of body. It carries oxygen and food to all cells and in return collects metabolic wastes.

21. What is greenhouse effect? List two greenhouse gases. State the ultimate effect of increase in greenhouse gases in the environment.

22. (a) Differentiate between sol and gel? Give one example of each.

(b) Name the solute and solvent in tincture of iodine?

23. (a) How will you separate cream from milk? Explain.

(b) Write two differences between mixture and compound.

24. (a) Give one situation where force is applied but no work is done. Explain why.

(b) A pump is used to raise water to a height of 20 m. It transfers 2000 kg of water in 15 minutes. Calculate power of the pump. [$g = 10 \text{ ms}^{-2}$]

25. State universal law of gravitation. The gravitational force between two objects is 100 N. How should the distance between the objects be changed so that the force between them becomes 50 N?

Or

(a) Do all bodies immersed in a given fluid experience the same buoyant force? Explain.

(b) A 100 cm^3 block has a mass of 395 g. Find its relative density. (Density of water = 1 g/cm^3)

26. (a) What are the consequences of Global warming?

(b) Draw a labelled diagram to show water cycle in nature.

27. (a) How surface area and speed of wind affects the rate of evaporation? Explain.

(b) Is smell of clove or cardamom a matter?

28. (a) List any two main characteristics of chordates.

(b) In which class would you place any organism which has:

(i) four chambered heart and lay eggs.

(ii) skeletons made of both bones and cartilage and are cold blooded.

Or

State a characteristic feature of thalophytes? Name two thalophytes which are predominantly aquatic.

29. Starting from a stationary position, Anil paddles his bicycle to attain a velocity of 10 ms^{-1} in 25 s. Then, he applies brakes such that he again comes to rest after next 50 s. Calculate the acceleration of the bicycle in both cases. Also find the total distance covered by Anil.

30. (a) What would happen if carbon dioxide content of the atmosphere increases?

(b) What is the role of nitrogen fixing bacteria?

Or

(a) What is the contribution of photosynthesis in Carbon cycle?

(b) Give the name of two air pollutants.

31. (a) Calculate the number of atoms in
 (i) 52 u of He (ii) 52 g of He (iii) 52 moles of He
 (b) State the law of conservation of mass. Illustrate the law with the help of an example.

32. From the table given below answer the following questions:

Element	A	B	C	D	E
Mass number	11	19	3	23	9
Atomic number	5	9	2	11	4

- (a) How many electrons are present in 'E'.
 (b) Which among the above is an inert gas and why?
 (c) Which atom will form negatively charged ion?
 (d) Which element has 12 neutrons? Why?
 (e) Which atom will form cation with one positive charge.

Or

Composition of the nuclei of two atomic species 'X' and 'Y' are given below.

	X	Y
Protons	8	8
Neutrons	8	10

- (a) Write the mass number of X and Y respectively.
 (b) Write the electronic configuration of the element 'X'.
 (c) Is there any similarity between X and Y? How are they related to each other?
33. (a) State Newton's third law of motion.
 (b) Explain the recoil of a gun in light of Newton's third law of motion.
 (c) If action and reaction forces are equal, how does a horse pull a cart?
34. (a) What is the full form of SONAR?
 (b) On what principle is it based?
 (c) Explain with a diagram how SONAR is used to measure depth of an ocean.
 (d) List two more applications of SONAR.

Or

- (a) State a condition for an echo to be heard.
 (b) Bats cannot see, then how do they catch their prey?
 (c) Explain the role of curved ceilings and sound boards in concert halls.
35. Write full form of AIDS. What is its causative agent? How does AIDS spread? How can it be prevented?
36. What is a nervous tissue? Give its functions. Explain the structure of a neuron with a diagram.

Or

- (i) Which plant tissue will you associate with the conduction of food in plants?
 (ii) Write its four components.

3

PRACTICE PAPER

9th 2020

[Time Allowed: 3 Hours]

[Maximum Marks: 80]

General Instructions: Same as Practice Paper - 1.

- A car travels 10 m in 5 seconds, 20 m in next 10 seconds and 30 m in the last 10 seconds. The average speed of the motion is
 - 2.0 ms^{-1}
 - 2.2 ms^{-1}
 - 30 ms^{-1}
 - 2.4 ms^{-1}
 - Law of gravitation gives the gravitational force between
 - the earth and a point mass only
 - the earth and Sun only
 - any two bodies having some mass
 - two charged bodies only.
- Or
- Increase in momentum by 20% will increase the K.E. by
- 20%
 - 40%
 - 44%
 - cannot be found
- Which of the following is true for Thomson's model of atom?
 - Atom consists of neutrons.
 - The attraction between clouds of positive charge and the electron balances their mutual repulsion.
 - It can explain the existence of protons.
 - It leads to discovery of nucleus.
 - Kerosene oil and water can be separated by
 - separating funnel
 - distillation
 - centrifugation
 - evaporation.
 - Kharif season extends from
 - January to March.
 - April to June.
 - June to October.
 - October to January.
 - A man holds and displaces a 20 kg mass horizontally in his stretched hand.
 - He does zero work against force of gravity
 - He does 200 joules of work per metre
 - The work done against gravity cannot be estimated but non-zero
 - The work done against gravity is equal to the muscular energy.

7. Engulfing of food materials or foreign bodies by cells like Amoeba is called
- (a) diffusion (b) endocytosis
(c) osmosis (d) plasmolysis

8. Crop rotation helps in
- (a) obtaining different types of crops.
(b) increasing protein content.
(c) improving soil fertility.
(d) increasing minerals in soil.
(e) both (a) and (c).

9. Which is the biggest plant group in the Plant Kingdom?
- (a) Angiosperms (b) Gymnosperms
(c) Ferns (d) Moss.

10. A tuning fork when sounded close to the mouth of a pipe produces
- (a) a constant frequency as water is filled
(b) varying frequencies as water is filled
(c) no sound
(d) increased frequencies as water is filled

11. _____ consists of tracheids, vessels, parenchyma and fibres.

12. When a body is dropped freely, it falls with an acceleration of _____ m/s^2 .

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13. **Assertion:** Kharif crops grow during rainy season.

Reason: They are known as winter crops.

14. **Assertion:** Iron fillings and sulphur powder mixture can be separated with the help of magnet.

Reason: Sulphur is soluble in carbon disulphide which should be kept away from flame because it is inflammable.

15. Give an example of situation in which distance is equal to displacement.

16. What are the two types of striated muscle fibre?

17. Name the branch of agriculture that deals with the feeding, caring and breeding of domestic animals.

Or

What is intercropping?

18. How do action and reaction forces help us to walk?

19. Iron sulphide is a compound because it is formed by chemical reaction of iron with sulphur in fixed ratio and its properties are different from properties of iron and sulphur. [True/False]

20. Bryophytes are amphibians of plant kingdom. [True/False]

21. (a) Name the instrument used to see atoms.
(b) Give one unique property of Bose Einstein Condensate (B.E.C.).
(c) What is dry ice? Why is it called so?
22. What are miscible liquids? Give one example. Explain how will you separate them?

Or

What is chromatography? State its principle. Write one advantage of chromatography over other techniques.

23. (a) 5 mL of hydrogen peroxide is dissolved in 95 mL of water. Calculate the percentage in volume by volume.
(b) Explain why air is a mixture and water is a compound.
24. The speed of a car is 54 km/h. Express this speed in m/s and calculate the distance covered by the car in 5 seconds.
25. Draw a neat labelled structure of human ear, depicting the auditory parts only.
26. (a) State Newton's second law of motion.
(b) In a cricket match, why does a player lower his hands slightly while catching the ball?

Or

- (a) When is the work done by a body said to be negative?
(b) An object of mass 5 kg is dropped from a height of 10 m. Find its kinetic energy, when it is half way down.
27. List any six characteristics of parenchyma.
28. (a) Why do we classify organisms?
(b) Classify the following in their respective Phylum/Class: Jelly fish; Earthworm; Cockroach; Rat.

Or

Describe the characteristics of the division Pteridophyta.

29. (a) How do bacteria protect themselves?
(b) How is rabies virus spread?
(c) Why a person suffering from HIV-AIDS dies, even due to a small infections?
30. Give three differences between epithelial tissue and connective tissue.
31. (a) Calculate mass of 1 molecule of oxygen. [Atomic mass of O = 16 u]
(b) What is the mass of 5 moles of chlorine gas. [Atomic mass of Cl = 35.5 u]
(c) Calculate the number of hydrogen molecule in 8 g of H₂ [Atomic mass of H = 1 u]

Or

Ravi prepared a solution of sodium chloride by mixing 5.85 g of salt in 1 litre of water. Find:

- (a) Molar mass of sodium chloride.
(b) Number of moles of sodium chloride dissolved.
[Atomic masses of sodium and chlorine are 23 u and 35.5 u respectively].
(c) Concentration of the sodium chloride solution.
32. (a) Draw a diagram for Thomson model of atom. Why it was discarded?
(b) Give reasons for the following:
(i) Ions are more stable than atoms.
(ii) Noble gases have low reactivity.
(iii) An atom is electrically neutral.

33. (a) Identify the kind of motion in the following cases:
- (i) A car moving with constant speed turning around a curve.
 - (ii) An electron orbiting around nucleus.
- (b) An artificial satellite is moving in a circular orbit of radius 36,000 km. Calculate its speed if it takes 24 hours to revolve around the earth.
- (c) Why is uniform circular motion called accelerated motion?

Or

An object starting from rest travels 20 m in first 2 s and 160 m in next 4 s. What will be the velocity after 7 s from the start?

34. (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 is increased?
- (c) Name the devices based on Archimedes' principle.
35. What are the main functional regions of a cell? Explain with the help of diagram.
36. (a) Name any two air-borne diseases. How does the disease causing microbe spread through air?
- (b) How does HIV virus spread from a patient to a healthy person? Give any two methods of transmission of this disease.
- (c) How does the immune system of our body function?

Or

- (a) Write three differences between communicable and non-communicable diseases?
- (b) 'Public cleanliness is important for individual health.' Comment.

4

PRACTICE PAPER

9th 2020

[Time Allowed: 3 Hours]

[Maximum Marks: 80]

General Instructions: Same as Practice Paper - 1.

- After vaccination, the body builds up
 - antibodies
 - pathogens
 - weakness
 - toxins
- From a tower of 100 m, a ball is thrown horizontally with a speed of 10 ms^{-1} . Then
 - it will follow a parabolic path
 - time to reach the ground is 4.5 second
 - both (a) and (b)
 - neither (a) nor (b)
- Which of the following is not a characteristic of matter?
 - Matter is made up of extremely small particles
 - There is no space between particles of matter
 - The particles of matter are continuously moving
 - The particles of matter attract each other
- Mixed cropping and intercropping involve growing of two or more crops simultaneously on the same field; but the latter differs from the former in that
 - it reduces risk and gives insurance against failure of crops.
 - the different crops are grown in different rows alternating with each other.
 - cropping is practiced along with rearing of animals.
 - crops are provided with only organic manures and biofertilisers.
- The broadest category of organism in biological taxonomy is
 - Class
 - Phylum
 - Kingdom
 - Family
- The incorrect option regarding action-reaction pair is
 - they are equal and opposite
 - they act on two different bodies
 - they act only between bodies in contact
 - their sum on/by a body is zero
- Petrol is obtained from petroleum by
 - distillation
 - fractional distillation
 - steam distillation
 - distillation under reduced pressure

8. Manures are used in sandy soils mainly to
- (a) provide all essential nutrients to crops
 - (b) increase the water holding capacity
 - (c) avoid waterlogging
 - (d) reduce soil pollution
9. There is no atmosphere on moon as
- (a) it is closer to the earth
 - (b) it revolves round the earth
 - (c) it gets light from the SUN
 - (d) the gases have less requirement of velocity or energy to escape from its surface
10. A pulse is allowed to get reflected from a wall. Then
- (a) $\angle r = \angle i$
 - (b) compression becomes rarefaction
 - (c) only (a)
 - (d) both (a) and (b)

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 - (c) Assertion is true but the Reason is false.
 - (d) The statement of the Assertion is false but the Reason is true.
11. **Assertion:** Camphor and common salt can be separated by sublimation.
Reason: Camphor can sublime, change into vapours directly whereas common salt cannot sublime.
12. **Assertion:** Micronutrients are those essential elements which are present in plants in small quantities.
Reason: Nutrient management means controlling the selection, timing and amount of nutrient supply to the crops.
13. Malaria is caused by a protozoan parasite _____.
14. Radio converts _____ energy into sound energy.

Or

One kilowatt-hour of electrical energy is commonly known as _____ of electricity.

15. Parenchyma are tissue consist of thin-walled living cells. [True/False]
16. An echo is simply a reflected sound. [True/False]

Or

Reflection of sound obeys the laws of refraction. [True/False]

17. Give two uses of graphical representation of motion.
18. What is the dispersed phase and dispersion medium in
- (i) Gel
 - (ii) Emulsion?

19. Name two *Rabi* crops.

20. How does the value of 'g' vary with mass of the object?

21. (a) Salt and sugar can take the shape of a container. Why are they called solids?
(b) Describe an activity to prove that particles of matter have space between them?

22. (a) Define the term mole.

(b) Calculate the number of
(i) atoms

(ii) molecules in 124 grams of phosphorus, P_4

[Given atomic mass of $P = 31.0$ u, $N_A = 6.023 \times 10^{23} \text{ mol}^{-1}$]

23. How can we separate a mixture of kerosene oil and water? What type of liquids are these? Explain the principle of their separation.

24. (a) Define thrust.

(b) A boy lying on a mattress, stands up on it. He observes that the mattress is now depressed deeper down. Why does this happen?

25. (a) What is echo?

(b) Aditi clapped her hands near a cliff and heard the echo after 4 seconds. What is the distance of the cliff from her if the speed of sound is taken as 346 ms^{-1} .

Or

(a) What is the nature of sound waves?

(b) How does speed of sound change with temperature of medium?

(c) How does speed of sound change with change in density of medium?

26. (a) Give reason for the following:

(i) A sheet of paper falls slower than when it is crumpled into a ball.

(ii) A body weighs more at the poles than at equator.

(b) Distinguish between mass and weight.

27. What are lysosomes, peroxisomes and centrosomes? Write their functions.

28. (a) Which disease is the leading cause of infant mortality? What is its main cause?

(b) Name the diseases that can be prevented by DPT immunisation.

(c) In what way does breast-feeding of infants protect them from infectious diseases?

Or

(a) What is meant by an acute disease?

(b) What is an antibiotic? Give one example.

(c) Name two modes of transmission of communicable diseases.

29. Write a note on how forests influence the quality of our air, soil and water resources?

30. Define biosphere. What are the two main functions of a biosphere?

Or

“Erosion of top soil disturbs the Nitrogen cycle.” Justify this statement. Name any two non-leguminous plants which can fix atmospheric nitrogen.

31. (a) Describe Rutherford α -scattering experiment. Write three observations and three conclusions drawn on the basis of these experiment.
- (b) Write down the names of the isotopes of hydrogen. How do they differ from each other. Give one use of isotope of cobalt.
32. (a) Write any two applications of chromatography. Also write a condition necessary for chromatography.
- (b) How Tyndall effect can be observed in the canopy of a dense forest.

Or

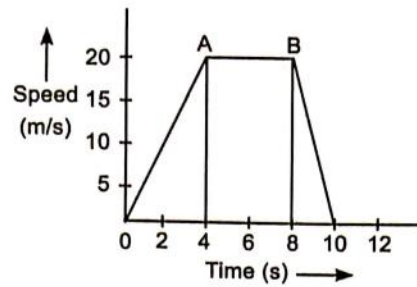
- (a) What volume of ethyl alcohol and water must be mixed together to prepare 250 ml of 60% volume by volume solution of alcohol in water.
- (b) Mention any two differences between compounds and mixtures.
- (c) Which separation technique will you apply for separating the following mixtures:
- (i) Butter from curd.
- (ii) Different pigments from an extract of flower petals.
33. (a) Draw a diagram of prokaryotic cell and eukaryotic cell and label on it-cell wall, ribosomes, nucleoid, plasma membrane.
- (b) Write two differences between a prokaryotic cell and eukaryotic cell.
34. Name the five classes of vertebrates. Compare any two on the basis of their:
- (a) Habitat (b) Covering of skin
- (c) Respiratory organs (d) Chambers of heart
- (e) Reproduction

Or

- (a) Write four important features that all chordates possess (vertebrates).
- (b) Write one characteristic each of amphibia and aves.
- (c) Write the name of the class to which following belong:
- (i) sea horse (ii) king cobra.
35. (a) Give reason for the following:
- (i) The kinetic energy of a freely falling object increases, yet it holds law of conservation of energy.
- (ii) A girl fills up 10 pages of a notebook in order to practise sums, yet she has not done 'work' in terms of Science/Scientific concept.
- (iii) Work done by gravitational force on an object moved along a horizontal path, is zero.
- (b) Find the energy in kWh consumed in 24 hours by two electric devices, one of 100 W and other of 500 W.
36. (a) Why is Newton's second law called the real law of motion? Explain.
- (b) A car of mass 800 kg is travelling with a velocity of 20 m/s. When brakes are applied, it stops after travelling a distance of 8 meters. Find retardation and retarding force.

Or

The speed-time graph of a car of 1000 kg mass is given. On the basis of this, answer the following questions:



- (i) When is the maximum accelerating force acting on car?
- (ii) What is the retarding force acting on the car?
- (iii) For how long is no force is acting on the car?
- (iv) What is the velocity of the car after 4 seconds?
- (v) Find the acceleration of the car during each of the first two intervals of four second each.

5

PRACTICE PAPER

9th 2020

[Time Allowed: 3 Hours]

[Maximum Marks: 80]

General Instructions: Same as Practice Paper - 1.

- Fluid part of blood after removal of corpuscles is
 - Plasma
 - Serum
 - Lymph
 - Platelets
- A ball is thrown up with a velocity of 20 ms^{-1} . The time for which it will be in space is
 - 1 sec
 - 2 sec
 - 4 sec
 - 8 sec
- Which of the following statements is not true about an atom ?
 - Atoms are not able to exist independently
 - Atoms are the basic units from which molecules and ions are formed
 - Atoms are always neutral in nature
 - Atoms aggregate in large numbers to form the matter that we can see, feel or touch
- Poultry farming is under taken to raise following
 - Egg production
 - Feather production
 - Chicken meat
 - Milk production
 - (i) and (iii)
 - (i) and (ii)
 - (ii) and (iii)
 - (iii) and (iv)
- A solution which has a lower concentration of water than the cell, is called
 - isotonic
 - unsaturated
 - hypertonic
 - saturated
 - hypotonic
- The weight felt by a freely falling mass m is
 - mg
 - $2mg$
 - $\frac{mg}{2}$
 - zero
- Dalton's atomic theory successfully explained
 - Law of conservation of mass
 - Law of constant composition

(iii) Law of radioactivity

(iv) Law of multiple proportion

(a) (i), (ii) and (iii)

(b) (i), (iii) and (iv)

(c) (ii), (iii) and (iv)

(d) (i), (ii) and (iv)

8. Which one is not a source of carbohydrate ?

(a) Rice

(b) Millets

(c) Sorghum

(d) Gram

9. The energy transformation in a stretched string on the bow is

(a) Potential to Kinetic energy

(b) Muscular to Potential energy

(c) Kinetic to Potential energy

(d) Potential to muscular energy

10. Supernova explosions are not heard on the surface of earth due to which of the following characters of sound ?

(a) Pitch

(b) Wavelength

(c) Requiring a medium

(d) Requiring no medium

Direction (Q.11 and Q.12): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

(c) Assertion is true but the Reason is false.

(d) The statement of the Assertion is false but the Reason is true.

11. **Assertion:** Boiling point of sea water is more than 100°C.

Reason: Soluble impurities increased the boiling point of liquid.

12. **Assertion:** Ultrasound is used in industry for detecting flaws or cracks in metal blocks without damaging them.

Reason: Ultrasound waves have a very-high frequency due to which they can penetrate into matter to a large extent.

13. Chameleon is an amphibian.

[True/False]

Or

Gymnosperms have naked seeds but angiosperms have no seed.

[True/False]

14. Echo cannot be heard in every room.

[True/False]

15. _____ and _____ are added to the soil of crop field to increase the fertility of soil and productivity of crop.

16. Foam is a colloid in which a _____ is dispersed in a liquid medium.

17. What is farming?
18. Draw a displacement-time graph for a body moving with uniform velocity.
19. Name the nucleic acids that are present in the animal cell.
20. Give one example when work done by a body is negative.

Or

Define the unit of work.

21. (a) Why are liquids and gases called fluids?
(b) Why are aquatic species more comfortable in cold water than hot water?
(c) Why do we feel more cold after taking bath with hot water than cold water?
22. List any three properties on the basis of which a colloidal solution can be differentiated from true solution and suspension.

Or

- (a) What is meant by saturated solution?
(b) Calculate mass of glucose to be dissolved to prepare 200 g of 5% solution of glucose by mass.
23. An atom of an element has 7 electrons in its L shell.
(a) What is its atomic number?
(b) State its valency.
(c) Identify the element.
24. (a) Which is greater, the attraction of the earth for 1 kg of iron or the attraction of 1 kg iron for the earth? Why?
(b) A boy throws a ball vertically upwards and catches it back in 10 s. Calculate
(i) the velocity with which it was thrown up and
(ii) maximum height attained by the ball. (Take $g = 10 \text{ ms}^{-2}$)
25. A circular track has a circumference of 3140 m with AB as one of its diameter. A scooterist moves from A to B along the circular path with a uniform speed of 10 m/s. Find
(a) distance covered by the scooterist,
(b) displacement of the scooterist, and
(c) time taken by the scooterist in reaching from A to B.
26. Navin travels along a straight road 500 m long and returns back 100 m. Find his average speed and average velocity if he takes a time of half an hour.

Or

The brakes applied to a car produce an acceleration of 6 ms^{-2} in the opposite direction to the motion. If the car takes 2 s to stop after the application of brakes, calculate the distance it travels during this time.

27. What is the difference between plasma membrane and cell wall? Give the functions of each one.
28. How are Phanerogamae divided into sub-divisions?

29. (a) Which disease is the leading cause of infant mortality? What is its main cause?
(b) Name the diseases that can be prevented by DPT immunisation.
(c) In what way does breast-feeding of infants protect them from infectious diseases?
30. (a) What is soil erosion? Give two methods of reducing it.
(b) Name two biologically important compounds that contain both oxygen and nitrogen.

Or

- (a) What do you understand by ammonification?
(b) Write two reasons, why soil is essential for living beings.
31. (a) Which postulate of Dalton's theory is the result of law of constant proportion.
(b) Why is it not possible to see an atom by a naked eye?
(c) Define molecule.
(d) What is the mass of
(i) 4 moles of Al atoms? [Atomic mass of Al = 27 u]
(ii) 10 moles of sodium sulphite (Na_2SO_3). [Atomic mass of Na = 23, S = 32, O = 16]
32. (a) Why was gold foil chosen by Rutherford instead of any other metal?
(b) An ion M^{2+} contains 10 electrons and 12 neutrons. What is its atomic number and mass number of element M?
(c) What do you understand by valence electrons?
(d) Define isotopes. State two properties of isotopes.

Or

- (a) Atomic number of an element is 12. What is its valency?
(b) Give reason for the following:
(i) Nucleus of an atom is heavy and positively charged
(ii) An atom is electrically neutral.
(c) Composition of the nuclei of two atomic species A and B are given as under:

Elements	A	B
Protons	17	17
Neutrons	18	20

- (i) What are the mass numbers of A and B?
(ii) How are they related to each other?
33. (a) Name the property of bodies to resist a change in their velocity.
(b) What is the relationship between force and acceleration?
(c) What name is given to the product of mass and velocity of a body?
(d) Which physical quantity corresponds to the rate of change of momentum?
(e) Name the principle on which a rocket works.

Or

Give reasons:

- (a) (i) A karate player suddenly reduces the speed of his hand while hitting an ice slab.
 - (ii) Glass ware are covered with paper and straw while transportation.
 - (b) A cricket ball of mass 70 g moving with a velocity of 0.5 m/s is stopped by a player in 0.5 s.
What is the force applied by the player to stop the ball?
34. (a) What do you mean by acceleration due to gravity?
- (b) Prove that acceleration due to gravity is independent of mass of the falling body.
- (c) List two differences between 'G' and 'g'.
35. Differentiate between striated, unstriated and cardiac muscles on the basis of their structure and site location in the body.
36. State the conditions responsible for the spread of malaria and measures to prevent and control it.

Or

A person is suffering from chest pain, breathlessness, loss of body weight, persistent cough and produces blood stained sputum.

- (a) Name the disease and its causative agent.
- (b) Mention two means of its transmission.
- (c) Name the vaccine used to prevent this disease.
- (d) Who discovered the causative agent of disease?