

# SUN SHINE PUBLIC SCHOOL, NAJIBABAD

Malti Agarwal Smriti Chatravriti Scholarship Test — 2026

## SAMPLE PRACTICE PAPER

CLASS 12 (PCB) • Syllabus: Class 11 CBSE (PCB) • Total: 120 Marks • Time: 60 Minutes

**SAMPLE PAPER — For practice only. Actual test will have entirely different questions.**

Roll No.: \_\_\_\_\_ Name: \_\_\_\_\_ School: \_\_\_\_\_

### GENERAL INSTRUCTIONS:

1. 60 questions, all compulsory. Paper is based on Class 11 CBSE (PCB) syllabus.
2. +2 marks for each correct answer.
3. -0.25 marks for wrong answer in Physics / Chemistry / Biology / English.
4. NO negative marking in Section A (Mental Ability) and Section B (GK).
5. Sections C (Physics) and D (Chemistry) are shared with PCM students.
6. Section E is Biology (15 questions) — unique to PCB stream.

### SECTION A — MENTAL ABILITY & REASONING (Q.1 to Q.10)

**No Negative Marking**

**Q.1.** Find the next term: 3, 6, 11, 18, 27, 38, \_\_\_\_

- (a) 51
- (b) 49
- (c) 52
- (d) 48

**Q.2.** Mohan starts from his house, walks 10 km North, then 6 km East, then 10 km South, and finally 2 km West.

How far is he now from his starting point, and in which direction?

- (a) 4 km North
- (b) 4 km East
- (c) 8 km East
- (d) 6 km East

**Q.3.** A farmer has both chickens and cows.

He counts 20 heads and 56 legs in total.

How many cows does he have?

- (a) 6
- (b) 10
- (c) 8
- (d) 12

**Q.4.** Tap A fills a tank in 20 minutes, Tap B fills it in 30 minutes.

Both are opened together. After 6 minutes, Tap A is closed.

How long more does Tap B take to fill the remaining tank?

- (a) 10 min
- (b) 8 min
- (c) 12 min
- (d) 15 min

**Q.5.** A bag has 3 red, 4 green and 5 blue balls. Two balls are drawn at random. Find P(both are the same colour).

- (a)  $\frac{19}{66}$
- (b)  $\frac{1}{4}$
- (c)  $\frac{1}{3}$
- (d)  $\frac{11}{66}$

**Q.6.** Think of a number. Double it. Add 18.

Divide by 2. Subtract the original number.

Everyone gets the same answer. What is it?

- (a) 10
- (b) 9
- (c) 8
- (d) 6

**Q.7.** Complete the analogy:

Mitosis : Somatic cells :: Meiosis : ?

- (a) Skin cells
- (b) Blood cells
- (c) Germ cells (reproductive cells)
- (d) Nerve cells

**Q.8.** Find the value of '?' in this pattern:

Row 1: 2 4 8

Row 2: 3 9 27

Row 3: 4 16 ?

- (a) 48
- (b) 36
- (c) 32
- (d) 64

**Q.9.** All mammals breathe oxygen.

Whales are mammals.

Dolphins breathe oxygen.

Which conclusion is DEFINITELY true based on the statements?

- (a) Whales breathe oxygen
- (b) All animals that breathe oxygen are mammals
- (c) Dolphins are mammals
- (d) Whales and dolphins are the same animal

**Q.10.** The ratio of ages of Priya and Reena is 3:4.

After 8 years, their ages will be in ratio 5:6.

Find Priya's present age.

- (a) 10 years
- (b) 12 years
- (c) 15 years
- (d) 18 years

**SECTION B — GENERAL KNOWLEDGE & CURRENT AFFAIRS** (Q.11 to Q.15)

**No Negative Marking**

**Q.11.** India's ISRO launched the 'Gaganyaan' mission to send Indian astronauts (Vyomanauts) into space. What is the name of the astronaut training programme's first batch?

- (a) Aryabhata Squad
- (b) Vikram Force
- (c) Four astronauts selected including Shubhanshu Shukla
- (d) Apollo India batch

**Q.12.** The drug 'Coforta' (Nirmatrelvir + Ritonavir), used to treat COVID-19, works by inhibiting which type of biological molecule?

- (a) DNA polymerase
- (b) Reverse transcriptase
- (c) Ribosomes
- (d) Protease enzyme (viral main protease — Mpro)

**Q.13.** India's 'Operation Sindoor' (May 2025) was launched after a terror attack in which location?

- (a) Pahalgam, Kashmir
- (b) Pulwama, Kashmir
- (c) Uri, Kashmir
- (d) Sopore, Kashmir

**Q.14.** The 2023 Nobel Prize in Physiology or Medicine was awarded for the discovery of:

- (a) CRISPR gene editing technology
- (b) mRNA modifications enabling COVID-19 vaccines (Katalin Karikó & Drew Weissman)
- (c) The structure of DNA double helix
- (d) Monoclonal antibody therapy

**Q.15.** 'One Health' is a global initiative that recognises the link between:

- (a) Mental health and physical fitness only

- (b) Nutrition and immunity only
- (c) Human health, animal health and environmental health as interconnected
- (d) Modern medicine and traditional medicine

**SECTION C — PHYSICS** (Q.16 to Q.25)

**-0.25 for wrong answer**

**Q.16.** The dimensions of pressure are:

- (a)  $[M^1L^1T^{-2}]$
- (b)  $[M^0L^{-1}T^0]$
- (c)  $[M^1L^{-1}T^0]$
- (d)  $[M^1L^{-1}T^{-2}]$

**Q.17.** A block of mass 5 kg rests on a surface. The coefficient of static friction is 0.4. What is the minimum force required to start moving the block? ( $g = 10 \text{ m/s}^2$ )

- (a) 20 N
- (b) 25 N
- (c) 50 N
- (d) 40 N

**Q.18.** A ball of mass 2 kg is dropped from a height of 10 m.

Find its kinetic energy just before it hits the ground. ( $g = 10 \text{ m/s}^2$ )

- (a) 100 J
- (b) 200 J
- (c) 400 J
- (d) 20 J

**Q.19.** A car of mass 1000 kg moves in a circle of radius 50 m at 10 m/s.

Find the centripetal force required.

- (a) 500 N
- (b) 1000 N
- (c) 2000 N
- (d) 250 N

**Q.20.** If the radius of a planet is twice that of Earth and its mass is 8 times that of Earth, the gravitational acceleration on its surface compared to Earth's  $g$  would be:

- (a) Same as  $g$
- (b)  $4g$
- (c)  $g/2$
- (d)  $2g$

**Q.21.** Bernoulli's principle states that in a streamlined flow of fluid, where the speed of the fluid is higher:

- (a) Pressure is lower — explaining why aircraft wings generate lift
- (b) Pressure is also higher
- (c) Temperature increases proportionally
- (d) Viscosity decreases

**Q.22.** How much heat is needed to raise the temperature of 500 g of water by  $20^\circ\text{C}$ ?

(Specific heat of water =  $4200 \text{ J}/(\text{kg}\cdot^\circ\text{C})$ )

- (a) 21,000 J
- (b) 42,000 J
- (c) 84,000 J
- (d) 4200 J

**Q.23.** The intensity of sound varies inversely with the square of the distance from the source. If a person moves from 2 m to 4 m from a speaker, the intensity becomes:

- (a) Half the original
- (b) Same
- (c) One-fourth of the original
- (d) Double

**Q.24.** A simple pendulum of length 1 m is taken to a planet where  $g = 5 \text{ m/s}^2$ .

Its time period will be: (On Earth  $T = 2 \text{ s}$  with  $g=10 \text{ m/s}^2$ ,  $\pi^2\approx 10$ )

- (a) 1 s
- (b) 1.5 s
- (c) 3 s

(d)  $2\sqrt{2}$  s

**Q.25.** According to the Kinetic Theory, the pressure exerted by an ideal gas is due to:

- (a) Collisions of gas molecules with the walls of the container
- (b) Gravitational attraction between gas molecules
- (c) Intermolecular repulsive forces
- (d) The weight of gas molecules pressing down

**SECTION D — CHEMISTRY** (Q.26 to Q.35)

**-0.25 for wrong answer**

**Q.26.** The electronic configuration of the element with atomic number 17 (Chlorine) is:

- (a) 2, 8, 6
- (b) 2, 8, 7
- (c) 2, 7, 8
- (d) 2, 8, 8, 1

**Q.27.** Electronegativity increases across a period from left to right because:

- (a) Atomic radius increases
- (b) Number of neutrons increases
- (c) Nuclear charge increases while electrons are added to the same shell, pulling bonding electrons more strongly
- (d) The atom becomes a better electron donor

**Q.28.** The hybridisation of carbon in  $\text{CO}_2$  is:

- (a)  $sp^3$
- (b)  $sp^3d$
- (c)  $sp^3d^2$
- (d)  $sp$

**Q.29.** At absolute zero temperature (0 K), the kinetic energy of gas molecules is:

- (a) Zero — all molecular motion theoretically ceases
- (b) Minimum but not zero
- (c) Maximum
- (d) Same as at room temperature

**Q.30.** A process is spontaneous when the Gibbs Free Energy change ( $\Delta G$ ) is:

- (a) Positive ( $\Delta G > 0$ )
- (b) Negative ( $\Delta G < 0$ )
- (c) Equal to zero only
- (d) Always equal to  $\Delta H$

**Q.31.** For the reaction  $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$ , the expression for the equilibrium constant  $K_c$  is:

- (a)  $K_c = \frac{[\text{N}_2][\text{H}_2]^3}{[\text{NH}_3]^2}$
- (b)  $K_c = \frac{[\text{NH}_3]}{[\text{N}_2][\text{H}_2]}$
- (c)  $K_c = \frac{[\text{NH}_3]^2}{[\text{N}_2][\text{H}_2]^3}$
- (d)  $K_c = \frac{[\text{N}_2][\text{H}_2]}{[\text{NH}_3]}$

**Q.32.** In the compound  $\text{KMnO}_4$ , the oxidation state of Manganese (Mn) is:

- (a) +2
- (b) +4
- (c) +6
- (d) +7

**Q.33.** The functional group present in ethanol ( $\text{CH}_3\text{CH}_2\text{OH}$ ) is:

- (a) Hydroxyl group ( $-\text{OH}$ )
- (b) Carboxyl group ( $-\text{COOH}$ )
- (c) Aldehyde group ( $-\text{CHO}$ )
- (d) Amino group ( $-\text{NH}_2$ )

**Q.34.** Sodium (Na) is stored under kerosene oil because:

- (a) Kerosene increases sodium's reactivity
- (b) Sodium reacts vigorously with atmospheric oxygen and water — kerosene prevents this by excluding air and moisture
- (c) Kerosene is needed to preserve sodium's shine
- (d) Sodium dissolves slowly in kerosene releasing energy

- Q.35.** The primary cause of 'Eutrophication' in water bodies is:
- (a) Acid rain reducing the pH of lakes
  - (b) Industrial heavy metals entering water
  - (c) Excess nutrients (nitrogen, phosphorus from fertilisers) causing algal bloom and oxygen depletion
  - (d) Global warming raising water temperature

**SECTION E — BIOLOGY** (Q.36 to Q.50)

**-0.25 for wrong answer**

- Q.36.** Which of the following is NOT a characteristic property shared by all living organisms?
- (a) Growth
  - (b) Metabolism
  - (c) Reproduction
  - (d) Locomotion (moving from place to place)
- Q.37.** In Whittaker's Five Kingdom Classification, bacteria are placed in the kingdom:
- (a) Monera
  - (b) Protista
  - (c) Fungi
  - (d) Plantae
- Q.38.** Bryophytes are called 'amphibians of the plant kingdom' because:
- (a) They live completely underwater like fish
  - (b) They need water for sexual reproduction (motile male gametes) but can live on land
  - (c) They can breathe through both gills and lungs
  - (d) They produce both seeds and spores simultaneously
- Q.39.** The presence of a notochord at some stage of development, a dorsal hollow nerve cord, and pharyngeal gill slits are the distinguishing features of phylum:
- (a) Echinodermata
  - (b) Arthropoda
  - (c) Chordata
  - (d) Mollusca
- Q.40.** Pneumatophores (breathing roots) that project vertically upward out of the mud are found in:
- (a) Desert cacti
  - (b) Banyan tree
  - (c) Sweet potato
  - (d) Mangrove plants growing in saline swampy areas (e.g., Rhizophora)
- Q.41.** The 'powerhouse of the cell' that produces ATP through cellular respiration is the:
- (a) Mitochondria
  - (b) Chloroplast
  - (c) Ribosome
  - (d) Golgi apparatus
- Q.42.** During which phase of mitosis do chromosomes align at the equatorial plate of the cell?
- (a) Prophase
  - (b) Metaphase
  - (c) Anaphase
  - (d) Telophase
- Q.43.** A plant cell placed in a highly concentrated salt solution will:
- (a) Absorb water and swell (become turgid)
  - (b) Remain unchanged
  - (c) Lose water by osmosis and undergo plasmolysis (cell membrane shrinks away from wall)
  - (d) Take in salt through active transport
- Q.44.** The oxygen released during photosynthesis comes from:
- (a) CO<sub>2</sub> splitting during the Calvin cycle
  - (b) Glucose produced in the stroma
  - (c) ATP synthesis in the thylakoid membrane
  - (d) Photolysis (splitting) of water molecules in the light reactions
- Q.45.** The overall equation for aerobic respiration in plants is:
- (a)  $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{Energy (ATP)}$

- (b)  $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{light} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
- (c)  $\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 2\text{C}_2\text{H}_5\text{OH} + 2\text{CO}_2$
- (d)  $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O} \rightarrow 6\text{CO}_2 + 12\text{H}_2 + \text{Energy}$

**Q.46.** Trypsin, chymotrypsin and elastase — the proteolytic (protein-digesting) enzymes secreted by the pancreas — are initially secreted in inactive forms called:

- (a) Isomers
- (b) Zymogens (proenzymes)
- (c) Cofactors
- (d) Hormones

**Q.47.** The volume of air that remains in the lungs even after a maximum forceful expiration is called:

- (a) Tidal Volume
- (b) Expiratory Reserve Volume
- (c) Residual Volume
- (d) Vital Capacity

**Q.48.** Which blood cell is responsible for clotting of blood after an injury?

- (a) Red Blood Cells (Erythrocytes)
- (b) Lymphocytes
- (c) Monocytes
- (d) Platelets (Thrombocytes)

**Q.49.** The functional unit of the kidney that filters blood and produces urine is called the:

- (a) Nephron
- (b) Glomerulus only
- (c) Loop of Henle only
- (d) Ureter

**Q.50.** A nerve impulse is transmitted from one neuron to another at a junction called the:

- (a) Axon terminal
- (b) Synapse
- (c) Myelin sheath
- (d) Node of Ranvier

**SECTION F — ENGLISH** (Q.51 to Q.60)

**-0.25 for wrong answer**

**Q.51.** The word 'BENIGN' (as in 'benign tumour') means:

- (a) Life-threatening and aggressive
- (b) Rapidly spreading
- (c) Not harmful or malignant; mild and non-invasive
- (d) Requires immediate surgery

**Q.52.** Choose the grammatically CORRECT conditional sentence:

- (a) If I would study harder, I will pass.
- (b) If I studied harder, I will pass.
- (c) If I study harder, I would pass.
- (d) If I study harder, I will pass.

**Q.53.** 'The greatest enemy of knowledge is not ignorance;

it is the illusion of knowledge.' — Stephen Hawking

This quote suggests that:

- (a) Believing you know something without truly understanding it is more dangerous than admitting you don't know
- (b) Ignorance is the root of all problems in science
- (c) Knowledge and ignorance are equally harmful
- (d) Scientists should never admit they don't know something

**Q.54.** In a scientific research paper, the 'Abstract' section should:

- (a) Contain detailed data tables and methodology only
- (b) Briefly summarise the objective, methods, key results and conclusion in 150–250 words
- (c) List only references and citations
- (d) Describe the background literature in full detail

- Q.55.** The prefix 'HYPER-' in medical terms (like hypertension, hyperglycaemia) means:
- (a) Below normal or deficient
  - (b) Normal or balanced
  - (c) Above normal or excessive
  - (d) Related to the heart
- Q.56.** Which sentence is written in the PASSIVE VOICE commonly used in scientific writing?
- (a) We heated the solution to 100°C.
  - (b) The researcher observed three distinct phases.
  - (c) I measured the absorbance at 560 nm.
  - (d) The experiment was conducted under controlled temperature conditions.
- Q.57.** 'To have something in your DNA' is a modern idiom that means:
- (a) It is a fundamental or deeply ingrained part of who you are
  - (b) You have had a genetic test done
  - (c) You suffer from a hereditary disease
  - (d) You have inherited wealth from your family
- Q.58.** One word for 'the study of the structure of the human body':
- (a) Physiology
  - (b) Anatomy
  - (c) Pathology
  - (d) Histology
- Q.59.** Choose the CORRECT sentence:
- (a) The data was collected over three months and they was analysed statistically.
  - (b) The data were collected over three months and it were analysed statistically.
  - (c) The data were collected over three months and were analysed statistically.
  - (d) The data was collected over three months and were analysed statistically.
- Q.60.** 'In nature, nothing exists alone.' — Rachel Carson, *Silent Spring*.  
This statement BEST reflects the principle of:
- (a) Cell theory — all life comes from cells
  - (b) Germ theory — diseases are caused by pathogens
  - (c) Evolution — organisms change over generations
  - (d) Ecological interdependence — all organisms are connected in ecosystems

# ANSWER KEY — SAMPLE PAPER CLASS 12 (PCB)

SUN SHINE PUBLIC SCHOOL — Malti Agarwal Smriti Chatravriti Test 2026 | Class 11 CBSE (PCB) Syllabus

Distribution: A=15 B=15 C=15 D=15 ✓ 15 each — Balanced

## SECTION A — MENTAL ABILITY (Q.1–Q.10) No Negative Marking

1. <b>A</b>	2. <b>B</b>	3. <b>C</b>	4. <b>D</b>	5. <b>A</b>
6. <b>B</b>	7. <b>C</b>	8. <b>D</b>	9. <b>A</b>	10. <b>B</b>

## SECTION B — GK & CURRENT AFFAIRS (Q.11–Q.15) No Negative Marking

11. <b>C</b>	12. <b>D</b>	13. <b>A</b>	14. <b>B</b>	15. <b>C</b>
--------------	--------------	--------------	--------------	--------------

## SECTION C — PHYSICS (Q.16–Q.25) -0.25 for wrong

16. <b>D</b>	17. <b>A</b>	18. <b>B</b>	19. <b>C</b>	20. <b>D</b>
21. <b>A</b>	22. <b>B</b>	23. <b>C</b>	24. <b>D</b>	25. <b>A</b>

## SECTION D — CHEMISTRY (Q.26–Q.35) -0.25 for wrong

26. <b>B</b>	27. <b>C</b>	28. <b>D</b>	29. <b>A</b>	30. <b>B</b>
31. <b>C</b>	32. <b>D</b>	33. <b>A</b>	34. <b>B</b>	35. <b>C</b>

## SECTION E — BIOLOGY (Q.36–Q.50) -0.25 for wrong

36. <b>D</b>	37. <b>A</b>	38. <b>B</b>	39. <b>C</b>	40. <b>D</b>
41. <b>A</b>	42. <b>B</b>	43. <b>C</b>	44. <b>D</b>	45. <b>A</b>
46. <b>B</b>	47. <b>C</b>	48. <b>D</b>	49. <b>A</b>	50. <b>B</b>

## SECTION F — ENGLISH (Q.51–Q.60) -0.25 for wrong

51. <b>C</b>	52. <b>D</b>	53. <b>A</b>	54. <b>B</b>	55. <b>C</b>
56. <b>D</b>	57. <b>A</b>	58. <b>B</b>	59. <b>C</b>	60. <b>D</b>

**MARKING:** +2 correct | -0.25 wrong (Physics/Chemistry/Biology/English) | 0 unattempted | Max = 120