

Cell: The Unit of Life — CBSE Pattern Test 1

Class 11 Biology · 90 minutes · 40 marks · Sections A–D with answer key · Narayan Gurukul Academy

Test 1 — CBSE Pattern (90 minutes, 40 marks)

Class 11 Biology · Cell: The Unit of Life · Narayan Gurukul Academy (ClassApna)

General Instructions: (1) This paper has four sections — Section A (1×10), Section B (2×4), Section C (3×4) and Section D (5×2) — total 40 marks. Time allowed: 90 minutes.
(2) All questions are compulsory. No overall choice is given; internal choice, where allowed, is clearly marked.
(3) For MCQ questions choose the single correct option; for VSA answers write a single line.
(4) Take $g = 10 \text{ m/s}^2$. All symbols carry their usual meaning. Use of a calculator is not permitted.

Section A — MCQ & VSA ($10 \times 1 = 10$ marks)

- The cell theory was proposed by
 - Schleiden and Schwann
 - Robert Hooke
 - Virchow
 - Leeuwenhoek
- Prokaryotic cells lack
 - a true nucleus
 - ribosomes
 - a cell membrane
 - cytoplasm
- The bacterial genetic material is
 - a single circular DNA
 - many linear chromosomes
 - RNA only
 - no DNA
- The plasma membrane is mainly composed of
 - lipids and proteins
 - cellulose
 - chitin
 - nucleic acids
- The powerhouse of the cell is the
 - mitochondrion
 - ribosome
 - Golgi body
 - lysosome
- The site of protein synthesis is the
 - ribosome
 - mitochondrion
 - lysosome
 - nucleus
- The nucleus was discovered by
 - Robert Brown

- (B) Robert Hooke
 - (C) Schleiden
 - (D) Virchow
8. The site of ribosome synthesis is the
- (A) nucleolus
 - (B) nuclear pore
 - (C) chromatin
 - (D) nucleoplasm
9. Who discovered the cell?
10. What is a nucleoid?

Section B — Short Answer I ($4 \times 2 = 8$ marks)

11. What is the main difference between prokaryotic and eukaryotic cells?
12. Name the main component of the plant cell wall.
13. What are lysosomes called?
14. What is the nucleolus?

Section C — Short Answer II ($4 \times 3 = 12$ marks)

15. State two postulates of the cell theory.
16. Distinguish between prokaryotic and eukaryotic cells.
17. State two functions of the cell wall.
18. State two functions of mitochondria.

Section D — Long Answers ($2 \times 5 = 10$ marks)

19. (a) Describe the structure of a prokaryotic cell. (b) Describe the structure of the plasma membrane (fluid mosaic model).
20. (a) Describe the structure and function of mitochondria. (b) Describe the structure of the nucleus.

Answer Key (Marking Scheme)

- Q1 — (A) Schleiden and Schwann. Q2 — (A) a true nucleus. Q3 — (A) a single circular DNA. Q4 — (A) lipids and proteins. Q5 — (A) mitochondrion. Q6 — (A) ribosome. Q7 — (A) Robert Brown. Q8 — (A) nucleolus.
- Q9 — Robert Hooke.
- Q10 — The nucleoid is the region of a prokaryotic cell containing the naked circular DNA.
- Q11 — Prokaryotes lack a true nucleus and membrane-bound organelles; eukaryotes have them.
- Q12 — Cellulose.
- Q13 — Suicidal bags of the cell.
- Q14 — The nucleolus is the site of ribosome synthesis within the nucleus.
- Q15 — All organisms are made of cells; the cell is the basic structural and functional unit of life.
- Q16 — Nucleus — absent vs present; organelles — absent vs present; ribosomes — 70S vs 80S; DNA — circular vs linear.
- Q17 — Gives shape/rigidity and protects the cell.

Q18 — Produce ATP by aerobic respiration and contain their own DNA and ribosomes.

Q19 — (a) Cell envelope, cytoplasm, naked circular DNA (nucleoid), 70S ribosomes, mesosomes, flagella/pili. (b) Lipid bilayer with embedded proteins — fluid because of moving lipids, mosaic because of scattered proteins.

Q20 — (a) Double membrane with cristae; produces ATP by aerobic respiration. (b) Double-membraned envelope with pores, nucleoplasm, chromatin and nucleolus.