

Cell Structure and Reproduction in Animals

Science · Class 8 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Study every diagram and table carefully.

Section A — Scientific Reasoning

Q1–Q8 · 1 mark each

- The basic structural and functional unit of all living organisms is the _____.
 (A) Tissue (B) Nucleus
 (C) Organ (D) Cell
- Who discovered the cell?
 (A) Robert Hooke (B) Robert Brown
 (C) Louis Pasteur (D) Charles Darwin
- Which structure is present in a **plant** cell but absent in an animal cell?
 (A) Nucleus (B) Cell wall
 (C) Cell membrane (D) Cytoplasm
- The green plastids that contain chlorophyll are called _____.
 (A) Chromoplasts (B) Leucoplasts
 (C) Chloroplasts (D) Mitochondria
- The jelly-like substance between the nucleus and the cell membrane is called _____.
 (A) Chromosome (B) Vacuole
 (C) Plastid (D) Cytoplasm
- The thread-like structures in the nucleus that carry genes are called _____.
 (A) Chromosomes (B) Chloroplasts
 (C) Vacuoles (D) Ribosomes
- The fusion of a male gamete with a female gamete is called _____.
 (A) Budding (B) Fertilisation
 (C) Fragmentation (D) Metamorphosis
- Animals such as the frog, in which the young one looks very different from the adult, show _____.
 (A) Budding (B) Binary fission
 (C) Metamorphosis (D) Regeneration

9. The diagram shows a cell. Which labelled part controls all the activities of the cell?

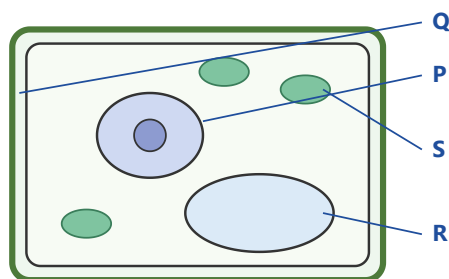


Fig. 9.1 — A plant cell

- (A) P (B) Q
(C) R (D) S

10. In the table below, which row is **incorrectly** matched?

Row	Cell part	Function
(A)	Cell membrane	Controls what enters and leaves the cell
(B)	Chloroplast	Site of photosynthesis
(C)	Vacuole	Controls cell division
(D)	Cell wall	Gives shape and rigidity to plant cells

Table 10.1 — Cell parts and functions

- (A) Row (A) (B) Row (B)
(C) Row (C) (D) Row (D)

11. Why is the plant cell's large central vacuole important for a wilting plant?

- (A) It stores chlorophyll (B) It divides the cell
(C) It carries out photosynthesis (D) When full of water it presses outward and keeps the cell firm, so the plant stays upright

12. Which of these reproduces by **binary fission**?

- (A) Amoeba (B) Hydra
(C) Frog (D) Yeast

13. External fertilisation, in which eggs are fertilised outside the female's body, is seen in ____.

- (A) Human beings (B) Frogs and fish
(C) Cows (D) Dogs

14. Why do animals that use external fertilisation lay hundreds or thousands of eggs?

- (A) Their eggs are very small (B) They cannot count
(C) Most eggs are never fertilised or are eaten, so laying many raises the chance that some survive (D) The eggs hatch immediately

15. A single cell that results from fertilisation is called a ____.

- (A) Gamete (B) Foetus
(C) Embryo (D) Zygote

16. Consider the following statements.

- (i) All cells have a nucleus with a well-defined nuclear membrane.
- (ii) The nerve cell is one of the longest cells in the human body.
- (iii) An egg of a hen is a single cell.

Which of the statements is/are correct?

- (A) (i) and (ii) only
- (B) (ii) and (iii) only
- (C) (i) and (iii) only
- (D) All three

17. An onion peel cell and a human cheek cell are both examined under a microscope. Which observation would **reliably** identify the onion cell?

- (A) It has a rigid rectangular outline with a distinct cell wall and a large vacuole
- (B) It has a nucleus
- (C) It has cytoplasm
- (D) It is smaller than the cheek cell

18. Match each organism in Column I with its mode of reproduction in Column II.

Column I	Column II
(P) Amoeba	(1) Budding
(Q) Hydra	(2) Binary fission
(R) Frog	(3) Internal fertilisation
(S) Hen	(4) External fertilisation

Table 18.1

- (A) P-1, Q-2, R-3, S-4
- (B) P-2, Q-1, R-4, S-3
- (C) P-2, Q-4, R-1, S-3
- (D) P-3, Q-1, R-4, S-2

Answer Key

1	D	2	A	3	B	4	C	5	D
6	A	7	B	8	C	9	A	10	C
11	D	12	A	13	B	14	C	15	D
16	B	17	A	18	B				

Solutions

1. Answer: (D) Cell

The **cell** is the basic unit of life. Some organisms consist of a single cell, while others are made of billions of them.

2. Answer: (A) Robert Hooke

Robert Hooke observed thin slices of cork under his microscope in 1665 and named the box-like compartments 'cells'. Robert Brown later discovered the nucleus.

3. Answer: (B) Cell wall

A rigid **cell wall** made of cellulose lies outside the cell membrane in plant cells and gives them their fixed shape. Animal cells have only a flexible cell membrane.

4. Answer: (C) Chloroplasts

Chloroplasts hold chlorophyll and are the site of photosynthesis. They are found only in plant cells.

5. Answer: (D) Cytoplasm

The **cytoplasm** fills the cell and holds the various organelles. Together with the nucleus it makes up the protoplasm, the living substance of the cell.

6. Answer: (A) Chromosomes

Chromosomes carry the genes, which pass characteristics from parents to offspring. A human body cell has 23 pairs of them.

7. Answer: (B) Fertilisation

Fertilisation is the fusion of the sperm and the egg, producing a single cell called the zygote, which develops into a new individual.

8. Answer: (C) Metamorphosis

Metamorphosis is the drastic change of body form during development. A tadpole with gills and a tail becomes an air-breathing, four-legged frog.

9. Answer: (A) P

P labels the nucleus, the large rounded body with a dense nucleolus inside. It controls all the activities of the cell and carries the chromosomes. Q is the cell wall, R is the large central vacuole and S is a chloroplast.

10. Answer: (C) Row (C)

A vacuole is a fluid-filled sac that **stores water, food and waste** and helps keep the plant cell firm — it does not control cell division, which is directed by the nucleus. The other three rows are correct.

11. Answer: (D) When full of water it presses outward and keeps the cell firm, so the plant stays upright

A full vacuole presses outward against the cell wall and keeps the cell firm, which keeps soft stems and leaves upright. When the plant loses water the vacuoles shrink, the cells go limp and the plant wilts.

12. Answer: (A) Amoeba

Amoeba divides into two roughly equal daughter cells — binary fission. Hydra and yeast reproduce by budding, and frogs reproduce sexually.

13. Answer: (B) Frogs and fish

Frogs and fish release eggs and sperm into water, where fertilisation happens outside the body. Because so many gametes are lost, these animals lay very large numbers of eggs.

14. Answer: (C) Most eggs are never fertilised or are eaten, so laying many raises the chance that some survive

In open water, sperm and eggs may never meet, and eggs and young are eaten in huge numbers. **Laying many eggs raises the chance that at least a few survive** to adulthood. Animals with internal fertilisation and parental care produce far fewer young.

15. Answer: (D) Zygote

The **zygote** is the single cell formed when the sperm fuses with the egg. It divides repeatedly to form an embryo, which later develops into a foetus.

16. Answer: (B) (ii) and (iii) only

Statement (i) is false — bacteria have no nuclear membrane, so their genetic material lies free in the cytoplasm; such cells are called prokaryotic. Statement (ii) is true; nerve cells can be very long indeed. Statement (iii) is true; the yolk of a hen's egg is a single enormous cell. Hence **(ii) and (iii)**.

17. Answer: (A) It has a rigid rectangular outline with a distinct cell wall and a large vacuole

Both cells have a nucleus and cytoplasm, so those cannot distinguish them. Only the plant cell has a **rigid cell wall giving a regular rectangular outline, together with a large central vacuole**. A cheek cell is irregular and flexible because it has only a cell membrane.

18. Answer: (B) P-2, Q-1, R-4, S-3

Amoeba divides by **binary fission** (2). Hydra grows a bud that detaches as a new individual — **budding** (1). A frog releases eggs into water for **external fertilisation** (4). A hen has **internal fertilisation** and then lays a shelled egg (3). Hence P-2, Q-1, R-4, S-3.