National Textile University, Faisalabad

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ENTRY TEST GUIDE BOOK 2026

For ICS PHYSICS Group Applicants

Undergraduate Admissions Preparation Guide

- BS Computer Science
- BS Artificial Intelligence
- BS Software Engineering
- BS Computer Engineering Technology

Prepared by:
Admissions Office
National Textile University

Director Admissions:
Dr. Naseer Ahmad

NATIONAL TEXTILE UNIVERSITY

Faisalabad, Pakistan

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Contents

PREFACE

This comprehensive guide is specially designed by the **Admissions Office** for candidates seeking admission to undergraduate programs at **National Textile University (NTU), Faisalabad**. The university is a premier institution in Pakistan, renowned for its excellence in textile education, engineering, and computer sciences.

About NTU

National Textile University, located in Faisalabad, is the only university in Pakistan dedicated to textile education. It offers state-of-the-art facilities, experienced faculty, and strong industry linkages. The university has expanded its programs to include cutting-edge fields like Artificial Intelligence, Software Engineering, and Computer Engineering Technology.

General Admission Criteria

- Minimum 50% marks in FSc/ICS (Physics Group) or equivalent
- For A-Level: Three A-Levels (Mathematics, Physics, Computer Science) with IBCC equivalence
- DAE in relevant field also eligible for technology programs
- ICS with Physics, Mathematics, Computer Science, or equivalent

Minimum Eligibility Criteria - As per NTU Policy

Program	Minimum FSc/ICS (Part-I & II) Marks
BS Computer Science	50%
BS Software Engineering	50%
BS Artificial Intelligence	50%
BS Computer Engineering Technology	50%

Merit Calculation Details

Program Group	Matric	Intermediate Part-I	Entry
Computer Science & Technology Programs	10%	60%	30

Test Structure

- **Total Questions:** 90 MCQs
- **Total Marks:** 90 (1 mark each)
- **Time:** 120 minutes
- **Sections:**

- Section I: English (20 Questions)
- Section II: Analytical Reasoning (20 Questions)
- Section III: Quantitative Reasoning (20 Questions)
- Section IV: Subject (Physics + Computer Science + Mathematics) (30 Questions)

IMPORTANT NOTE FOR CANDIDATES

Important Disclaimer

The concepts, topics, and practice questions provided in this guide book are meant to assist candidates in their preparation for the Entry Test. While we have made every effort to cover the most important and frequently tested areas, please note that:

Majority questions may belong to these contents but are not limited to only these. Candidates are advised not to bound themselves strictly to the mentioned topics only.

A thorough study of the entire F.Sc/ICS curriculum is recommended for comprehensive preparation and better performance in the test.

1 ENGLISH

1.1 Important Concepts for Entry Test Preparation

1.1.1 Vocabulary Building

- **Commonly Confused Words:**
  - **Accept/Except:** Accept = to receive; Except = excluding
  - **Affect/Effect:** Affect = verb (to influence); Effect = noun (result)
  - **Than/Then:** Than = comparison; Then = next in time
  - **Their/There/They're:** Their = possessive; There = location; They're = they are
  - **Your/You're:** Your = possessive; You're = you are
  - **Its/It's:** Its = possessive; It's = it is
  - **Lose/Loose:** Lose = misplace; Loose = not tight
  - **Principal/Principle:** Principal = head of school/main; Principle = rule/belief

- **Commonly Misspelled Words:**
  - Correct: **Accommodation** (not acomodation/accomodation)
  - Correct: **Separate** (not seperate)
  - Correct: **Definitely** (not definately)
  - Correct: **Necessary** (not neccessary)
  - Correct: **Embarrass** (not embarass)
  - Correct: **Occurrence** (not occurance)
  - Correct: **Pronunciation** (not pronounciation)
  - Correct: **Rhythm** (not rythm)
  - Correct: **Consensus** (not concensus)
  - Correct: **Publicly** (not publically)

- **Synonyms (Words with Similar Meanings):**
  - **Reluctant:** hesitant, unwilling, resistant (Antonym: willing, eager)
  - **Benevolent:** kind, generous, charitable (Antonym: cruel, malevolent)
  - **Superficial:** shallow, external, surface-level (Antonym: deep, profound)
  - **Abundant:** plentiful, ample, copious (Antonym: scarce)
  - **Expand:** enlarge, increase, extend (Antonym: contract)
  - **Diligent:** hardworking, industrious, assiduous
  - **Ephemeral:** short-lived, temporary, transient
  - **Ubiquitous:** everywhere, omnipresent, universal

- **Antonyms (Words with Opposite Meanings):**
  - **Curtail:** reduce, shorten (Antonym: prolong, extend)
  - **Elastic:** flexible, stretchy (Antonym: rigid, stiff)
  - **Arrogant:** conceited (Antonym: humble, modest)
  - **Brief:** short (Antonym: lengthy, prolonged)
  - **Ancient:** old (Antonym: modern, new)
  - **Optimist:** positive thinker (Antonym: pessimist)
  - **Transparent:** clear (Antonym: opaque)

1.1.2 Grammar Essentials

- **Parts of Speech:**
  - **Noun:** Person, place, thing, idea (Ali, Lahore, table, happiness)
  - **Pronoun:** Replaces noun (he, she, it, they, we)
  - **Verb:** Action or state (run, eat, is, are, was)
  - **Adjective:** Describes noun (beautiful, tall, red)
  - **Adverb:** Describes verb, adjective, or other adverb (quickly, very, quite)
  - **Preposition:** Shows relationship (in, on, at, under, between)
  - **Conjunction:** Connects words/clauses (and, but, or, because)
  - **Interjection:** Expresses emotion (Wow! Oh! Alas!)

- **Tenses - Verb Forms:**
  - **Present Simple:** Habitual actions (I eat, He eats)
  - **Present Continuous:** Actions happening now (I am eating)
  - **Present Perfect:** Past with present relevance (I have eaten)
  - **Past Simple:** Completed past action (I ate)
  - **Past Continuous:** Ongoing past action (I was eating)
  - **Past Perfect:** Action before another past action (I had eaten)
  - **Future Simple:** Will + verb (I will eat)
  - **Future Continuous:** Will be + -ing (I will be eating)

- **Subject-Verb Agreement:**
  - Singular subject → singular verb (She **doesn't like** apples)
  - Plural subject → plural verb (They **like** apples)
  - Each/every/either/neither → singular verb (Each student **has** a book)
  - Collective nouns can be singular or plural (The team **is** winning / The team **are** arguing)

  - With "either...or" / "neither...nor" - verb agrees with closer subject

- **Prepositions - Common Uses:**
  - **Interested in** (not on/at) learning
  - **Confident about/of** (not on/with) success
  - **Good at** (not in) mathematics
  - **Depend on** (not at) parents
  - **Believe in** (not on) God
  - **Arrive at** (place) / **in** (city/country)
  - **Divide into** (parts) / **between** (two) / **among** (many)
  - **Angry with** (person) / **at** (situation)

- **Active and Passive Voice:**
  - **Active:** Subject performs action (Subject + verb + object)
  - **Passive:** Subject receives action (Object + be + past participle + by + subject)
  - Example: "She writes a letter" → "A letter is written by her"
  - Example: "They built the house" → "The house was built by them"
  - Passive is used when: Agent is unknown/unimportant, or we want to emphasize object

- **Direct and Indirect Speech:**
  - Direct: He said, "I am tired."
  - Indirect: He said that he was tired.
  - Tense changes: Present → Past, Past → Past Perfect, Will → Would

1.1.3 Idioms and Phrases

- **Common Idioms:**
  - **Elephant in the room:** A major issue that everyone ignores
  - **Couch potato:** A lazy person who watches too much TV
  - **Bite the bullet:** Face a difficult situation bravely
  - **Break the ice:** Start conversation in a social setting
  - **Cost an arm and a leg:** Very expensive
  - **Hit the nail on the head:** Be exactly right
  - **Once in a blue moon:** Very rarely
  - **Piece of cake:** Very easy
  - **Spill the beans:** Reveal a secret
  - **Under the weather:** Feeling ill

1.1.4 One Word Substitution

- **Anarchist:** Person who wants to destroy all government
- **Fresco:** A picture painted on wall in water color
- **Epitaph:** Inscription on a tombstone
- **Epicure:** Person who enjoys good food and drink
- **Biped:** Animal with two feet
- **Crank:** Eccentric person with strange ideas
- **Omnipotent:** All-powerful
- **Omniscient:** All-knowing
- **Omnipresent:** Present everywhere
- **Ambidextrous:** Able to use both hands equally well

1.1.5 Reading Comprehension Tips

- **Strategies for Comprehension:**
  - Read the questions first to know what to look for
  - Skim the passage for main idea (first and last paragraphs)
  - Scan for specific details (names, dates, keywords)
  - Look for topic sentences (usually first sentence of each paragraph)
  - Pay attention to transition words (however, therefore, moreover)
  - Identify the author's tone (positive, negative, neutral)
  - Distinguish between facts and opinions
  - Make inferences based on evidence in text

2 ANALYTICAL REASONING

2.1 Overview

Analytical Reasoning tests your logical thinking, problem-solving ability, and capacity to analyze complex situations. This section carries 20 questions and requires systematic approach and practice.

2.2 Types of Analytical Reasoning Questions

- **Arrangement Problems:** Seating arrangements, committee formations, orderings
- **Blood Relations:** Family trees, relationships
- **Logical Deductions:** If-then statements, conditional logic
- **Sequence and Series:** Pattern recognition
- **Puzzles:** Grid-based problems, scheduling

2.3 Key Tactics for Analytical Reasoning

! **Read the Entire Setup First:** Understand all conditions before attempting questions. Underline key constraints.

! **Draw Diagrams:** For arrangement problems, draw positions. For blood relations, draw family trees. Visual representation saves time.

! **Use Symbols and Abbreviations:** Represent people/items with initials (A, B, C) to save time.

! **Create Tables:** For complex arrangements, use tables to track possibilities.

! **Apply "If" Conditions Systematically:** When a question begins with "If...", apply that condition first and then see what else must be true.

! **Look for Fixed Positions:** Identify elements that have fixed positions based on conditions.

! **Use Elimination Method:** Eliminate options that violate any given condition.

! **Check Boundary Conditions:** Pay attention to words like "exactly one", "at least", "at most", "immediately before/after".

! **Practice Speed:** Analytical questions can be time-consuming. Practice to improve speed without compromising accuracy.

! **Verify Your Answer:** Quickly check if your answer satisfies all given conditions.

2.4 Solved Examples with Tactics

Example 1: Committee Arrangement (with Tactic Application)

Question: Nine individuals: Ahmed, Bilal, Danish, Faisal, Haroon, Liaquat, Maryam, Shiza and Zeeshan are to serve on three committees labeled A, B and C.

- Each candidate should serve on exactly one of the committees
- Every committee must have at least one member
- Committee A should consist of exactly one member more than that of committee B
- Among Maryam, Shiza and Zeeshan none can serve on committee A
- Among Faisal, Haroon and Liaquat none can serve on committee B
- Among Ahmed, Bilal and Danish none can serve on committee C

If Danish and Zeeshan are the individuals serving on committee B, how many of the nine individuals should serve on committee C?

Tactic Applied: Draw and Use Variables

1. Total individuals = 9
2. Committee A = Committee B + 1
3. Given: Danish and Zeeshan on B → B has at least 2 members
4. Let B = x members, then A = x + 1, and C = 9 - (2x + 1) = 8 - 2x
5. For C to be at least 1, x 3.5, so x can be 1, 2, or 3
6. Given B has Danish and Zeeshan (2 members), x = 2
7. Then A = 3, and C = 9 - 5 = 4

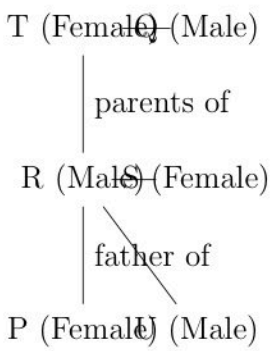
Answer: C. 4

Example 2: Blood Relations (with Tactic Application)

Question: P, Q, R, S, T and U are six family members. Three are males. There are two married couples. R is father of P and U. T is mother of R. P is granddaughter of Q.

Find: How is U related to P?

Tactic Applied: Draw Family Tree



Solution:

- R is father of P and U → R is male, P and U are R's children
- T is mother of R → T is female, R's mother
- P is granddaughter of Q → Q is grandparent of P
- Since T is R's mother and P is R's daughter, T is grandmother of P
- Therefore Q must be grandfather (since three males: R, Q, and one more)
- R and his wife (S) are one married couple
- T and Q are another married couple (parents of R)
- U is sibling of P (brother or sister)

Answer: D. Brother (if U is male) or **A. Sister** (if U is female)

2.5 Practice Questions

1. In the above family tree, who is the husband of T?

   (A) Q
   (B) R
   (C) U
   (D) None of these

2. If it is true that "streets are wet whenever it is raining," which of the following must be true?

   (A) If streets are wet, it is raining
   (B) If streets are wet but sidewalks not wet, it is not raining
   (C) If not raining, streets are not wet
   (D) I and II only

2.6 Answer Key for Practice Questions

Q. No.	Answer
1	A
2	B

3 QUANTITATIVE REASONING

3.1 Overview

Quantitative Reasoning tests your mathematical skills, numerical ability, and problem-solving speed. This section carries 20 questions and requires quick calculations and formula recall.

3.2 Topics Covered

- Percentages
- Number Theory and Divisibility
- Geometry (Circles, Area, Circumference)
- Exponents and Powers
- Ratios and Proportions
- Fractions and Decimals
- Linear and Simultaneous Equations
- Work and Time Problems
- Algebra

3.3 Key Formulas

Concept	**Formula**
Percentage	% = (Part/Whole) × 100
Circle Circumference	C = 2r = d
Circle Area	$A = r^2$
Exponents	a × a = a
Successive Discounts	Single Discount = a + b - (ab/100)
Work Formula	1/T = 1/T + 1/T
Quadratic Formula	x = [-b ± (b^2 - 4ac)]/2a
Distance Formula	d = [$(x-x)^2$ + $(y-y)^2$]

3.4 Key Tactics for Quantitative Reasoning

! **Memorize Key Formulas:** Create a formula sheet and review it regularly. Quick recall saves valuable time.

! **Estimate First:** Before calculating, estimate the answer to eliminate obviously wrong options.

! **Use Back-Solving:** For multiple choice questions, substitute options back into the equation to find the correct one.

! **Look for Patterns:** Many questions follow common patterns (e.g., 10% of something, half of something).

! **Simplify Before Calculating:** Reduce fractions, cancel common factors before performing complex calculations.

! **Check Units:** Ensure all units are consistent (e.g., convert feet to inches, hours to minutes).

! **Use Approximation:** For questions with or square roots, use approximate values (3.14, 2 1.41).

! **Identify Question Type:** Quickly categorize the question (percentage, work, ratio) to recall the appropriate formula.

! **Skip and Return:** If a question seems too time-consuming, mark it and return later. Don't waste precious time.

! **Verify with Common Sense:** After getting an answer, check if it makes logical sense (e.g., probability between 0 and 1).

3.5 Solved Examples with Tactics

Example 1: Percentage (with Tactic Application)

Question: 15% of 32 equals?

Tactic Applied: Estimate First

15% of 32 10% of 32 (3.2) + 5% of 32 (1.6) = 4.8

Answer: B. 4.8

Example 2: Divisibility (with Tactic Application)

Question: A number divisible by both 6 and 8 is also divisible by?

Tactic Applied: Use LCM

LCM of 6 and 8 = 24. Any number divisible by both must be divisible by their LCM.

Answer: D. 24

Example 3: Work Problem (with Tactic Application)

Question: If Adil can finish a job in 5 hours and Moeed in 10 hours, how many minutes will both take together?

Tactic Applied: Use Work Formula

$$\begin{aligned} \text{Adil's rate} &= 1/5 \text{ job/hour} \\ \text{Moeed's rate} &= 1/10 \text{ job/hour} \\ \text{Combined rate} &= 1/5 + 1/10 = 3/10 \text{ job/hour} \\ \text{Time} &= 1(3/10) = 10/3 \text{ hours} \\ &= (10/3)60 = 200 \text{ minutes} \end{aligned}$$

Answer: C. 200

Example 4: Simultaneous Equations (with Tactic Application)

Question: If $x + 3y = 7$ and $2x + y = 5$, then x/y is?
Tactic Applied: Elimination Method
Multiply second equation by 3: $6x + 3y = 15$
Subtract first equation: $(6x + 3y) - (x + 3y) = 15 - 7$
$5x = 8 \rightarrow x = 8/5$
Substitute: $8/5 + 3y = 7 \rightarrow 3y = 7 - 8/5 = 35/5 - 8/5 = 27/5 \rightarrow y = 9/5$
$x/y = (8/5)/(9/5) = 8/9$
Answer: A. 8/9

3.6 Practice Questions

1. If $x + 3y = 7$ and $2x + y = 5$, then x/y is?
   (A) 8/9
   (B) 1/2
   (C) 1/3
   (D) 2/5

2. If the radius of a circle is halved, its area becomes:
   (A) Same
   (B) Double
   (C) Half
   (D) Quarter

3. $1250 \div 25 \times 0.5 = ?$
   (A) 100
   (B) 50
   (C) 25
   (D) 2.5

3.7 Answer Key for Practice Questions

Q. No.	Answer
1	A
2	D
3	C

4 PHYSICS

4.1 Important Concepts for Entry Test Preparation

- **Microscope Magnification:** Magnifying power increases with tube length
- **Ball Pen Principle:** Works on viscosity and surface tension
- **Henry:** Unit of inductance
- **Simple Pendulum:** Time period independent of bob material (depends only on length and g)
- **Earth's Rotation:** Weight decreases at equator with faster rotation (due to centrifugal force)
- **Bernoulli's Equation:** Based on conservation of energy
- **Viscosity:** Decreases with increase in temperature (for liquids); increases for gases
- **Simple Harmonic Motion:** Wave through string fixed at both ends is an example
- **Volt/meter:** Unit of electric field intensity
- **Boyle's Law:** P 1/V at constant temperature
- **Surface Tension:** Property of liquids due to cohesive forces

5 COMPUTER SCIENCE

5.1 Important Concepts for Entry Test Preparation

5.1.1 Computer Fundamentals

- **Computer Definition:** An electronic device that processes data and performs operations according to instructions.

- **Main Functions of Computer:**
  - Input: Taking data and instructions
  - Processing: Performing operations on data
  - Output: Producing results
  - Storage: Saving data for future use

- **Data vs Information:**
  - **Data:** Raw facts and figures (unprocessed)
  - **Information:** Processed data that is meaningful

5.1.2 Computer Hardware

- **Input Devices:** Keyboard, mouse, scanner, microphone

- **Output Devices:** Monitor, printer, speaker

- **Storage Devices:** Hard disk, SSD, USB drive, CD/DVD

- **Printer Types:**
  - **Dot-Matrix Printer:** Impact printer that uses pins to strike ribbon; produces characters as dots
  - Inkjet Printer: Sprays ink onto paper
  - Laser Printer: Uses toner and electrostatic charge

- **Memory Units:**
  - Bit: Smallest unit of data (0 or 1)
  - Byte: 8 bits
  - Kilobyte (KB): 2^1 bytes = 1024 bytes
  - Megabyte (MB): 2^2 bytes = 1,048,576 bytes
  - Gigabyte (GB): 2^3 bytes = 1,073,741,824 bytes
  - Terabyte (TB): 2 bytes

5.1.3 Computer Software

- **System Software:** Operating systems, device drivers, utilities
- **Application Software:** Word processors, spreadsheets, games
- **Operating Systems:**
  - **Windows:** Microsoft's GUI-based OS
  - **DOS (Disk Operating System):** Command-line OS
  - **Unix:** Multi-user, multi-tasking OS
  - **Linux:** Open-source Unix-like OS
  - **macOS:** Apple's operating system
- **Bootstrap:**
  - A small initialization program that starts the computer
  - Located in ROM (Read-Only Memory)
  - Loads the operating system into memory

5.1.4 Database Concepts

- **Database:** A collection of organized data that can be easily accessed, managed, and updated
- **Database Components:**
  - **Field:** A single piece of information (e.g., name, age)
  - **Record:** A collection of related fields (e.g., one person's information)
  - **File:** A collection of related records
  - **Table:** A collection of related records in rows and columns
- **Data Items:** Individual values stored in a database

5.1.5 Data Operations

- **Sorting:** Arranging data in a specific order (ascending or descending)
- **Searching:** Finding specific data in a collection
- **Updating:** Modifying existing data
- **Inserting:** Adding new data
- **Deleting:** Removing data

- **Summarizing:** Creating reports or summaries from data
- **Batching:** Processing data in groups

5.1.6 Networking Concepts

- **Network Types:**
  - **LAN (Local Area Network):** Covers small area (building, office)
  - **MAN (Metropolitan Area Network):** Covers city/metropolitan area
  - **WAN (Wide Area Network):** Covers large geographical area (countries, continents)
  - **PAN (Personal Area Network):** Very small area (person's workspace)
- **Internet Protocols:**
  - **TCP/IP:** Transmission Control Protocol/Internet Protocol - foundation of internet
  - **HTTP/HTTPS:** Hypertext Transfer Protocol - for web browsing
  - **FTP (File Transfer Protocol):** Used for transferring files between computers
  - **SMTP (Simple Mail Transfer Protocol):** Used for sending email
  - **POP3/IMAP:** Used for receiving email

6 MATHEMATICS

6.1 Important Concepts for Entry Test Preparation

6.1.1 Algebra and Equations

- **Linear Equations:**
  - Form: ax + b = 0
  - Solution: x = -b/a
  - Simultaneous equations: Solve by substitution or elimination
- **Quadratic Equations:**
  - Form: $ax^2 + bx + c = 0$
  - Quadratic formula: $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$
  - Discriminant: $D = b^2 - 4ac$
    - D ¿ 0: Two distinct real roots
    - D = 0: One real root (repeated)
    - D ¡ 0: No real roots (complex)

6.1.2 Arithmetic Progression (AP)

- **General Form:** a, a+d, a+2d, a+3d, ...
- **nth Term:** $a_n = a + (n-1)d$
- **Sum of n Terms:** $S_n = \frac{n}{2}[2a + (n-1)d] = \frac{n}{2}(a + a_n)$
- **Arithmetic Mean:** AM = (a + b)/2

6.1.3 Permutations and Combinations

- **Permutations (arrangements):** ${}^nP_r = \frac{n!}{(n-r)!}$
- **Combinations (selections):** ${}^nC_r = \frac{n!}{r!(n-r)!}$
- **Distributing distinct objects:** Number of ways to distribute n distinct objects among r persons = r
- **Example:** 5 distinct toys distributed among 3 children = 3 ways

6.1.4 Binomial Theorem

- **General Expansion:** $(a+b)^n = \sum_{r=0}^{n} \binom{n}{r} a^{n-r} b^r$
- **Sum of exponents:** In each term, sum of exponents of a and b = n
- **General Term:** $T_{r+1} = \binom{n}{r} a^{n-r} b^r$

6.1.5 Multiplicative Inverse

- **Definition:** Multiplicative inverse of x is 1/x (for x 0)
- **For x = 0:** Multiplicative inverse does not exist (undefined)

6.1.6 Linear Programming

- **Solution Region:** Region satisfying all constraints
- **Vertex:** Point where two boundary lines intersect
- **Feasible Region:** Set of all possible solutions
- **Optimal Solution:** Occurs at a vertex of feasible region

6.1.7 Coordinate Geometry

- **Distance Formula:** $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
- **Midpoint Formula:** $M = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$
- **Slope:** $m = \frac{y_2-y_1}{x_2-x_1}$

6.1.8 Circle Geometry

- **Equation of Circle:** $(x-h)^2 + (y-k)^2 = r^2$ where (h,k) is center, r is radius
- **Chord:** Line segment whose endpoints lie on the circle
- **Radius:** Constant distance from center to any point on circle
- **Diameter:** 2 $\times$ radius, longest chord
- **Secant:** Line intersecting circle at two points
- **Tangent:** Line touching circle at exactly one point

- **Point within circle:** Distance from center ¡ radius

6.1.9 Vectors

- **Null Vector:** Vector of magnitude zero
- **Position Vector:** Vector from origin to a point
- **Magnitude:** —v— = $(x^2 + y^2 + z^2)$

BUBBLE SHEET GUIDE

How to Mark Your Answers Correctly

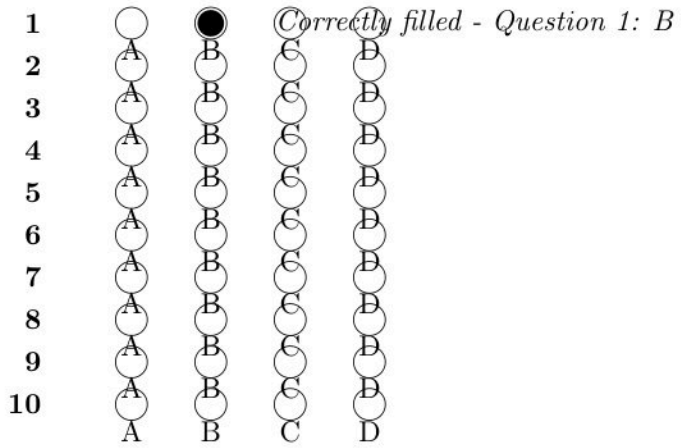
What is a Bubble Sheet?

A bubble sheet is the answer sheet used in multiple-choice tests where you darken circles corresponding to your chosen answers. It is scanned by a machine, so correct marking is essential.

Sample Bubble Sheet Format

SAMPLE BUBBLE SHEET

(Questions 1-10 shown as example)



Important Rules for Bubble Sheet Marking

! **Use HB or No. 2 Pencil Only:** Ball pens or ink pens are not accepted. The scanner cannot read ink marks properly.

! **Fill Completely:** Darken the entire circle. Do not use check marks (), crosses (), or ticks.

! **Stay Within the Circle:** Do not mark outside the circle. The scanner reads only the circle area.

! **No Stray Marks:** Avoid any extra marks on the sheet. Even small dots can be misread as answers.

! **Erase Completely:** If you change an answer, erase the first mark completely. Partial erasures may be read as answers.

! **Match Question Numbers:** Ensure you are marking the correct question number. Double-check frequently.

! **One Answer Per Question:** Mark only one circle per question. Multiple marks will be read as incorrect.

! **Keep Sheet Clean:** Do not fold, crumple, or make the sheet dirty. Damaged sheets may not scan properly.

Do's and Don'ts

DO's	DON'Ts
• Use pencil only	• Use pen or marker
• Fill circle completely	• Use ticks or crosses
• Erase mistakes fully	• Leave partial erasures
• Keep sheet flat	• Fold or crumple sheet
• Check question numbers	• Mark wrong numbers
• Mark one answer only	• Mark multiple answers

Correct vs. Incorrect Marking

CORRECT **INCORRECT** **INCORRECT** **INCORRECT**

Before Submitting

- Count your answers to ensure you've answered all questions
- Check for any accidental double markings
- Ensure your name and roll number are written correctly
- Verify that your pencil marks are dark enough

7 NTU ECAT SAMPLE PAPER

SAMPLE PAPER

National Textile University, Faisalabad
Undergraduate Admission Test 2026
For ICS PHYSICS Group

Name: _____ **Roll No:** _____ **Date:** _____

Time Allowed: 120 Minutes **Total Questions: 90** **Total Marks: 90**

PAPER STRUCTURE SUMMARY

Section	Subject Area	Questions	Marks
Section I	English	1 - 20	20
Section II	Analytical Reasoning	21 - 40	20
Section III	Quantitative Reasoning	41 - 60	20
Section IV	Physics + Computer Science + Mathematics	61 - 90	30
GRAND TOTAL			**90**

Section I: English (Questions 1-20)

1. Antonym of CURTAIL is _____?

(A) Cramp
(B) Prolong
(C) Chop
(D) Clip

2. Antonym of Elastic is _____?

(A) Yielding
(B) Rigid
(C) Mold-able
(D) Supple

3. Synonym of ARROGANT is _____?

(A) Conceited

(B) Humble

(C) Progressive

(D) Noble

4. Synonym of ALERT is _____?

(A) Intelligent

(B) Energetic

(C) Observant

(D) Watchful

5. GRAIN: SALT ::

(A) shard: pottery

(B) shred: wood

(C) blades: grass

(D) chip: glass

6. LIGHT: BLIND ::

(A) speech: dumb

(B) language: deaf

(C) tongue: sound

(D) voice: vibration

7. Ocean currents play a _____ role in setting long-term climate _____.

(A) vital ... date

(B) important ... variations

(C) major ... patterns

(D) unusual ... changes

8. I promise to _____ you in all circumstances.

(A) stand up to

(B) stand with

(C) stand off

(D) stand by

9. It's difficult _____ reconcile such different points of view.

(A) With

(B) to

(C) in

(D) on

10. The speaker did not properly space out his speech but went on _____ one point only.

(A) stressing

(B) avoiding

(C) devoting

(D) decrying

11. A picture in water color on wall:

(A) Epitaph

(B) Epicure

(C) Fatal

(D) Fresco

12. A person who wants to destroy all government and orders:

(A) Brail

(B) Anarchist

(C) Biped

(D) Crank

13. The Phrase/idiom "Elephant in the room" means:

(A) A major issue

(B) A minor problem

(C) An idiot person

(D) A giant man

14. My friend is a couch potato. What does the idiom/phrase "couch potato" means?

(A) active person

(B) busy person

(C) lazy person

(D) angry person

15. He is walking _____ road.

(A) By

(B) On

(C) With

(D) In

16. The boy fell _____ the pond yesterday.

(A) into

(B) in

(C) from

(D) over

Directions (Questions 17-20): Read the passage carefully and answer the questions that follow:

Unemployment is a key index of economic slack and lost output. But it is not distributed in proportion to people's ability to face it. It affects painfully the young, women, the unskilled as well as semiskilled, the black person, the older people, and underemployed people in rural areas. Unemployment among specific groups means greater costs to society that can be calculated easily in hours of idleness or dollars of income lost. The other costs include disturbance of the careers and increased juvenile delinquency. There is another cost of unemployment. For laborers, continuous unemployment results in "share-the-work" pressures for shorter hours and escalate resistance to technological advances. On the business side, the shortcomings of markets result in attempts to raise prices to cover increased costs and to pressures for protection against buying products from abroad.

17. Unemployment is an index of

(A) the employment rate

(B) economic slack and lost output

(C) diminished resources

(D) over utilization of capacity

18. According to the passage, the unemployment falls most heavily upon all except the

(A) unskilled worker

(B) semiskilled worker

(C) black people

(D) white middle class

19. The cost to society of unemployment can be measured by all except

(A) disruption of careers

(B) Idleness

(C) the death rate

(D) lost incomes

20. Serious unemployment results in labor groups to demand

(A) more jobs with shorter hours

(B) "no fire" policies

(C) higher wages to those employed

(D) cost-cutting solutions

Section II: Analytical Reasoning (Questions 21-40)

Directions (Questions 21-27): Nine individuals: Ahmed, Bilal, Danish, Faisal, Haroon, Liaquat, Maryam, Shiza and Zeeshan are to serve on three committees labeled A, B and C.

- Each candidate should serve on exactly one of the committees
- Every committee must have at least one member
- Committee A should consist of exactly one member more than that of committee B
- Among Maryam, Shiza and Zeeshan none can serve on committee A
- Among Faisal, Haroon and Liaquat none can serve on committee B
- Among Ahmed, Bilal and Danish none can serve on committee C

21. In case Danish and Zeeshan are the individuals serving on committee B, how many of the nine individuals should serve on committee C?

(A) 2
(B) 3
(C) 4
(D) 5

22. Of the nine individuals, the maximum number that can serve together on committee C is

(A) 5
(B) 6
(C) 7
(D) 8

23. In case Ahmed is the only individual serving on committee B, which among the following should serve on committee A?

(A) Bilal and Danish
(B) Bilal and Faisal
(C) Bilal and Liaquat
(D) Faisal and Haroon

24. In case, any of the nine individuals serves on committee C, which among the following could not be the candidate to serve on committee A?

(A) Ahmed
(B) Bilal

(C) Danish

(D) Shiza

25. In case, Bilal, Danish and Maryam are the only individuals serving on committee B, the total membership of committee C should be

(A) 5

(B) 4

(C) 3

(D) 2

26. In case, Bilal, Danish and Maryam are the only individuals serving on committee B, then the members of committee C should be

(A) Haroon and Shiza

(B) Maryam and Zeeshan

(C) Shiza and Zeeshan

(D) Faisal and Shiza

27. Among the following combinations which could constitute the membership of committee C?

(A) Danish and Shiza

(B) Faisal and Maryam

(C) Liaquat, Maryam and Shiza

(D) Faisal, Haroon and Liaquat

Directions (Questions 28-32): Read the following information carefully and answer the questions based on it:

- P, Q, R, S, T and U are six members of a family. Out of six members three are male members.
- There are two married couples among them
- R is the father of P and U, and T is the mother of R
- P is the granddaughter of Q

28. How is U related to P?

(A) Sister

(B) Son

(C) Daughter

(D) Brother

29. How Q is related to U?

(A) Brother

(B) Grandfather

(C) Husband

(D) None of these

30. Which of the following pairs is one of the married couples?

(A) TU

(B) QS

(C) TQ

(D) None of these

31. Which of the following is a group of male members?

(A) Q, S, T

(B) P, U, Q

(C) Q, R, U

(D) None of these

32. Who is the husband of T?

(A) Q

(B) R

(C) U

(D) None of these

33. If it is true that the streets and the sidewalks are wet whenever it is raining, which of the following must also be true?

I. If the streets and sidewalks are wet, it is raining.
II. If the streets are wet but the sidewalks are not wet, it is not raining.
III. If it is not raining, the streets and sidewalks are not wet.

(A) I only

(B) II only

(C) III only

(D) I and II only

34. Arrange in appropriate sequence (shoulder to the finger): 1. Shoulder 2. Wrist 3. Elbow 4. Palm 5. Finger

(A) 1, 4, 2, 3, 1

(B) 3, 4, 5, 2, 1

(C) 3, 1, 4, 2, 5

(D) 1, 3, 2, 4, 5

35. Adeel: All engineers are intelligent.
Bashir: That is not true. I know some bankers who are intelligent too.
Bashir's answer demonstrates that he thought Adeel meant that:

(A) Some engineers are intelligent
(B) bankers are more intelligent than engineers
(C) engineers are more intelligent than bankers
(D) only engineers are intelligent

36. Kamal is older than Jamal, Jamal is older than Hussain, and Hussain is older than Waqar. Who is the oldest?

(A) Waqar
(B) Jamal
(C) Kamal
(D) Hussain

37. Which one of the five words below would come first in a dictionary?

(A) Eliminate
(B) Dog
(C) Hen
(D) Parrot

38. A box contains 10 Red balls and 5 Blue balls. If two balls are selected at random without replacement, then what are the chances that both balls are red?

(A) 1/2
(B) 1/3
(C) 3/8
(D) 3/7

39. Identify the odd one out:

(A) Apple
(B) Banana
(C) Carrot
(D) Date

40. X and Y are two brothers, B is A's brother, but A is the mother of X. What is B to Y?

(A) Father
(B) Brother
(C) Son
(D) Uncle

Section III: Quantitative Reasoning (Questions 41-60)

41. 15% of 32 equals

(A) 3.8
(B) 4.8
(C) 4
(D) 2.5

42. A number which is divisible by both 6 and 8 is also divisible by

(A) 5
(B) 11
(C) 7
(D) 24

43. The circumference of a circle whose diameter is 6 inches is approximately

(A) 16 inches
(B) 22 inches
(C) 38 inches
(D) 19 inches

44. If $2^a \times 2^b = 8^c$, then $(a+b)/c =$

(A) 2
(B) 3
(C) 4
(D) 5

45. Successive discounts of 10% and 15% is equivalent to a single discount of

(A) 22%
(B) 23.5%
(C) 25%
(D) 24%

46. The ratio from 5 feet to 3 inches is

(A) 1/20
(B) 3/60
(C) 3/5
(D) 5/3

47. 3/4 of 432 = ?

(A) 316

(B) 340

(C) 324

(D) 232

48. If $x + 3y = 7$ and $2x + y = 5$ then x/y is?

(A) 8/9

(B) 1/2

(C) 1/3

(D) 2/5

49. If the radius of the circle is halved, then its area

(A) Remains same

(B) Becomes double

(C) Becomes half

(D) Becomes quarter

50. 0.027 ÷ 90 = ?

(A) 0.03

(B) 0.00003

(C) 0.0003

(D) 0.3

51. If $3a - 5 = 3 + 2a$, then $a =$

(A) 10

(B) 6

(C) 9

(D) 8

52. If $3p + 2 = 12$, then $p - \frac{1}{3}$ equals:

(A) 12

(B) 10

(C) 4

(D) 3

53. The value of $\frac{0.54-0.44}{0.52-0.42}$ is?

(A) 0.9

(B) 0.31

(C) 0.09

(D) 0.19

54. 1250 ÷ 25 × 0.5 = ?

(A) 100

(B) 50

(C) 25

(D) 2.5

55. The area of the circle is 50π. The length of the diameter of the circle is

(A) 8

(B) 16

(C) 4

(D) 32

56. The population of a city increased in two years from 25,000 to 30,000; find the percent increase during the time.

(A) 5%

(B) 10%

(C) 20%

(D) 40%

57. If Adil can finish a job in 5 hours and Moeed can finish the same job in 10 hours, how many minutes will it take both of them together to finish the job?

(A) 220

(B) 160

(C) 200

(D) 210

58. If $2x + y = 11$ and $3x + 2y = 17$ then y is?

(A) 5

(B) 1

(C) 4

(D) 6

59. If $p = 2$, then $3^p + (p^3)^2 =$

(A) 18

(B) 42

(C) 73

(D) 70

60. What is $1\frac{1}{5}\%$ of 5000?

(A) 10

(B) 1

(C) 16

(D) 5000

Section IV: Subject (Questions 61-90)

Note: This section contains questions from Physics (Q.61-69), Computer Science (Q.70-80), and Mathematics (Q.81-90).

Physics (Questions 61-69)

61. When the length of a microscope tube increases, its magnifying power

(A) Does not change

(B) Increases

(C) Decreases

(D) May increase or decrease

62. Ball pen functions on the principle of

(A) Viscosity

(B) Boyle's law

(C) Surface tension

(D) Gravitational force

63. The henry is the unit for

(A) Magnetic field

(B) Magnetic flux

(C) Resistance

(D) Inductance

64. If the metal bob in a simple pendulum is replaced by a wooden bob, then its time period will

(A) Decreases

(B) Remain the same

(C) First A then B

(D) Increases

65. If the earth were to rotate faster than its present speed, the weight of an object will

(A) Remain unchanged at the equator but increase at the poles

(B) Decrease at the equator but remain unchanged at the poles

(C) Increase at the equator but remain unchanged at the poles

(D) Remain unchanged at the equator but decrease at the poles

66. Bernoulli's equation is based upon law of conservation of

(A) Momentum

(B) Mass

(C) Energy

(D) None of these

67. With the increase of temperature, viscosity

(A) Remains same

(B) Decreases

(C) Increases

(D) Doubles

68. Which one of the following is a simple harmonic motion?

(A) Wave moving through a string fixed at both ends

(B) Particle moving in a circle with uniform speed

(C) Earth spinning about its own axis

(D) Ball bouncing between two rigid vertical walls

69. The volt/meter is the unit of:

(A) Force

(B) Work

(C) Potential

(D) Electric field Intensity

Computer Science (Questions 70-80)

70. Database is a collection of

(A) Files

(B) Information

(C) Data

(D) All of these

71. Dot-matrix is a type of

(A) Printer

(B) Disk

(C) Bus

(D) Tape

72. SMTP stands for

(A) System Mail Transfer Protocol

(B) Scientific Mail Transfer Protocol

(C) Small Mail Transfer Protocol

(D) Simple Mail Transfer Protocol

73. The main function of computer is

(A) Logical operations

(B) To require results

(C) Storing information

(D) Data processing

74. A bootstrap is

(A) The flat cable from the disk controller card to the disk drive

(B) A small initialization program to start up the computer

(C) The flat cable that connects the CPU to the printer

(D) Additional memory device

75. FTP stands for

(A) File Terminal Protocol

(B) File Transfer Protocol

(C) File Transmitter Protocol

(D) File Transmission Protocol

76. A communication system of computers situated at large distance is called

(A) MAN

(B) WAN

(C) LAN

(D) None of these

77. One Megabyte is equivalent to

(A) 2^{30} bytes

(B) 2^{20} bytes

(C) 2^{10} bytes

(D) None of these

78. A record is a collection of

(A) Information
(B) Data files
(C) Data items
(D) Files

79. Rearranging data in a new sequence is known as

(A) Summarizing
(B) Batching
(C) Updating
(D) Sorting

80. Which of the following is the operating system?

(A) Windows
(B) DOS
(C) Unix
(D) All the above

Mathematics (Questions 81-90)

81. The number of ways in which 5 distinct toys can be distributed among 3 children is

(A) P_3^5
(B) C_3^5
(C) 3^5
(D) 5^3

82. The multiplicative inverse of x such that x = 0 is

(A) 1/x
(B) does not exist
(C) 0
(D) 1

83. In the expansion of (a + b), in every term the sum of the exponents of a and b is

(A) n
(B) n + 1
(C) 2n + 1

(D) 2n - 1

84. A point of a solution region where two of its boundary lines intersect, is called

(A) Boundary

(B) Half Plane

(C) Inequality

(D) Vertex

85. A line segment whose end points lie on a circle is called

(A) The chord of the circle

(B) The secant of the circle

(C) The arc of the circle

(D) The circumference of the circle

86. If the 19th term of A.P is 8 and the 4th term is 20, then the first term is

(A) 27.5

(B) 20.2

(C) 37.5

(D) 25.5

87. A vector of magnitude zero is called

(A) Position vector

(B) Null vector

(C) Free vector

(D) None of these

88. The center of a circle of radius 10 is at the origin. Which of the following points lies within the circle?

(A) (8, 8)

(B) (0, 10)

(C) (8, 4)

(D) (10, 0)

89. The constant distance of all points of the circle from its center is called the

(A) Diameter

(B) Radius

(C) Secant

(D) Chord

90. The point (-5, 3) is the center of a circle and P(7, -2) lies on the circle. The radius of the circle is

(A) 2

(B) 8

(C) 13

(D) 7

ANSWER KEY - SAMPLE PAPER

Q	A	Q	A	Q	A	Q	A	Q	A
1	B	19	C	37	B	55	A	73	D
2	B	20	A	38	D	56	C	74	B
3	A	21	C	39	D	57	C	75	B
4	D	22	B	40	D	58	B	76	B
5	D	23	A	41	B	59	C	77	B
6	A	24	D	42	D	60	A	78	C
7	C	25	D	43	D	61	B	79	D
8	B	26	C	44	B	62	A	80	D
9	B	27	B	45	B	63	D	81	C
10	A	28	D	46	A	64	B	82	B
11	D	29	B	47	C	65	B	83	A
12	B	30	C	48	A	66	C	84	D
13	A	31	C	49	D	67	B	85	A
14	C	32	A	50	C	68	A	86	A
15	B	33	B	51	D	69	D	87	B
16	A	34	D	52	D	70	D	88	C
17	B	35	D	53	C	71	A	89	B
18	D	36	C	54	C	72	D	90	C

– END OF SAMPLE PAPER –

ANSWER KEY BUBBLE SHEET

ANSWER KEY - BUBBLE SHEET FORMAT

Use this to practice marking your answers on a bubble sheet

ANSWER KEY BUBBLE SHEET

Fill in the bubbles with the correct answers from the key above

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30
31	32	33	34	35
36	37	38	39	40
41	42	43	44	45
46	47	48	49	50
51	52	53	54	55
56	57	58	59	60
61	62	63	64	65
66	67	68	69	70
71	72	73	74	75
76	77	78	79	80
81	82	83	84	85
86	87	88	89	90

Instructions: Practice filling bubbles with the correct answers.
Use a pencil and fill completely as shown in the Bubble Sheet Guide.

FINAL MESSAGE FROM ADMISSIONS OFFICE

Dear Candidate,

We hope this guide book has provided you with comprehensive preparation material for the Entry Test at National Textile University.

Remember that consistent practice and thorough understanding of concepts are the keys to success. Use this guide to identify your strengths and weaknesses, and focus your preparation accordingly.

National Textile University offers state-of-the-art facilities, experienced faculty, and excellent career opportunities in Computer Science, Software Engineering, Artificial Intelligence, and Computer Engineering Technology. We look forward to receiving your application and welcoming you to our academic community.

Best Wishes,

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National Textile University, Faisalabad

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