Test Dates: April 10, 11 & 12, 2026

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Chapter 1: Test Overview & Exam Strategy

Know the paper before you start preparing.

JST 2026 Test at a Glance

Detail	Information
Conducting Body	SIBA Testing Services (STS), Sukkur IBA
Post	Junior Science Teacher (JST) – BPS-14
Department	School Education & Literacy Department, Govt. of Sindh
Test Level	Graduation
Total MCQs	100 (No Negative Marking)
Test Dates	April 10, 11, and 12, 2026
Reporting Time	07:30 AM sharp
Test Cities	Karachi, Hyderabad, Sukkur, Larkana, Mirpurkhas, Shaheed Benazirabad

Marks Distribution by Subject

Subject	Weightage	Marks
English	10%	10
General Knowledge	10%	10
Teaching & Learning Pedagogies	20%	20
Biology	12%	12
Chemistry	12%	12
Physics	12%	12
Mathematics	12%	12
Computer Science	12%	12
TOTAL	**100%**	**100**

Smart Exam Strategy

- Start with Pedagogy (20 marks) — it is the single largest section and most scoring.
- Science subjects (Biology, Chemistry, Physics) together carry 36 marks — revise all three equally.

- Math and Computer (12 marks each) are very scoring if you know the basics. Do not skip them.
- English and GK together carry 20 marks — focused revision of 2–3 weeks is enough.
- There is NO negative marking. Attempt all 100 questions. Never leave a question blank.
- Arrive at the test center by 07:15 AM. Take color-printed admit slip + original CNIC.

■ *Exam Tip: Pedagogy alone = 20% of your total score. A candidate who masters Chapter 4 of this guide starts with a huge advantage over those who skip it.*

Chapter 2: English – 10 MCQs (10%)

Topics: Vocabulary, Parts of Speech, Punctuation, Reading Comprehension, Tenses, Active/Passive Voice, Direct & Indirect Speech

2.1 Vocabulary & Parts of Speech

Parts of speech: Noun, Pronoun, Verb, Adjective, Adverb, Preposition, Conjunction, Interjection. Questions often ask you to identify the part of speech of an underlined word, or to choose the correct synonym/antonym.

Word	Synonym / Antonym
Abundant	Plentiful / Scarce
Diligent	Hardworking / Lazy
Eloquent	Fluent / Inarticulate
Frugal	Thrifty / Wasteful
Obstinate	Stubborn / Flexible
Benevolent	Kind / Cruel
Meticulous	Careful / Careless
Ambiguous	Unclear / Clear

Practice MCQs – Vocabulary

Q1. Their diet is often grossly unbalanced. The word 'grossly' means:

A. Completely ✓

B. Nearly
C. Often
D. Frequently

Q2. A particular country might be generous. The antonym of 'generous' is:

A. Miserly ✓

B. Moderate
C. Extravagant
D. Frugal

Q3. The committee regrets that it cannot accede ___ your request.

A. for
B. to ✓
C. in
D. with

2.2 Tenses

The 12 tenses form three groups — Past, Present, Future — each with Simple, Continuous, Perfect, and Perfect Continuous forms. STS questions typically test simple present, simple past, present perfect, and past perfect.

Tense	Signal Words / Formula
Simple Present	every day / always — Subject + V1
Present Continuous	now / at this moment — is/am/are + V-ing
Present Perfect	just / already / yet / ever — has/have + V3
Simple Past	yesterday / ago / last — Subject + V2
Past Perfect	before / by the time — had + V3
Future Simple	tomorrow / next — will + V1

Practice MCQs – Tenses

Q4. She ___ in this school since 2015.

A. teaches
B. has taught ✓
C. is teaching
D. taught

Q5. By the time he arrived, the class ___.

A. already started
B. has already started
C. had already started ✓
D. will start

2.3 Active & Passive Voice

Active: Subject does the action. Passive: Subject receives the action. Formula — Passive = Object + is/am/are/was/were + V3 + (by Subject).

Q6. Active: The teacher teaches the students. Passive form is:

A. The students were taught by the teacher.
B. The students are taught by the teacher. ✓
C. The students have been taught by the teacher.
D. The students taught by the teacher.

2.4 Direct & Indirect Speech

Direct Speech Rule	Change in Indirect Speech
Present Simple →	Past Simple
Present Continuous →	Past Continuous

Present Perfect →	Past Perfect
'today' →	'that day'
'tomorrow' →	'the next day'
'said to' + name →	'told'
'said' (no object) →	'said'

Q7. He said, 'I am studying for the exam.' Indirect speech:

A. He said that he was studying for the exam. ✓

B. He said that he is studying for the exam.
C. He told that he was studying for the exam.
D. He said that he has been studying for the exam.

2.5 Reading Comprehension

Read every passage twice. Answer only from what the passage states — do not use outside knowledge. Practice identifying the main idea, supporting details, and the author's tone.

■ *Exam Tip: In STS English, tenses and voice carry the most MCQs. Master the 12 tense formulas and active-to-passive conversion rules to secure 7–8 marks out of 10.*

Chapter 3: General Knowledge – 10 MCQs (10%)

Topics: Social Studies, Pakistan Studies

3.1 Pakistan Studies – Key Facts

Topic	Key Fact
Independence	14 August 1947
First Governor-General	Quaid-e-Azam Muhammad Ali Jinnah
First Prime Minister	Liaquat Ali Khan
Capital	Islamabad (declared capital 1967)
Largest City	Karachi
Largest Province by Area	Balochistan
Largest Province by Population	Punjab
National Language	Urdu
National Flower	Jasmine
National Animal	Markhor
National Bird	Chukar Partridge
Highest Peak	K-2 (Godwin Austin) – 8,611 m
Longest River	Indus River
Largest Lake	Manchar Lake (Sindh)
First Constitution	1956
Total Area	881,913 sq km
Total Provinces	4 Provinces + AJK + GB + ICT
National Poet	Allama Iqbal
Pakistan Day	23 March (Resolution 1940)

3.2 Sindh – Key Facts

Topic	Key Fact
Capital	Karachi
Provincial Language	Sindhi

Largest City	Karachi
River	Indus River
Famous Historical Site	Mohenjo-daro (UNESCO World Heritage)
Sukkur Barrage	Built on Indus River in 1932
Famous for	Cotton, Rice, Wheat production

3.3 World & Social Studies GK

Topic	Key Fact
UNO Founded	24 October 1945
OIC Founded	1969, Headquarters: Jeddah
SAARC Founded	1985, HQ: Kathmandu
Largest Country by Area	Russia
Smallest Country	Vatican City
Largest Ocean	Pacific Ocean
Longest River	Nile (Africa)
Highest Mountain	Mount Everest – 8,849 m
First man in space	Yuri Gagarin (1961)
First man on moon	Neil Armstrong (1969)
Nobel Peace Prize	Awarded in Oslo, Norway
Internet invented	ARPANET (1969), WWW by Tim Berners-Lee (1989)

Practice MCQs – General Knowledge

Q1. The highest peak of the Salt Range is:

A. Nanga Parbat
B. Skaser ✓
C. Malka Parbat
D. K-2

Q2. What is the original name of K-2?

A. Mount Everest
B. Koh-i-Sufaid
C. Godwin Austin ✓
D. Killing Mountain

Q3. Mohenjo-daro is located in which province of Pakistan?

A. Punjab

B. KPK
C. Balochistan
D. Sindh ✓

Q4. The largest lake in Pakistan is:

A. Rawal Lake
B. Hub Dam
C. Manchar Lake ✓
D. Tarbela Dam

Q5. Pakistan became a republic on:

A. 14 August 1947
B. 23 March 1956 ✓
C. 14 August 1956
D. 7 October 1958

Q6. SAARC headquarters is located in:

A. New Delhi
B. Islamabad
C. Colombo
D. Kathmandu ✓

■ *Exam Tip: GK questions in STS tests are mostly about Pakistan geography, history, and basic world facts. Focus on the tables above — they cover 80% of what appears in past papers.*

Chapter 4: Teaching & Learning Pedagogies – 20 MCQs (20%)

Highest Weightage Section — MUST Master. Topics: VARK, SLOs, Teaching Methods, ICT, Assessment, STEAM, Classroom Management

4.1 VARK Learning Styles

Learning Style	Description & Best Teaching Strategy
Visual (V)	Learns best through diagrams, charts, maps, colours. Strategy: Use pictures, flowcharts, mind maps.
Auditory (A)	Learns best by listening and speaking. Strategy: Lectures, group discussion, storytelling, podcasts.
Read/Write (R)	Learns best through reading text and writing notes. Strategy: Textbooks, essays, lists, note-taking.
Kinesthetic (K)	Learns best by doing, touching, experiencing. Strategy: Lab work, field trips, hands-on activities, role play.

Q1. A student who learns best by working with physical materials and doing practical experiments is a ___ learner.

A. Visual
B. Auditory
C. Read/Write
D. Kinesthetic ✓

4.2 Lesson Planning & Student Learning Outcomes (SLOs)

An SLO (Student Learning Outcome) is a specific, measurable statement of what a student should know or be able to do after a lesson. SLOs must be SMART: Specific, Measurable, Achievable, Relevant, and Time-bound.

Component of Lesson Plan	Description
Title & Subject	Topic name, class, subject, duration
Objectives / SLOs	What students will learn — written in measurable terms
Introduction (Set Induction)	Hook activity to engage students at the start
Teaching Method	Strategy used (lecture, discussion, demo, etc.)
Teaching Aids / Materials	Textbook, chart, model, projector, lab equipment
Activity	Student task or practice exercise
Assessment	How learning will be measured — question, quiz, observation

Conclusion	Summary and wrap-up of key concepts
Follow-up / Homework	Practice work assigned for home

Q2. SLOs in lesson planning stand for:

A. Subject Learning Operations
B. Student Learning Outcomes ✓
C. Standard Learning Objectives
D. Study Level Outcomes

Q3. Which component of a lesson plan checks if students have understood the topic?

A. Introduction
B. Teaching Aid
C. Assessment ✓
D. Objective

4.3 Teaching Methodologies

Method	Description & When to Use
Lecture	Teacher delivers content verbally. Best for large classes, introducing new topics. One-way communication.
Discussion	Two-way exchange between teacher and students. Builds critical thinking and communication skills.
Demonstration	Teacher shows a process step-by-step. Best for science practicals, math procedures, skill-based learning.
Team Teaching	Two or more teachers plan and teach the same class together. Combines different expertise.
Case Study	Real-life situations are analyzed by students. Builds problem-solving and application skills.
Brainstorming	Students freely generate as many ideas as possible without criticism. Encourages creativity.
Storytelling	Content is delivered in narrative/story form. Especially effective for young learners and abstract concepts.

Q4. Which teaching method involves two or more teachers conducting a class together?

A. Discussion
B. Demonstration
C. Team Teaching ✓
D. Case Study

Q5. Brainstorming as a teaching technique is primarily used to:

A. Test student knowledge
B. Deliver new content
C. Encourage free idea generation ✓

D. Evaluate lesson outcomes

Q6. Demonstration method is most suitable for teaching:

A. History dates
B. Science experiments ✓
C. Poem recitation
D. Essay writing

4.4 Cognitive, Physical & Social Differences

Every classroom has students with different abilities. A good teacher recognizes and accommodates these differences.

Type of Difference	Description & Teaching Approach
Cognitive Differences	Differences in intelligence, memory, processing speed. Use differentiated instruction — vary the difficulty level of tasks for different students.
Physical Differences	Disabilities or health conditions. Ensure accessible seating, larger print materials, inclusive activities.
Social Differences	Differences in cultural background, family income, language. Create an inclusive classroom — respect all cultures, avoid stereotyping.

4.5 Use of ICT in Teaching

- ICT = Information and Communication Technology — includes computers, internet, projectors, smart boards, educational apps.
- ICT integration means using technology to support, enhance, and extend learning — not replace the teacher.
- Examples: Google Classroom, Zoom, PowerPoint presentations, educational YouTube videos, digital quizzes.
- Benefits: makes learning visual and interactive, allows self-paced learning, provides access to global resources.
- Challenge: requires electricity, devices, and internet access — not always available in rural schools.

Q7. Using a projector to display a diagram during a science lesson is an example of:

A. Demonstration method
B. ICT integration ✓
C. Storytelling
D. Classroom management

4.6 Assessment & Evaluation

Type	Description
Formative Assessment	Ongoing assessment during the learning process. Examples: quizzes, oral questions, class assignments, homework. Purpose: to improve learning.

Summative Assessment	Assessment at the end of a unit or term. Examples: final exams, term tests. Purpose: to grade and certify learning.
Diagnostic Assessment	Done before teaching begins to find out what students already know.
Peer Assessment	Students evaluate each other's work.
Self Assessment	Students evaluate their own performance.

Q8. A teacher gives a short quiz after each topic to check student understanding. This is an example of:

A. Summative assessment
B. Diagnostic assessment
C. Formative assessment ✓
D. Peer assessment

Q9. End-of-year examination results are used to decide promotion. This is:

A. Formative assessment
B. Summative assessment ✓
C. Diagnostic assessment
D. Self-assessment

4.7 Reflective Practice & Feedback

Reflective practice means a teacher critically evaluates their own lessons after delivery to identify strengths, weaknesses, and areas for improvement. It involves asking: What went well? What did not work? How can I improve next time?

Feedback is information given to students about their performance. Effective feedback is: specific, timely, constructive, and actionable.

Q10. A teacher reviews their lesson after class to find what went wrong and how to improve. This practice is called:

A. Lesson planning
B. Reflective practice ✓
C. Assessment
D. Classroom management

4.8 Classroom Management

- Classroom management is the process of ensuring the classroom runs smoothly and learning takes place.
- Key strategies: clear rules and routines, consistent discipline, positive reinforcement, engaged activities.
- Seating arrangement affects learning — U-shape promotes discussion, rows suit lectures.
- Time management: start and end on time, have transitions planned between activities.
- A well-managed classroom reduces behaviour problems and increases student learning time.

4.9 STEAM / STREAM Pedagogy & Project-Based Learning

STEAM = Science, Technology, Engineering, Arts, and Mathematics. STREAM adds Reading and wRiting. STEAM/STREAM pedagogy integrates these subjects through real-world projects rather than teaching them in isolation.

Project-Based Learning (PBL) is the main teaching strategy in STEAM. Students work on a complex real-world problem over an extended period, developing skills in collaboration, research, critical thinking, and communication.

PBL Step	Description
1. Essential Question	A real-world problem that drives the project
2. Research & Inquiry	Students gather information to solve the problem
3. Collaboration	Students work in teams
4. Product Creation	Students create a tangible output (model, report, presentation)
5. Presentation	Students share their findings with the class or community
6. Reflection	Students and teacher evaluate the process and outcome

Q11. STEAM stands for:

A. Science, Technology, Economics, Arts, Mathematics
B. Science, Technology, Engineering, Arts, Mathematics ✓
C. Social Studies, Technology, Engineering, Arts, Mathematics
D. Science, Training, Engineering, Arts, Mathematics

Q12. In Project-Based Learning, students primarily learn through:

A. Listening to lectures
B. Reading textbooks
C. Working on real-world problems ✓
D. Taking written tests

■ *Exam Tip: The Pedagogy section is where toppers are made. Focus especially on: Bloom's Taxonomy, VARK, SLOs, Formative vs Summative Assessment, and STEAM. These 5 topics alone cover at least 12 of the 20 pedagogy MCQs in past papers.*

4.10 Bloom's Taxonomy — Bonus High-Frequency Topic

Bloom's Taxonomy classifies educational objectives into 6 levels from lowest to highest cognitive skill:

Level (Low to High)	Description & Example Verb
1. Remember	Recall facts — Define, List, Name, Identify
2. Understand	Explain ideas — Describe, Summarize, Explain, Classify
3. Apply	Use information — Solve, Use, Demonstrate, Execute
4. Analyze	Break into parts — Compare, Differentiate, Examine, Break down
5. Evaluate	Make judgments — Judge, Defend, Justify, Critique

6. Create	Produce new work — Design, Construct, Develop, Formulate

Q13. The highest level of Bloom's Taxonomy is:

A. Evaluate
B. Analyze
C. Create ✓
D. Apply

Q14. Asking students to 'compare' two scientific theories requires which level of Bloom's Taxonomy?

A. Remember
B. Understand
C. Apply
D. Analyze ✓

Q15. The three domains of Bloom's Taxonomy are:

A. Cognitive, Affective and Psychomotor ✓
B. Cognitive, Pedagogy and Psychomotor
C. Cognitive, Affective and Pedagogy
D. Pedagogy, Affective and Psychomotor

Chapter 5: Biology – 12 MCQs (12%)

Topics: Cell Structure, Cell Division, Respiration, Evolution, Ecosystem, Living Organisms, Enzymes, Tissues, Organs & Systems

5.1 Cell Structure

Organelle	Function
Cell Membrane	Controls what enters/exits the cell (selectively permeable)
Cell Wall	Rigid outer layer in plant cells — gives shape and protection
Nucleus	Control centre — contains DNA and directs cell activities
Mitochondria	Powerhouse of the cell — produces ATP energy through respiration
Ribosome	Site of protein synthesis
Chloroplast	Found only in plant cells — site of photosynthesis
Vacuole	Storage organelle — large central vacuole in plant cells stores water
Endoplasmic Reticulum	Rough ER transports proteins; Smooth ER synthesizes lipids
Golgi Apparatus	Packages and ships proteins out of the cell

e	Prokaryotic Cell	Eukaryotic Cell
	No true nucleus (nucleoid only)	True membrane-bound nucleus
	Smaller (1–10 µm)	Larger (10–100 µm)
	Bacteria, Archaea	Animals, Plants, Fungi, Protists
anelles	Absent	Present

Q1. The powerhouse of the cell is:

A. Nucleus
B. Ribosome
C. Mitochondria ✓
D. Chloroplast

Q2. Cell wall is found in:

A. Animal cells only
B. Plant cells only ✓
C. Both plant and animal cells
D. Neither

Q3. Which organelle is responsible for protein synthesis?

A. Mitochondria

B. Golgi apparatus
C. Ribosome ✓
D. Vacuole

5.2 Cell Division

	Purpose	Key Events
	Growth, repair, asexual reproduction	PMAT: Prophase, Metaphase, Anaphase, Teloph identical daughter cells.
	Sexual reproduction	Two divisions (Meiosis I & II). Produces 4 genetic cells (gametes).

Q4. Mitosis produces:

A. 4 haploid cells
B. 2 identical diploid cells ✓
C. 2 haploid cells
D. 4 diploid cells

Q5. The correct order of mitosis stages is:

A. Metaphase, Prophase, Anaphase, Telophase
B. Prophase, Metaphase, Anaphase, Telophase ✓
C. Anaphase, Metaphase, Prophase, Telophase
D. Telophase, Anaphase, Metaphase, Prophase

5.3 Respiration

Cellular respiration is the process of breaking down glucose to release energy (ATP).

Type	Equation / Notes
Aerobic Respiration	Glucose + Oxygen → Carbon dioxide + Water + Energy (36–38 ATP). Occurs in mitochondria.
Anaerobic Respiration (Animals)	Glucose → Lactic acid + Small amount of energy (2 ATP). Occurs in cytoplasm.
Anaerobic Respiration (Yeast/Plants)	Glucose → Ethanol + Carbon dioxide + Small amount of energy.

Q6. Aerobic respiration takes place in:

A. Cytoplasm
B. Ribosome
C. Mitochondria ✓
D. Nucleus

Q7. Lactic acid is produced during:

A. Aerobic respiration
B. Photosynthesis
C. Anaerobic respiration in animals ✓

D. Digestion

5.4 Evolution

Darwin's Theory of Natural Selection: Organisms with favourable variations survive and reproduce (survival of the fittest). Over generations, these variations accumulate, leading to new species.

- Variation: Individuals differ from one another.
- Inheritance: Traits are passed from parent to offspring.
- Selection: Environment 'selects' those best adapted to survive.
- Time: Over many generations, small changes lead to new species.
- Lamarck's theory (incorrect): Organisms develop new traits during their lifetime and pass them on.

Q8. 'Survival of the fittest' is associated with:

A. Lamarck
B. Mendel
C. Darwin ✓
D. Pasteur

5.5 Ecosystem

Component	Description
Producers	Plants that make their own food through photosynthesis
Primary Consumers	Herbivores that eat producers (e.g., rabbits, grasshoppers)
Secondary Consumers	Carnivores that eat primary consumers (e.g., frogs, snakes)
Tertiary Consumers	Top carnivores (e.g., eagles, lions)
Decomposers	Bacteria and fungi that break down dead organisms
Food Chain	Linear sequence: Grass → Grasshopper → Frog → Eagle
Food Web	Multiple interconnected food chains
Energy Pyramid	Shows energy decreasing at each trophic level (only 10% transferred)

Q9. Which organism is a producer in a food chain?

A. Rabbit
B. Grasshopper
C. Green plant ✓
D. Frog

Q10. The percentage of energy transferred from one trophic level to the next is approximately:

A. 100%
B. 50%
C. 10% ✓
D. 1%

5.6 Enzymes

Enzymes are biological catalysts — proteins that speed up chemical reactions without being used up. Each enzyme works on a specific substrate (lock-and-key model).

Factor	Effect on Enzyme Activity
Temperature	Activity increases up to optimum (37°C for human enzymes), then drops rapidly (denaturation above ~45°C)
pH	Each enzyme has an optimum pH. Deviations above/below denature it.
Substrate Concentration	More substrate = faster reaction, up to a maximum (saturation point)
Enzyme Concentration	More enzyme = faster reaction if substrate is not limiting

Q11. Enzymes are made of:

A. Carbohydrates
B. Lipids
C. Proteins ✓
D. Nucleic acids

Q12. When an enzyme is denatured:

A. It works faster
B. Its active site changes shape permanently ✓
C. It produces more products
D. It becomes a substrate

5.7 Tissues, Organs & Systems

Animal Tissue Type	Description & Location
Epithelial Tissue	Covers body surfaces and lines organs (skin, gut lining)
Connective Tissue	Supports and connects organs (bone, cartilage, blood, fat)
Muscle Tissue	Enables movement: Skeletal (voluntary), Smooth (involuntary), Cardiac (heart)
Nervous Tissue	Transmits electrical signals (neurons)

■ *Exam Tip: In Biology MCQs, cell organelles, mitosis stages, enzyme denaturation, and food chains are the most frequently tested topics. Always remember: mitochondria = energy, ribosome = protein synthesis.*

Chapter 6: Chemistry – 12 MCQs (12%)

Topics: Atomic Structure, Bonding, Periodic Table, States of Matter, Thermochemistry, Acids/Bases, Mole Calculations, Equilibrium, Industrial Chemistry, Electrochemistry, Kinetics, Solutions

6.1 Atomic Structure

Location	Charge	
	+1	1 amu
	0	1 amu
eus	-1	~0 (negligibl

Atomic Number (Z) = Number of protons. Mass Number (A) = Protons + Neutrons. Isotopes = same element, same atomic number, different mass number (different neutrons).

Q1. Isotopes have the same number of:

A. Neutrons
B. Mass numbers
C. Protons ✓
D. Electrons in nucleus

Q2. The atomic number of an element is determined by the number of:

A. Neutrons
B. Protons ✓
C. Electrons in outer shell
D. Mass number

6.2 Chemical Bonding

pe	Description	Example
	Transfer of electrons from metal to non-metal. Forms ions (cations + anions).	NaCl (Sodium Chloride)
	Sharing of electron pairs between non-metal atoms.	H2O, CO2, CH4
	Positive metal ions surrounded by sea of free electrons.	Iron, Copper, Aluminium
	Weak attraction between H and electronegative atom (F, O, N).	Water molecules

Q3. Ionic bonds are formed by:

A. Sharing of electrons
B. Transfer of electrons ✓
C. Attraction of protons
D. Covalent sharing

6.3 Periodic Table

- Elements are arranged in order of increasing atomic number.
- Periods (rows): 7 periods. Elements in same period have same number of electron shells.
- Groups (columns): 18 groups. Elements in same group have same number of valence electrons and similar properties.
- Group 1 = Alkali Metals (e.g., Li, Na, K). Group 17 = Halogens. Group 18 = Noble Gases.
- Going across a period (left to right): atomic radius decreases, ionization energy increases.
- Going down a group: atomic radius increases, ionization energy decreases.

Q4. Elements in the same group of the periodic table have the same:

A. Number of neutrons
B. Atomic mass
C. Number of valence electrons ✓
D. Mass number

6.4 States of Matter & Gas Laws

w	Statement	Formula
	At constant temperature, pressure is inversely proportional to volume.	P1V1 = P2V2
	At constant pressure, volume is directly proportional to absolute temperature.	V1/T1 = V2/T2
	Equal volumes of gases at same T & P contain equal number of molecules.	V ∝ n

Q5. Boyle's law states that at constant temperature, pressure and volume are:

A. Directly proportional
B. Inversely proportional ✓
C. Equal
D. Unrelated

6.5 Acids & Bases

Concept	Description
Acid	pH < 7. Releases H+ ions in water. Turns blue litmus red. Examples: HCl, H2SO4, HNO3
Base	pH > 7. Releases OH- ions in water. Turns red litmus blue. Examples: NaOH, KOH, Ca(OH)2
Neutral	pH = 7. Example: pure water
Strong Acid	Completely ionizes: HCl, H2SO4, HNO3
Weak Acid	Partially ionizes: CH3COOH (acetic acid)
Neutralization	Acid + Base → Salt + Water. HCl + NaOH → NaCl + H2O

Q6. A solution with pH 3 is:

A. Neutral
B. Basic
C. Acidic ✓
D. Alkaline

Q7. NaOH + HCl → NaCl + H2O is an example of:

A. Decomposition
B. Neutralization ✓
C. Oxidation
D. Synthesis

6.6 Mole & Molarity Calculations

1 mole = 6.022 x 10(23) particles (Avogadro's Number). Molar mass = mass of 1 mole in grams = atomic/molecular weight in g/mol. Molarity (M) = moles of solute / volume of solution in litres.

Q8. Avogadro's number is approximately:

A. 6.022 x 10(21)
B. 6.022 x 10(23) ✓
C. 6.022 x 10(25)
D. 3.011 x 10(23)

6.7 Chemical Reactions & Kinetics

Reaction Type	Description & Example
Synthesis (Combination)	A + B → AB. Example: 2H2 + O2 → 2H2O
Decomposition	AB → A + B. Example: 2H2O2 → 2H2O + O2
Single Displacement	A + BC → AC + B. Example: Zn + CuSO4 → ZnSO4 + Cu
Double Displacement	AB + CD → AD + CB. Example: NaCl + AgNO3 → AgCl + NaNO3
Combustion	Fuel + O2 → CO2 + H2O. Example: CH4 + 2O2 → CO2 + 2H2O
Oxidation-Reduction	Loss/gain of electrons simultaneously

Rate of reaction depends on: concentration (more = faster), temperature (higher = faster), surface area (larger = faster), catalyst (speeds up without being consumed).

Q9. Which factor does NOT increase the rate of a chemical reaction?

A. Increasing temperature
B. Adding a catalyst
C. Increasing surface area
D. Decreasing concentration ✓

6.8 Industrial Chemistry

s	Product	Conditions
	Ammonia (NH3)	N2 + 3H2 → 2NH3 | 450°C, 200 atm, Iron catalys
	Sulfuric acid (H2SO4)	SO2 + O2 → SO3; SO3 + H2O → H2SO4 | V2O5
	Sodium carbonate (Na2CO3)	Uses salt, ammonia, and CO2

Q10. The Haber process is used to manufacture:

A. Sulfuric acid
B. Ammonia ✓
C. Sodium carbonate
D. Hydrochloric acid

6.9 Electrochemistry

Electrolysis = using electricity to drive a non-spontaneous chemical reaction. In an electrolytic cell: Oxidation occurs at the Anode (+). Reduction occurs at the Cathode (-). In a Galvanic/Voltaic cell: chemical reaction produces electricity (e.g., batteries).

Q11. In electrolysis, reduction occurs at the:

A. Anode
B. Cathode ✓
C. Electrolyte
D. Salt bridge

Q12. A galvanic cell converts:

A. Electrical energy to chemical energy
B. Chemical energy to electrical energy ✓
C. Heat to electricity
D. Light to electricity

■ *Exam Tip: Chemistry MCQs most frequently test: pH scale (acids/bases), gas laws (Boyle's/Charles's), Haber process, atomic structure (proton/neutron/electron), and mole/molarity. These topics appear in almost every past paper.*

Chapter 7: Physics – 12 MCQs (12%)

Topics: Mechanics, Thermal Physics, Waves, Electromagnetism, Atomic Physics, Nuclear Physics, Electronics

7.1 Mechanics

Concept	Formula / Key Fact
Speed	Distance / Time
Velocity	Displacement / Time (vector quantity)
Acceleration	Change in velocity / Time = (v-u)/t
Newton's 1st Law	An object remains at rest or in uniform motion unless acted on by an external force.
Newton's 2nd Law	F = ma (Force = mass x acceleration)
Newton's 3rd Law	For every action there is an equal and opposite reaction.
Gravitational Force	F = Gm1m2/r(2)
Work	W = F x d (Joules)
Kinetic Energy	KE = 1/2 mv(2)
Potential Energy	PE = mgh
Momentum	p = mv
Impulse	J = F x t = change in momentum

Q1. F = ma is a statement of Newton's:

A. 1st Law
B. 2nd Law ✓
C. 3rd Law
D. Law of Gravitation

Q2. The unit of force is:

A. Joule
B. Watt
C. Newton ✓
D. Pascal

Q3. Kinetic energy depends on:

A. Mass only
B. Velocity only
C. Both mass and velocity ✓
D. Neither mass nor velocity

7.2 Thermal Physics

Law / Concept	Statement
Boyle's Law	P1V1 = P2V2 (constant temperature)
Charles's Law	V1/T1 = V2/T2 (constant pressure)
Avogadro's Law	Equal volumes of gases = equal number of molecules
1st Law of Thermodynamics	Energy cannot be created or destroyed (Conservation of Energy). dU = Q - W
2nd Law of Thermodynamics	Heat flows naturally from hot to cold. Entropy of an isolated system increases.
Temperature Scales	Celsius to Kelvin: K = C + 273. Celsius to Fahrenheit: F = (C x 9/5) + 32

Q4. 0 degrees Celsius is equal to ___ Kelvin:

A. 0
B. 100
C. 273 ✓
D. 373

Q5. The first law of thermodynamics is essentially a statement of:

A. Conservation of momentum
B. Conservation of energy ✓
C. Newton's second law
D. Entropy

7.3 Waves

Property	Description
Amplitude	Maximum displacement from rest position. Relates to loudness (sound) or brightness (light).
Frequency (f)	Number of waves per second. Unit: Hertz (Hz)
Wavelength (λ)	Distance between two consecutive peaks. Unit: metres
Wave Speed (v)	v = f x λ
Longitudinal Wave	Vibration is parallel to direction of travel. Example: Sound waves.
Transverse Wave	Vibration is perpendicular to direction of travel. Example: Light waves, water waves.

Q6. Sound waves are:

A. Transverse
B. Longitudinal ✓
C. Electromagnetic

D. Both transverse and longitudinal

Q7. The formula for wave speed is:

A. v = fλ ✓

B. v = f/λ
C. v = λ/f
D. v = f + λ

7.4 Electromagnetism

Concept	Formula / Key Fact
Coulomb's Law	F = kq1q2/r(2). Force between two charges.
Electric Field	Region around a charge where force acts. E = F/q
Ohm's Law	V = IR (Voltage = Current x Resistance)
Series Circuit	Same current through all components. Total R = R1 + R2 + R3
Parallel Circuit	Same voltage across all components. 1/R = 1/R1 + 1/R2 + 1/R3
Capacitor	Stores electrical energy. Two conducting plates separated by insulator.
Magnetic Field	Created by moving charges / electric current

Q8. In a series circuit, the current through each component is:

A. Different
B. The same ✓
C. Zero
D. Unpredictable

Q9. V = IR is a statement of:

A. Newton's Law
B. Ohm's Law ✓
C. Faraday's Law
D. Coulomb's Law

7.5 Atomic Physics & Optics

Topic	Key Fact
Bohr Model	Electrons orbit the nucleus in fixed energy levels. When electron jumps to lower level, it emits energy (light).
Law of Reflection	Angle of incidence = Angle of reflection
Snell's Law (Refraction)	n1 sin(θ1) = n2 sin(θ2)
Lens Formula	1/f = 1/v - 1/u
Concave Lens	Diverging lens — corrects myopia (short-sightedness)

Convex Lens	Converging lens — corrects hypermetropia (long-sightedness)
Compound Microscope	Two convex lenses — objective and eyepiece. Magnifies very small objects.

Q10. The angle of incidence equals the angle of reflection. This is the law of:

A. Refraction
B. Reflection ✓
C. Snell
D. Diffraction

Q11. A convex lens is used to correct:

A. Myopia
B. Astigmatism
C. Hypermetropia ✓
D. Colour blindness

7.6 Nuclear Physics & Electronics

Concept	Description
Alpha (α) decay	Emits 2 protons + 2 neutrons (Helium nucleus). Least penetrating, stopped by paper.
Beta (β) decay	Emits high-speed electron. Stopped by thin aluminium.
Gamma (γ) radiation	High-energy electromagnetic wave. Most penetrating, needs thick lead to stop.
Half-Life	Time for half of a radioactive sample to decay.
Nuclear Fission	Heavy nucleus splits into smaller nuclei + energy. Used in nuclear reactors.
Logic Gates	AND (output 1 only if both inputs are 1), OR (output 1 if at least one input is 1), NOT (output is inverse of input)
Binary System	Base-2 number system using 0 and 1.

Q12. Which type of radiation is most penetrating?

A. Alpha
B. Beta
C. Gamma ✓
D. X-ray

■ *Exam Tip: Physics MCQs most often test Newton's laws (F=ma), Ohm's law (V=IR), wave speed formula (v=fλ), types of radiation, and the law of reflection. Memorise all formulas in the table above.*

Chapter 8: Mathematics – 12 MCQs (12%)

Topics: Numbers & Operations, Algebra, Measurement, Statistics & Probability

8.1 Numbers & Operations

- LCM (Least Common Multiple): Smallest number divisible by all given numbers.
- HCF (Highest Common Factor): Largest number that divides all given numbers.
- Prime Numbers: Divisible only by 1 and themselves. Examples: 2, 3, 5, 7, 11, 13, 17, 19, 23.
- Composite Numbers: Have more than 2 factors. Examples: 4, 6, 8, 9, 10.
- Note: 1 is neither prime nor composite. 2 is the only even prime number.

Q1. What is the LCM of 12 and 18?

A. 6
B. 24
C. 36 ✓
D. 72

Q2. Which of the following is NOT a prime number?

A. 17
B. 23
C. 27 ✓
D. 31

8.2 Ratio, Percentage & Financial Arithmetic

Percentage Change = (New Value - Old Value) / Old Value x 100. Simple Interest = PRT/100. Compound Interest = P(1 + r/100)^n - P. Profit% = Profit/Cost Price x 100. Loss% = Loss/Cost Price x 100.

Q3. A shopkeeper buys an item for Rs. 400 and sells it for Rs. 500. What is the profit percentage?

A. 20%
B. 25% ✓
C. 15%
D. 10%

Q4. Simple interest on Rs. 1000 at 10% per annum for 2 years is:

A. Rs. 100
B. Rs. 200 ✓
C. Rs. 150
D. Rs. 250

Q5. If 30% of a number is 90, the number is:

A. 270 ✓
B. 300
C. 180
D. 260

8.3 Algebra

Key rules: (a+b)^2 = a^2 + 2ab + b^2. (a-b)^2 = a^2 - 2ab + b^2. (a+b)(a-b) = a^2 - b^2. To solve equations: perform same operation on both sides to isolate the variable.

Q6. If 3x + 7 = 22, then x = ?

A. 3
B. 4
C. 5 ✓
D. 6

Q7. The value of (a+b)^2 - (a-b)^2 equals:

A. 2ab
B. 4ab ✓
C. a^2 - b^2
D. 2(a^2 + b^2)

8.4 Coordinate Geometry

Distance Formula: d = sqrt((x2-x1)^2 + (y2-y1)^2). Midpoint Formula: M = ((x1+x2)/2, (y1+y2)/2). Slope (gradient) = (y2-y1)/(x2-x1). Equation of a line: y = mx + c (m = slope, c = y-intercept).

Q8. The distance between points (0,0) and (3,4) is:

A. 3
B. 4
C. 5 ✓
D. 7

Q9. The midpoint of (2,4) and (6,8) is:

A. (4,6) ✓
B. (3,5)
C. (4,4)
D. (8,12)

8.5 Measurement – Surface Area & Volume

	Area / Surface Area	Volume
	L x W	—
	π r(2)	—
	6a(2)	a(3)
	2(lb + bh + lh)	l x b x h
	2πr(r+h)	πr(2)h
	πr(r+l)	(1/3)πr(2)h
	4πr(2)	(4/3)πr(3)

Q10. The volume of a cube with side 5 cm is:

A. 25 cm^3
B. 75 cm^3
C. 125 cm^3 ✓
D. 100 cm^3

8.6 Statistics & Probability

Mean = Sum of all values / Number of values. Median = Middle value when arranged in order. Mode = Most frequently occurring value. Probability = Favourable outcomes / Total outcomes. Probability always ranges from 0 to 1.

Q11. The mean of 5, 10, 15, 20, 25 is:

A. 12
B. 13
C. 15 ✓
D. 17

Q12. A die is thrown once. What is the probability of getting an even number?

A. 1/6
B. 1/3
C. 1/2 ✓
D. 2/3

■ *Exam Tip: In Math MCQs, percentage problems, simple interest, LCM/HCF, and basic probability questions appear in almost every STS test. Practice speed calculation — you have less than 1 minute per question.*

Chapter 9: Computer Science – 12 MCQs (12%)

Topics: Computer Basics, Generations, OS, Office Automation, Networking, Web Development, Cyber Security, DBMS

9.1 Introduction to Computers & Types

Type	Description & Example
Supercomputer	Fastest, most powerful. Used for weather forecasting, nuclear research.
Mainframe Computer	Handles large data processing. Used by banks, governments.
Minicomputer	Medium-sized. Used by universities, factories.
Microcomputer (PC)	Desktop, laptop, tablet. Most common type for personal use.
Embedded Computer	Built into devices (washing machine, microwave, ATM).
Input Devices	Keyboard, Mouse, Scanner, Microphone, Webcam
Output Devices	Monitor, Printer, Speakers, Projector
Storage Devices	Hard Disk, SSD, USB Drive, DVD

Q1. Which type of computer is used for weather forecasting and nuclear research?

A. Microcomputer
B. Mainframe
C. Minicomputer
D. Supercomputer ✓

9.2 Generations of Computers

on	Technology	Era
	Vacuum Tubes	1940s–1950s
	Transistors	1950s–1960s
	Integrated Circuits (ICs)	1960s–1970s
	Microprocessors	1970s–present
	Artificial Intelligence	Present & Future

Q2. The first generation of computers used:

A. Transistors
B. Vacuum tubes ✓
C. Integrated circuits

D. Microprocessors

Q3. The fourth generation of computers is characterized by:

A. Vacuum tubes
B. Transistors
C. Integrated circuits
D. Microprocessors ✓

9.3 Operating System

An Operating System (OS) is system software that manages hardware and software resources and provides common services. Examples: Windows, macOS, Linux, Android, iOS.

OS Function	Description
Process Management	Manages running programs (processes) — scheduling, execution
Memory Management	Allocates RAM to programs, manages virtual memory
File Management	Organizes files and folders on storage devices
I/O Management	Controls input and output devices
User Interface	CLI (Command Line) or GUI (Graphical User Interface)

Q4. Which of the following is NOT an operating system?

A. Windows
B. Linux
C. MS Word ✓
D. Android

Q5. The main function of an operating system is to:

A. Edit documents
B. Manage hardware and software resources ✓
C. Browse the internet
D. Write programs

9.4 Office Automation – MS Office

Application	Key Features & Shortcuts
MS Word	Word processor. Ctrl+S = Save, Ctrl+C = Copy, Ctrl+V = Paste, Ctrl+Z = Undo, Ctrl+P = Print, Ctrl+B = Bold, Ctrl+I = Italic. Landscape = horizontal page orientation.
MS Excel	Spreadsheet. Ctrl+S = Save workbook. SUM formula: =SUM(A1:A10). AVERAGE: =AVERAGE(A1:A10). Rows are horizontal, Columns are vertical.
MS PowerPoint	Presentation software. Slides, transitions, animations. F5 = Start slideshow. Ctrl+M = New slide.

Q6. What does Landscape orientation mean in MS Word?

A. Horizontal page ✓

B. Vertical page
C. Portrait mode
D. Narrow page

Q7. To save a workbook in MS Excel, the keyboard shortcut is:

A. Alt+S
B. Ctrl+S ✓
C. Shift+S
D. Ctrl+F2

9.5 Computer Networking

Term	Description
LAN (Local Area Network)	Covers a small area (home, school, office). Fastest connection.
MAN (Metropolitan Area Network)	Covers a city or campus.
WAN (Wide Area Network)	Covers large geographic areas (countries). Internet is the largest WAN.
IP Address	Unique numerical address for each device on a network. Example: 192.168.1.1
HTTP	HyperText Transfer Protocol — used to transfer web pages
HTTPS	Secure version of HTTP — encrypted
FTP	File Transfer Protocol — used to transfer files
TCP/IP	Transmission Control Protocol/Internet Protocol — foundation of internet communication
Router	Device that connects different networks and directs data packets
Bandwidth	Amount of data that can be transmitted per second

Q8. The internet is an example of:

A. LAN
B. MAN
C. WAN ✓
D. PAN

Q9. HTTP stands for:

A. HyperText Transfer Protocol ✓

B. HighText Transfer Protocol
C. HyperText Transport Process
D. HyperTech Transfer Protocol

9.6 Web Development Basics

Technology	Role
HTML (HyperText Markup Language)	Defines the structure/content of a web page
CSS (Cascading Style Sheets)	Controls the appearance/styling of a web page
JavaScript	Adds interactivity and dynamic behaviour to web pages
URL (Uniform Resource Locator)	Web address used to locate a resource online
Browser	Software to access web pages (Chrome, Firefox, Edge, Safari)

Q10. Which language defines the structure of a web page?

A. CSS ✓

B. JavaScript
C. HTML
D. PHP

9.7 Cyber Security & DBMS

Term	Description
Phishing	Fraudulent attempt to steal sensitive information via fake emails/websites
Malware	Malicious software (viruses, trojans, ransomware, spyware)
Ransomware	Malware that encrypts files and demands payment for decryption
Firewall	Security system that monitors and controls network traffic
Ethical Hacking	Authorized testing of a system's security to find and fix vulnerabilities
DBMS	Database Management System — software to create, manage, and query databases
Table	Basic unit of a database — rows (records) and columns (fields)
SQL	Structured Query Language — used to interact with databases
Primary Key	Unique identifier for each record in a database table
Foreign Key	Field that links one table to another

Q11. Ransomware is a type of:

A. Antivirus
B. Database software
C. Malware that encrypts files for ransom ✓
D. Firewall

Q12. In a database, a Primary Key is used to:

A. Sort records alphabetically
B. Uniquely identify each record ✓

C. Link two databases
D. Encrypt data

■ *Exam Tip: Computer MCQs most frequently test MS Office shortcuts (Ctrl+S, Ctrl+C, etc.), network types (LAN/WAN), generations of computers, and basic HTML/CSS definitions. These topics appear in 95% of past papers.*

Chapter 10: Full Mock Test – 100 MCQs

Based on Official STS SIBA Pattern | Time: 90 minutes | No Negative Marking

Instructions: Attempt all questions. Circle the correct option. Time limit: 90 minutes. Total Marks: 100. This mock test is designed to simulate the actual JST 2026 exam paper.

SECTION A – ENGLISH (Questions 1–10)

Q1. The sun rose before I got up. Identify the error:

A. The sun
B. rose
C. before
D. I got up ✓

Q2. George has not completed the assignment yet and Maria hasn't ___.

A. neither
B. either ✓
C. also
D. too

Q3. She ___ here since 2010.

A. works
B. worked
C. has worked ✓
D. is working

Q4. He said, 'I will come tomorrow.' Indirect speech:

A. He said he will come the next day.
B. He said he would come the next day. ✓
C. He told he would come tomorrow.
D. He said he came next day.

Q5. The antonym of 'diligent' is:

A. Hardworking
B. Lazy ✓
C. Careful
D. Prompt

Q6. Our college is affiliated ___ the University of Sindh.

A. for
B. in
C. with ✓
D. at

Q7. Active: The manager approved the plan. Passive form:

A. The plan was approved by the manager. ✓

B. The plan approved by the manager.
C. The plan has been approved by manager.
D. The plan is approved by manager.

Q8. Which sentence uses the Past Perfect correctly?

A. She has left before I arrived.
B. She left before I had arrived.
C. She had left before I arrived. ✓
D. She was left before I arrived.

Q9. The synonym of 'eloquent' is:

A. Silent
B. Fluent ✓
C. Confused
D. Timid

Q10. Reading Comprehension: (Based on the passage in the IBA sample paper) A globe is shaped like:

A. A box
B. A pyramid
C. An orange ✓
D. An ice cream cone

SECTION B – GENERAL KNOWLEDGE (Questions 11–20)

Q11. The original name of K-2 is:

A. Mount Everest
B. Koh-i-Sufaid
C. Godwin Austin ✓
D. Killing Mountain

Q12. Pakistan's first constitution was enacted in:

A. 1947
B. 1956 ✓
C. 1962
D. 1973

Q13. Mohenjo-daro is a UNESCO World Heritage Site located in:

A. Punjab
B. KPK
C. Sindh ✓
D. Balochistan

Q14. The largest province of Pakistan by population is:

A. Sindh
B. KPK
C. Punjab ✓
D. Balochistan

Q15. Allama Iqbal is the national poet of Pakistan. His famous poem for children is:

A. Shikwa
B. Jawab-e-Shikwa
C. Lab pe aati hai dua ✓
D. Bang-e-Dra

Q16. The headquarters of SAARC is located in:

A. New Delhi
B. Islamabad
C. Kathmandu
D. Colombo ✓

Q17. Sukkur Barrage was built on which river?

A. Jhelum
B. Chenab
C. Ravi
D. Indus ✓

Q18. Pakistan's Independence Day is celebrated on:

A. 23 March
B. 6 September
C. 14 August ✓
D. 25 December

Q19. The longest river of Pakistan is:

A. Jhelum
B. Ravi
C. Chenab
D. Indus ✓

Q20. The United Nations was established on:

A. 14 August 1945
B. 24 October 1945 ✓
C. 26 June 1945
D. 10 December 1948

SECTION C – PEDAGOGY (Questions 21–40)

Q21. The highest level of Bloom's Taxonomy is:

A. Evaluate
B. Analyze
C. Apply
D. Create ✓

Q22. A student who prefers hands-on activities is a ___ learner.

A. Visual
B. Auditory
C. Read/Write
D. Kinesthetic ✓

Q23. Educational evaluation is a process by which a teacher can assess:

A. Teaching only
B. Performance of teacher
C. Performance of teacher and students ✓
D. Students performance only

Q24. Which teaching method involves students freely generating ideas?

A. Demonstration
B. Brainstorming ✓
C. Lecture
D. Case Study

Q25. SLO stands for:

A. Subject Learning Operations
B. Student Learning Outcomes ✓
C. Standard Level Objectives
D. Study-based Learning Outcomes

Q26. The three domains of Bloom's Taxonomy are:

A. Cognitive, Affective and Psychomotor ✓
B. Cognitive, Pedagogy and Psychomotor
C. Cognitive, Affective and Pedagogy
D. Pedagogy, Affective and Psychomotor

Q27. STEAM pedagogy integrates which subjects?

A. Science, Theory, Engineering, Arts, Mathematics
B. Science, Technology, Engineering, Arts, Mathematics ✓
C. Social Studies, Technology, Education, Arts, Mathematics
D. Science, Technology, English, Arts, Mathematics

Q28. Formative assessment is done:

A. At the end of the year
B. Before teaching begins
C. During the learning process ✓
D. Only in examinations

Q29. A teacher who critically evaluates their own lessons to improve is engaged in:

A. Classroom management
B. Reflective practice ✓
C. Summative assessment
D. Lesson planning

Q30. ICT in education stands for:

A. Information and Communication Technology ✓
B. International Computer Technology
C. Integrated Classroom Teaching
D. Information and Computer Training

Q31. Which teaching method is most suitable for science experiments?

A. Lecture

B. Brainstorming
C. Demonstration ✓
D. Storytelling

Q32. Team teaching involves:
A. One teacher and a student assistant
B. Two or more teachers teaching the same class together ✓
C. A teacher using technology
D. A student teaching other students

Q33. Project-Based Learning is a key feature of:
A. Lecture method
B. STEAM/STREAM Pedagogy ✓
C. Diagnostic assessment
D. Indirect speech

Q34. According to John Dewey, the basis of the educational process is:
A. Economical
B. Sociological ✓
C. Philosophical
D. Psychological

Q35. A curriculum is:
A. A single textbook
B. A set of courses and their content offered at an institution ✓
C. A type of assessment
D. A teaching methodology

Q36. Which type of assessment is used at the beginning of a unit to find out prior knowledge?
A. Formative
B. Summative
C. Diagnostic ✓
D. Peer

Q37. VARK stands for:
A. Verbal, Audio, Reading, Kinesthetic
B. Visual, Auditory, Read/Write, Kinesthetic ✓
C. Visual, Active, Reading, Knowledge
D. Verbal, Active, Reading, Kinesthetic

Q38. Differentiated instruction refers to:
A. Teaching only gifted students
B. Using only one teaching method
C. Adjusting teaching to accommodate different student needs and abilities ✓
D. Giving different homework to boys and girls

Q39. The purpose of feedback in teaching is to:
A. Punish students for wrong answers
B. Inform students about their performance to help them improve ✓
C. Assign grades

D. Prepare report cards

Q40. Classroom management primarily aims to:

A. Keep students silent
B. Ensure learning takes place in an orderly environment ✓
C. Discipline students
D. Reduce the teacher's workload

SECTION D – BIOLOGY (Questions 41–52)

Q41. The powerhouse of the cell is:

A. Nucleus
B. Ribosome
C. Mitochondria ✓
D. Chloroplast

Q42. Mitosis produces:

A. 4 haploid cells
B. 2 identical diploid cells ✓
C. 2 haploid cells
D. 4 diploid cells

Q43. Aerobic respiration occurs in the:

A. Nucleus
B. Ribosome
C. Mitochondria ✓
D. Cytoplasm

Q44. Enzymes are composed of:

A. Carbohydrates
B. Lipids
C. Proteins ✓
D. Nucleic acids

Q45. Darwin's theory of evolution is based on:

A. Use and disuse
B. Natural selection ✓
C. Acquired characters
D. Mutation only

Q46. Producers in an ecosystem are:

A. Animals
B. Bacteria
C. Green plants ✓
D. Fungi

Q47. Which tissue covers the outer surface of the body?

A. Muscular
B. Connective
C. Nervous

D. Epithelial ✓

Q48. Cell wall in plants is made of:

A. Protein
B. Cellulose ✓
C. Lipids
D. Starch

Q49. Lactic acid is produced in animals during:

A. Aerobic respiration
B. Photosynthesis
C. Anaerobic respiration ✓
D. Digestion

Q50. Meiosis takes place in:

A. Skin cells
B. Bone cells
C. Liver cells
D. Reproductive cells ✓

Q51. Which organ produces insulin?

A. Liver
B. Kidney
C. Pancreas ✓
D. Stomach

Q52. At which temperature do human enzymes work best?

A. 25°C
B. 30°C
C. 37°C ✓
D. 45°C

SECTION E – CHEMISTRY (Questions 53–64)

Q53. Atomic number = number of:

A. Neutrons
B. Protons ✓
C. Electrons in outer shell
D. Mass number

Q54. Isotopes differ in the number of:

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

Q55. NaCl is an example of:

A. Covalent bond
B. Ionic bond ✓

C. Metallic bond
D. Hydrogen bond

Q56. pH of a neutral solution is:

A. 0
B. 7 ✓
C. 14
D. 1

Q57. Boyle's law states that at constant temperature, P and V are:

A. Directly proportional
B. Inversely proportional ✓
C. Equal
D. Unrelated

Q58. The Haber process produces:

A. Sulfuric acid
B. Ammonia ✓
C. Sodium carbonate
D. Nitric acid

Q59. Avogadro's number is approximately:

A. 6.022x10(21)
B. 6.022x10(23) ✓
C. 3.011x10(23)
D. 6.022x10(25)

Q60. In electrolysis, oxidation occurs at the:

A. Cathode
B. Anode ✓
C. Electrolyte
D. Battery

Q61. Neutralization reaction produces:

A. Acid and water
B. Salt and water ✓
C. Base and acid
D. Gas and water

Q62. Which factor increases the rate of a chemical reaction?

A. Decreasing temperature
B. Decreasing surface area
C. Adding a catalyst ✓
D. Decreasing concentration

Q63. Elements in the same group have the same number of:

A. Neutrons
B. Mass number
C. Valence electrons ✓
D. Protons

Q64. Molarity is expressed in units of:

A. grams/litre
B. moles/litre ✓
C. grams/100mL
D. litres/mole

SECTION F – PHYSICS (Questions 65–76)

Q65. F = ma is Newton's:

A. 1st Law
B. 2nd Law ✓
C. 3rd Law
D. Law of Gravitation

Q66. KE = 1/2 mv^2. If mass doubles at same velocity, KE becomes:

A. Same
B. Double ✓
C. Quadruple
D. Half

Q67. Sound waves are:

A. Transverse
B. Electromagnetic
C. Longitudinal ✓
D. Light waves

Q68. V = IR is:

A. Newton's Law
B. Ohm's Law ✓
C. Faraday's Law
D. Coulomb's Law

Q69. The angle of incidence equals the angle of reflection. This is the:

A. Law of refraction
B. Law of reflection ✓
C. Snell's law
D. Lens equation

Q70. Which radiation is most penetrating?

A. Alpha
B. Beta
C. Gamma ✓
D. Ultraviolet

Q71. 0 degree Celsius = ___ Kelvin:

A. 0
B. 100
C. 273 ✓
D. 373

Q72. The formula for wave speed is:

A. v = fλ ✓

B. v = f/λ
C. v = λ/f
D. v = f+λ

Q73. A convex lens is used to correct:

A. Myopia
B. Hypermetropia ✓
C. Astigmatism
D. Colour blindness

Q74. In a series circuit:

A. Voltage is same across all components
B. Current is same through all components ✓
C. Resistance decreases
D. Power increases

Q75. Nuclear fission means:

A. Atoms combining
B. Heavy nucleus splitting ✓
C. Electron jumping
D. Proton emission

Q76. The AND logic gate gives output 1:

A. When any input is 1
B. Only when all inputs are 1 ✓
C. When no input is 1
D. When one input is 0

SECTION G – MATHEMATICS (Questions 77–88)

Q77. LCM of 12 and 18 is:

A. 6
B. 24
C. 36 ✓
D. 72

Q78. Which is NOT a prime number?

A. 17
B. 23
C. 27 ✓
D. 31

Q79. Simple interest on Rs. 1000 at 10% per year for 2 years:

A. Rs. 100
B. Rs. 200 ✓
C. Rs. 150
D. Rs. 250

Q80. If 3x + 7 = 22, then x =

A. 3
B. 4
C. 5 ✓
D. 6

Q81. Distance between (0,0) and (3,4):

A. 3
B. 4
C. 5 ✓
D. 7

Q82. Volume of cube with side 5 cm:

A. 25 cm^3
B. 75 cm^3
C. 125 cm^3 ✓
D. 100 cm^3

Q83. Mean of 5, 10, 15, 20, 25:

A. 12
B. 13
C. 15 ✓
D. 17

Q84. Probability of even number on a die:

A. 1/6
B. 1/3
C. 1/2 ✓
D. 2/3

Q85. 30% of a number is 90. The number is:

A. 270 ✓
B. 300
C. 180
D. 260

Q86. Midpoint of (2,4) and (6,8):

A. (4,6) ✓
B. (3,5)
C. (4,4)
D. (8,12)

Q87. Profit on cost price Rs. 400, selling price Rs. 500:

A. 20%
B. 25% ✓
C. 15%
D. 10%

Q88. (a+b)^2 - (a-b)^2 =

A. 2ab

B. 4ab ✓

C. a^2-b^2
D. 2(a^2+b^2)

SECTION H – COMPUTER SCIENCE (Questions 89–100)

Q89. Which computer is used for weather forecasting?

A. Microcomputer
B. Mainframe
C. Minicomputer
D. Supercomputer ✓

Q90. First generation computers used:

A. Transistors
B. Vacuum tubes ✓
C. ICs
D. Microprocessors

Q91. Which is NOT an operating system?

A. Windows
B. Linux
C. MS Word ✓
D. Android

Q92. Landscape orientation in MS Word means:

A. Vertical page
B. Horizontal page ✓
C. Portrait mode
D. Narrow margin

Q93. Ctrl+S in MS Excel:

A. Cuts selected cell
B. Saves workbook ✓
C. Sorts data
D. Sums values

Q94. The internet is an example of:

A. LAN
B. MAN
C. WAN ✓
D. PAN

Q95. HTTP stands for:

A. HyperText Transfer Protocol ✓
B. High Text Transfer Protocol
C. HyperTech Transfer Process
D. HyperText Transport Protocol

Q96. HTML is used to define:

A. Styling of a web page
B. Structure of a web page ✓
C. Database queries
D. Network connections

Q97. Ransomware is a type of:

A. Antivirus
B. Firewall
C. Malware ✓
D. Search engine

Q98. Primary Key in a database:

A. Sorts records
B. Uniquely identifies each record ✓
C. Links two tables
D. Encrypts data

Q99. Which of the following is an input device?

A. Monitor
B. Printer
C. Keyboard ✓
D. Speaker

Q100. 4th generation computers used:

A. Vacuum tubes
B. Transistors
C. ICs
D. Microprocessors ✓

Answer Key — Mock Test

Q1: D	Q2: B	Q3: C	Q4: B	Q5: B	Q6: C	Q7: A	Q8: C	Q9: B	Q10: C
Q11: C	Q12: B	Q13: C	Q14: C	Q15: C	Q16: D	Q17: D	Q18: C	Q19: D	Q20: B
Q21: D	Q22: D	Q23: C	Q24: B	Q25: B	Q26: A	Q27: B	Q28: C	Q29: B	Q30: A
Q31: C	Q32: B	Q33: B	Q34: B	Q35: B	Q36: C	Q37: B	Q38: C	Q39: B	Q40: B
Q41: C	Q42: B	Q43: C	Q44: C	Q45: B	Q46: C	Q47: D	Q48: B	Q49: C	Q50: D
Q51: C	Q52: C	Q53: B	Q54: C	Q55: B	Q56: B	Q57: B	Q58: B	Q59: B	Q60: B
Q61: B	Q62: C	Q63: C	Q64: B	Q65: B	Q66: B	Q67: C	Q68: B	Q69: B	Q70: C
Q71: C	Q72: A	Q73: B	Q74: B	Q75: B	Q76: B	Q77: C	Q78: C	Q79: B	Q80: C
Q81: C	Q82: C	Q83: C	Q84: C	Q85: A	Q86: A	Q87: B	Q88: B	Q89: D	Q90: B
Q91: C	Q92: B	Q93: B	Q94: C	Q95: A	Q96: B	Q97: C	Q98: B	Q99: C	Q100: D

■ *Exam Tip: Mock test complete! Review every wrong answer against the relevant chapter. Aim to score 75+ in this mock before your actual test. Good luck on April 10/11/12, 2026!*