

# Winter Vacation Home Work Class- 9th

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## WORKSHEET OF BIOLOGY

### General Instructions for Students:

- 1. **Revise the chapters** (Cell, Tissues, Improvement in Food Resources) thoroughly before attempting the worksheet.
- 2. Focus on concepts and their real-life applications.
- 3. Read each question carefully before answering.
- 4. Write precise answers for short questions and well-structured answers for long questions.
- 5. Attempt all questions independently.

### Section A: Multiple Choice Questions (MCQs)

1. The plasma membrane is selectively permeable because it:
  - a) Allows all substances to pass through
  - b) Prevents all movement of substances
  - c) Allows some substances to pass through
  - d) Is made only of proteins
2. Which tissue is responsible for transport of food in plants?
  - a) Xylem
  - b) Phloem
  - c) Cambium
  - d) Cortex
3. Muscle fibres that work without conscious control are:
  - a) Skeletal muscles
  - b) Voluntary muscles
  - c) Smooth muscles
  - d) Striated muscles

4. Which of the following is an example of a Rabi crop?

- a) Rice
- b) Cotton
- c) Wheat
- d) Jute

**Section B: Fill in the Blanks**

1. The control centre of the cell is the \_\_\_\_\_.
2. Xylem transports \_\_\_\_\_ and \_\_\_\_\_ in plants.
3. Neurons are also known as \_\_\_\_\_ cells.
4. Growing crops without using soil is called \_\_\_\_\_.

**Section C: Assertion–Reason Questions**

**Directions:** Choose the correct option:

- (a) Both A and R are true and R is the correct explanation of A
- (b) Both A and R are true but R is not the correct explanation of A
- (c) A is true but R is false
- (d) A is false but R is true

1. A. Mitochondria are called the powerhouse of the cell.

R. They release energy by breaking down food molecules.

2. A. Xylem tissue provides mechanical support to plants.

R. Xylem vessels have thick lignified walls.

3. A. Excess use of chemical fertilizers is harmful.

R. It reduces soil fertility and causes environmental pollution.

**Section D: Short Answer Questions (Application Based)**

1. Why do plant cells have a cell wall while animal cells do not?

2. Why is blood considered a connective tissue? Mention one function.
3. Why are smooth muscles found in the intestine and not skeletal muscles?
4. Farmers prefer crop rotation instead of growing the same crop repeatedly. Give one reason.

### **Section E: Long Answer Questions (Real-Life & Application Based)**

1. Explain the structure and function of the plasma membrane. Why is it important for cell survival?
2. Describe the different types of plant tissues and explain how they help a plant survive in its environment.
3. Explain why muscular tissues are adapted for movement. Compare voluntary and involuntary muscles.
4. Describe any four modern methods used to improve food resources. Explain how they help increase food production.

### **Section F: Case Study / Competency-Based Questions (Higher Order)**

1. A student placed potato strips of equal size in three different solutions—distilled water, salt solution, and sugar solution. After one hour, the strips showed different changes in length and texture.
  - a) Identify the cellular process responsible for these changes.
  - b) In which solution would the potato strips become flaccid and why?
  - c) How does this experiment explain the importance of the plasma membrane?
2. A plant growing in a windy area has a thick stem, well-developed xylem tissue, and narrow leaves.
  - a) Which type of plant tissue provides mechanical strength in this plant?
  - b) How does the structure of this tissue help the plant survive in windy conditions?
  - c) Why would such adaptations be less important for aquatic plants?
3. During a medical check-up, a doctor observed that a patient had difficulty in voluntary movements but normal involuntary movements.
  - a) Which type of muscular tissue is likely affected?
  - b) Explain why involuntary movements remain unaffected.
  - c) Name one body activity that would be difficult for this patient.

4. A farmer practiced monocropping for several years and noticed reduced crop yield despite increased use of fertilizers. Later, he adopted crop rotation and organic manure. Gradually, soil quality improved.

- a) Why did excessive use of fertilizers fail to increase yield?
- b) How does crop rotation improve soil fertility at the cellular and nutrient level?
- c) Explain one long-term benefit of using organic manure instead of chemical fertilizers.

5. Two farmers used different methods to increase milk production. Farmer A focused on better animal breeds, while Farmer B improved cattle feed quality and shelter conditions. After a year, both saw increased production, but Farmer B's cattle showed better health.

- a) Which scientific principle of food resource improvement is highlighted here?
- b) Why did Farmer B's method result in healthier animals?
- c) How are these methods linked to sustainability in agriculture?

★ **Revise the chapters (Cell, Tissues, Improvement in Food Resources) thoroughly.**

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## English Worksheet

1. Change into Indirect Speech
  - a. She said, "I am feeling tired today."
  - b. He said, "I have completed my work."
  - c. The teacher said, "Honesty is the best policy."
  - d. Rahul said, "I will help you tomorrow."
  - e. She said to me, "Where are you going?"
  - f. Mother said, "Do not waste food."
  - g. They said, "We are waiting for the bus."
  - h. The boy said, "I can solve this sum."
  - i. She said, "What a lovely dress this is!"
  - j. Father said to his son, "You should respect your elders."

2. Each sentence contains one error. Identify the error and write the correct form.

- a. She has went to the library.

Correction: \_\_\_\_\_

- b. I am studying in this school since 2021.

Correction: \_\_\_\_\_

- c. When we reached the cinema, the movie already start.

Correction: \_\_\_\_\_

- d. He did not completed his work on time.

Correction: \_\_\_\_\_

- e. She was sleeping when the phone ring.

Correction: \_\_\_\_\_

- f. Neither of the players are ready.

Correction: \_\_\_\_\_

- g. A group of students were standing outside.

Correction: \_\_\_\_\_

- h. Mathematics are my favourite subject.

Correction: \_\_\_\_\_

i. He is an university student.

Correction: \_\_\_\_\_

j. She has less friends than her sister.

Correction: \_\_\_\_\_

k. There is little apples left in the basket.

Correction: \_\_\_\_\_

3. Write a report on a book fair visited by students of your school.

4. Revise Moments (Chapter 5, Chapter 6, Chapter 7, Chapter 8, and Chapter 9) and Beehive (Unit 6, Unit 7, Unit 8 and Unit 9)

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## PHYSICS

- Revise thoroughly chapter Motion, force and laws of motion, Gravitation, Work and energy.
- Practice all questions from NCERT.
- Focus more on numericals.
- Practice and solve following shared worksheet:

### Multiple Choice Questions (MCQs)

1. The slope of a distance–time graph represents:

- a) Speed
- b) Velocity
- c) Acceleration
- d) Momentum

2. SI unit of acceleration is:

- a) m/s
- b)  $\text{m/s}^2$
- c) km/h
- d) N

3. Newton’s first law of motion is also called:

- a) Law of force
- b) Law of inertia
- c) Law of acceleration
- d) Law of momentum

4. Action and reaction forces act on:

- a) Same body
- b) Different bodies
- c) Same point
- d) Same direction

5. The value of acceleration due to gravity on Earth is approximately:

- a)  $9.8 \text{ m/s}^2$

b)  $98 \text{ m/s}^2$

c)  $4.9 \text{ m/s}^2$

d)  $1 \text{ m/s}^2$

6. Weight of an object depends on:

a) Mass only

b) Gravity only

c) Mass and gravity

d) Shape of object

7. Work is said to be done when:

a) Force is applied

b) Object moves in direction of force

c) Object moves opposite to force

d) Force is zero

8. Kinetic energy of a body depends on:

a) Mass only

b) Velocity only

c) Mass and velocity

d) Height

### **Very Short Answer Questions**

1. Define uniform motion.

2. Write the SI unit of force.

3. What is inertia?

4. State Newton's second law of motion.

5. Define momentum.

6. What is impulse. Why cricket player lower his hand while catching the ball

7. Define work, energy and power Give their SI units.

8 Write the law of conservation of energy.

### **Short Answer Questions**

1. Distinguish between distance and displacement.
- 2 Why is a seat belt important in a car?
- 3.State and explain Newton's third law of motion with an example.
4. Define mass and weight. Write two differences between them.
- 5.What is thrust and pressure?
- 6.Derive the expression for kinetic energy.
7. Why carpet is beaten with stick in order to remove dirt.

### **Long Answer Questions**

- 1.Derive the three equations of motion using graphical method.
  - 2..State Newton's three laws of motion. Explain each law with suitable examples from daily life.
  3. Define momentum. Derive the relation between force and momentum using Newton's second law of motion.
  - 4.State and explain the universal law of gravitation. Write its mathematical expression .
  - 5.What is acceleration due to gravity? Derive the expression for acceleration due to gravity (g) on the surface of the earth
  - 6.State and explain the law of conservation of energy and show that during free for total energy remain conserved.
  - 7.Explain types of work with example of each.
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### **Social science:**

Revise entire syllabus along with maps.

## **Mathematics**

Revise following chapters thoroughly

1 Number system

2 Polynomial

3 co-ordinate Geometry

4 Triangle

5 Quadrilateral

6 Circle

7 Heron formula

8 Surface area and volume

9 statistics

## कक्षा 9 : गृहकार्य व्याकरण, पाठ

□ पाठ – रहीम के दोहे, गीत-अगीत, अग्निपथ

✍ अभ्यास – 1 (रहीम के दोहे)

1. रहीम के दोहों के अर्थ लिखिए।
2. रहीम के दोहों से सीख मिलने वाले संदेशों पर चर्चा कीजिए।

✍ अभ्यास – 2 (गीत-अगीत)

3. गीत और अगीत के बीच अंतर बताइए।
4. निम्न गीतों के भाव स्पष्ट कीजिए

✍ अभ्यास – 3 (अग्निपथ)

5. 'अग्निपथ' काव्य के मुख्य विचार लिखिए।
6. कवि की संघर्ष और सफलता पर दृष्टि पर लेख लिखिए।

□ व्याकरण – समास, संधि, मुहावरे

✍ अभ्यास – 4 (समास)

1. निम्न शब्दों के समास प्रकार पहचानिए। (क) रामायण (ख) भारतवर्ष
2. समास के भेद और उदाहरण लिखिए।

✍ अभ्यास – 5 (संधि)

3. निम्न शब्दों में संधि पहचानिए। (क) देवालय (ख) महाशक्ति
4. संधि के प्रकार और नियम लिखिए।

✍ अभ्यास – 6 (मुहावरे)

5. निम्न मुहावरों के अर्थ लिखिए। (क) हाथ-पैर फूलना (ख) आँखों का तारा होना
6. मुहावरे से वाक्य बनाइए।

□ सामान्य व्याकरण और लेखन कार्य

✍ अभ्यास – 7 (लेखन कार्य)

1. निम्न विषयों पर पत्र लिखिए – (क) अपने मित्र को पत्र (ख) प्रधानाचार्य को पत्र

2. कहानी लिखिए – (क) एक प्रेरणादायक घटना पर आधारित (ख) एक काल्पनिक घटना पर आधारित

3. सूचना, विज्ञापन और ईमेल के उदाहरण दीजिए।

✍ अभ्यास – 8 (लेखन कार्य जारी)

4. विभिन्न प्रकार के विज्ञापन लिखिए – (क) नौकरी के लिए विज्ञापन (ख) वस्तु की बिक्री के लिए विज्ञापन

5. ईमेल के प्रारूप और उदाहरण दीजिए।

□ अतिरिक्त कार्य (Optional)

प्रतिदिन 5 नए शब्द लिखकर उनके अर्थ लिखिए।

किसी पाठ से 5 नए मुहावरे और 5 संधियाँ छाँटिए।

— शुभकामनाएँ —

## CHEMISTRY

1. Revise the four chapters(1,2,3,4)
2. Practise the exercise questions of each chapter.

### MCQs

1. Matter is anything that has:
  - A. Mass only
  - B. Volume only
  - C. Mass and volume
  - D. Shape only
2. Which of the following is not a physical state of matter?
  - A. Solid
  - B. Liquid
  - C. Gas
  - D. Energy
3. The process of changing solid directly into gas is called:
  - A. Evaporation
  - B. Condensation
  - C. Sublimation
  - D. Freezing
4. Which state of matter has the highest kinetic energy?
  - A. Solid
  - B. Liquid
  - C. Gas
  - D. Plasma

5. A substance made of only one kind of particles is called:

- A. Mixture
- B. Solution
- C. Pure substance
- D. Colloid

6. Which of the following is a homogeneous mixture?

- A. Soil
- B. Salt solution
- C. Milk
- D. Smoke

7. The smallest particle of an element is called:

- A. Molecule
- B. Atom
- C. Ion
- D. Compound

8. The chemical formula of calcium oxide is:

- A. CaO
- B. Ca<sub>2</sub>O
- C. CaO<sub>2</sub>
- D. Ca<sub>2</sub>O<sub>2</sub>

9. The positively charged particles in an atom are called:

- A. Electrons
- B. Neutrons
- C. Protons
- D. Ions

10. Who discovered the electron?

- A. Rutherford

B. Bohr

C. J.J. Thomson

D. Dalton

11. The atomic number of an element is equal to the number of:

A. Neutrons

B. Protons

C. Neutrons + protons

D. Protons + electrons

12. Which model of the atom is known as the plum pudding model?

A. Rutherford's model

B. Dalton's model

C. Thomson's model

D. Bohr's model

13. Isotopes of an element have the same:

A. Mass number

B. Number of neutrons

C. Atomic number

D. Atomic mass

14. Which particle has no charge?

A. Electron

B. Proton

C. Neutron

D. Ion

15. Which of the following is a chemical change?

A. Melting of ice

B. Boiling of water

C. Rusting of iron

D. Freezing of water

16. The process of gaining oxygen is called:

A. Reduction

B. Oxidation

C. Displacement

D. Neutralization

17. Which solution turns blue litmus red?

A. Soap solution

B. Salt solution

C. Acidic solution

D. Basic solution

18. The SI unit of amount of substance is:

A. Gram

B. Mole

C. Kilogram

D. Litre

19. Which metal is liquid at room temperature?

A. Iron

B. Copper

C. Mercury

D. Aluminium

20. The total mass of reactants is equal to the total mass of products according to:

A. Law of multiple proportions

B. Law of constant proportions

C. Law of conservation of mass

D. Avogadro's law

## **SHORT ANSWER QUESTIONS**

1. State any two characteristics of particles of matter.
2. Differentiate between solid, liquid and gas (any four points).
3. What is evaporation? Mention two factors affecting it.
4. What is a mixture? Give two examples.
5. Explain atomic mass unit.
6. State the law of conservation of mass.
7. What are isotopes? Give one example.
8. Write two differences between atoms and molecules.
9. What is a heterogeneous mixture?
10. Explain the law of constant proportion.

## **LONG ANSWER QUESTIONS**

11. Explain the interconversion of states of matter with the help of a diagram.
  12. Describe an activity to verify the law of conservation of mass.
  13. Explain Dalton's atomic theory. Write any four postulates.
  14. Describe the structure of an atom according to Bohr's model.
  15. Write the name of elements from atomic no 1 to 20. Also write their valency and valence electrons.
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### **Subject : Ai**

- 1) **Revise Unit -1,2,3 and Specific Skills/ Vocational Skills for Final Exam.**
- 2) **All Practical of Python programming in notbook,**
- 3) **With the help of AI tools :e.g. ChatGPT, Gemini, MIT, Canva Ai etc. create any five projects. Please send their copies to my whatapp number.**

**4) Please send their copies to me.**