National Textile University, Faisalabad

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ENTRY TEST GUIDE BOOK 2026

For ICS STATISTICS 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 of the **ICS Statistics Group** seeking admission to undergraduate programs at **National Textile University (NTU), Faisalabad**.

About ICS Statistics Group

The Intermediate in Computer Science (ICS) Statistics program is designed for students who want to develop expertise in data analysis, probability, computer science, and mathematics. Students in this group study three core subjects: **Statistics, Mathematics, and Computer Science**.

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 (Statistics Group) or equivalent
- For A-Level: Three A-Levels with IBCC equivalence
- DAE in relevant field also eligible for technology programs

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 (Statistics + Mathematics + Computer Science) (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 ICS Statistics 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

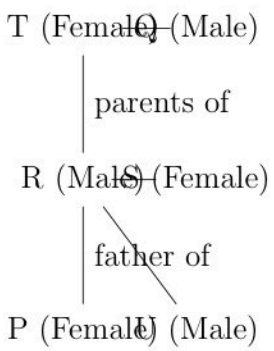
Answer: C. 4

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

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 STATISTICS

4.1 Important Concepts for Entry Test Preparation

4.1.1 Introduction to Statistics

- **Statistics:** The science of collecting, organizing, analyzing, interpreting, and presenting data.

- **Branches of Statistics:**
  - **Descriptive Statistics:** Methods for summarizing and describing data (tables, graphs, averages)
  - **Inferential Statistics:** Methods for drawing conclusions about populations based on samples

- **Population vs Sample:**
  - **Population:** Entire group of interest
  - **Sample:** Subset of population selected for study

- **Types of Data:**
  - **Qualitative (Categorical):** Non-numerical (gender, color)
  - **Quantitative (Numerical):** Numerical values (height, weight)
    - **Discrete:** Countable values (number of students)
    - **Continuous:** Measurable values (height, time)

4.1.2 Measures of Central Tendency

- **Arithmetic Mean:**

$$\bar{x} = \frac{\sum x}{n} = \frac{x_1 + x_2 + \cdots + x_n}{n}$$

  - Most common measure of average
  - Affected by extreme values (outliers)

- **Median:**

$$\text{Median} = \begin{cases} x_{\frac{n+1}{2}} & \text{if n is odd} \\ \frac{x_{\frac{n}{2}} + x_{\frac{n}{2}+1}}{2} & \text{if n is even} \end{cases}$$

  - Middle value when data is arranged in order
  - Not affected by outliers

- **Mode:**
  - Most frequently occurring value

- A dataset can have no mode, one mode, or multiple modes

- **Relation between Mean, Median, Mode:**
  - For symmetric distribution: Mean = Median = Mode
  - For positively skewed: Mode ¡ Median ¡ Mean
  - For negatively skewed: Mean ¡ Median ¡ Mode

4.1.3 Measures of Dispersion (Spread)

- **Range:**

$$\text{Range} = \text{Maximum} - \text{Minimum}$$

- **Variance:**

$$\text{Variance}(s^2) = \frac{\sum(x - \bar{x})^2}{n - 1}$$

- **Standard Deviation:**

$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

- **Coefficient of Variation (CV):**

$$CV = \frac{s}{\bar{x}} \times 100\%$$

  - Used to compare variability of different datasets

4.1.4 Probability

- **Basic Probability Formula:**

$$P(A) = \frac{\text{Number of favorable outcomes}}{\text{Total number of outcomes}}$$

- **Probability Rules:**

$$0 \leq P(A) \leq 1$$

$$P(A') = 1 - P(A) \quad \text{(Complement Rule)}$$

- **Addition Rule:**

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

  - For mutually exclusive events: $P(A \cap B) = 0$, so $P(A \cup B) = P(A) + P(B)$

- **Multiplication Rule:**

$$P(A \cap B) = P(A) \times P(B|A)$$

  - For independent events: $P(A \cap B) = P(A) \times P(B)$

- **Conditional Probability:**

$$P(A|B) = \frac{P(A \cap B)}{P(B)}, \quad P(B) > 0$$

4.1.5 Probability Distributions

- **Random Variable:** A variable whose values are determined by chance

- **Binomial Distribution:**
  - For discrete random variables
  - Conditions: Fixed n, two outcomes, constant probability, independent trials

$$P(X = r) = \binom{n}{r} p^r q^{n-r}, \quad \text{where } q = 1 - p$$

$$\text{Mean} = np, \quad \text{Variance} = npq$$

- **Normal Distribution:**
  - For continuous random variables
  - Bell-shaped, symmetric curve
  - Mean = Median = Mode

$$Z = \frac{X - \mu}{\sigma} \quad \text{(Standard Normal Variable)}$$

4.1.6 Sampling and Sampling Distributions

- **Sampling Methods:**
  - Simple Random Sampling
  - Stratified Sampling
  - Systematic Sampling
  - Cluster Sampling

- **Sampling Distribution of Mean:**

$$\mu_{\bar{x}} = \mu$$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}} \quad \text{(Standard Error of Mean)}$$

- **Central Limit Theorem:**
  - For large n (n 30), sampling distribution of mean is approximately normal
  - Holds regardless of population distribution

4.1.7 Estimation

- **Point Estimate:** Single value used to estimate population parameter
- **Confidence Interval for Population Mean:**

$$\bar{x} \pm Z_{\alpha/2} \cdot \frac{\sigma}{\sqrt{n}} \quad \text{(when known)}$$

$$\bar{x} \pm t_{\alpha/2,n-1} \cdot \frac{s}{\sqrt{n}} \quad \text{(when unknown)}$$

- **Margin of Error:**

$$E = Z_{\alpha/2} \cdot \frac{\sigma}{\sqrt{n}}$$

4.1.8 Hypothesis Testing

- **Null Hypothesis (H):** Statement of no effect or no difference
- **Alternative Hypothesis (H or H):** Statement we want to prove
- **Test Statistic for Mean (Z-test):**

$$Z = \frac{\bar{x} - \mu_0}{\sigma/\sqrt{n}}$$

- **Types of Errors:**
  - **Type I Error:** Reject H when it is true ()
  - **Type II Error:** Fail to reject H when it is false ()
- **p-value:** Probability of obtaining results as extreme as observed, assuming H is true

4.1.9 Correlation and Regression

- **Pearson's Correlation Coefficient (r):**

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

  - Range: -1 r +1
  - r = +1: Perfect positive correlation
  - r = -1: Perfect negative correlation
  - r = 0: No linear correlation
- **Coefficient of Determination (r^2):**

  - Proportion of variation in y explained by x
  - Range: 0 r^2 1

- **Simple Linear Regression:**

$$Y = a + bX$$

$$b = \frac{n\sum xy - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2} \quad \text{(Slope)}$$

$$a = \bar{y} - b\bar{x} \quad \text{(Intercept)}$$

4.1.10 Time Series Analysis

- **Components of Time Series:**
  - Trend (T): Long-term movement
  - Seasonal (S): Regular patterns within a year
  - Cyclical (C): Long-term cycles
  - Irregular (I): Random fluctuations

- **Moving Average:**

$$\text{Moving Average} = \frac{\text{Sum of values}}{\text{Number of periods}}$$

4.1.11 Index Numbers

- **Simple Index Number:**

$$\text{Price Relative} = \frac{P_1}{P_0} \times 100$$

- **Laspeyres Index (Base Year Weights):**

$$L = \frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100$$

- **Paasche Index (Current Year Weights):**

$$P = \frac{\sum P_1 Q_1}{\sum P_0 Q_1} \times 100$$

- **Fisher's Ideal Index:**

$$F = \sqrt{L \times P}$$

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

6.1.4 Binomial Theorem

- **General Expansion:** $(a+b)^n = \sum_{r=0}^{n} \binom{n}{r} a^{n-r}b^r$
- **General Term:** $T_{r+1} = \binom{n}{r} a^{n-r}b^r$

6.1.5 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:** $m = \frac{y_2-y_1}{x_2-x_1}$

6.1.6 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

BUBBLE SHEET GUIDE

How to Mark Your Answers Correctly

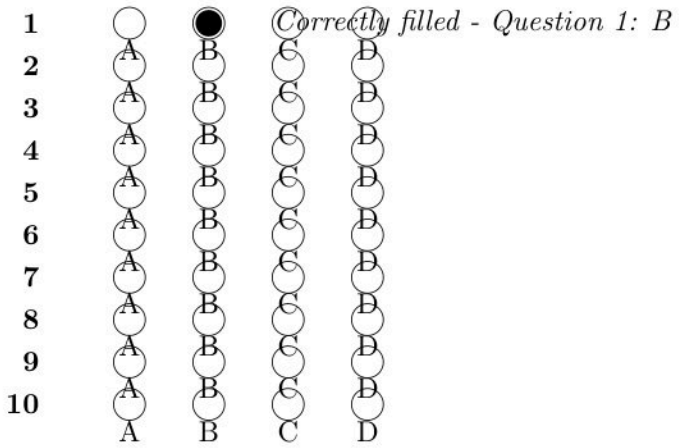
What is a Bubble Sheet?

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.

7 NTU ECAT SAMPLE PAPER

SAMPLE PAPER

National Textile University, Faisalabad
Undergraduate Admission Test 2026
For ICS STATISTICS 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	Statistics + Mathematics + Computer Science	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. $1250 \div 25 \times 0.5 = ?$

(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 Statistics (Q.61-75), Computer Science (Q.76-85), and Mathematics (Q.86-90).

Statistics (Questions 61-75)

61. The mean of 5, 7, 9, 11, 13 is:

(A) 7

(B) 8

(C) 9

(D) 10

62. The median of 3, 6, 8, 12, 15, 18 is:

(A) 8

(B) 10

(C) 12

(D) 15

63. Variance is the square of:

(A) Mean

(B) Median

(C) Standard deviation

(D) Range

64. If $P(A) = 0.3$ and $P(B) = 0.4$ and events are mutually exclusive, then $P(A \cup B)$ is:

(A) 0.12

(B) 0.7

(C) 0.1

(D) 0.5

65. In binomial distribution, mean = 12 and variance = 8, then n is:

(A) 24

(B) 36

(C) 18

(D) 20

66. The correlation coefficient ranges between:

(A) 0 and 1

(B) -1 and 1

(C) - and

(D) 0 and

67. If $r = 0.8$, the coefficient of determination is:

(A) 0.8

(B) 0.64

(C) 0.4

(D) 0.16

68. In regression equation $Y = a + bX$, b represents:

(A) Intercept

(B) Slope

(C) Correlation

(D) Mean

69. Laspeyres index uses weights of:

(A) Current year

(B) Base year

(C) Average of both

(D) None

70. For standard normal distribution, mean is:

(A) 0

(B) 1

(C) Variable

(D) Undefined

71. The range of 10, 15, 20, 25, 30 is:

(A) 10

(B) 15

(C) 20

(D) 25

72. If two events are independent, then $P(A \cap B) =$

(A) $P(A) + P(B)$
(B) $P(A) \times P(B)$
(C) $P(A) - P(B)$
(D) $P(A)/P(B)$

73. The standard error of mean is:

(A) $\sigma/\sqrt{n}$
(B) $\sqrt{n}/\sigma$
(C) $\sigma \times \sqrt{n}$
(D) σ^2/n

74. Which measure is affected most by extreme values?

(A) Median
(B) Mode
(C) Mean
(D) All equally

75. Probability of getting a head in a single coin toss is:

(A) 0
(B) 0.25
(C) 0.5
(D) 1

Computer Science (Questions 76-85)

76. Database is a collection of

(A) Files
(B) Information
(C) Data
(D) All of these

77. Dot-matrix is a type of

(A) Printer
(B) Disk
(C) Bus
(D) Tape

78. SMTP stands for

(A) System Mail Transfer Protocol

(B) Scientific Mail Transfer Protocol

(C) Small Mail Transfer Protocol

(D) Simple Mail Transfer Protocol

79. The main function of computer is

(A) Logical operations

(B) To require results

(C) Storing information

(D) Data processing

80. 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

81. FTP stands for

(A) File Terminal Protocol

(B) File Transfer Protocol

(C) File Transmitter Protocol

(D) File Transmission Protocol

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

(A) MAN

(B) WAN

(C) LAN

(D) None of these

83. One Megabyte is equivalent to

(A) 2^{30} bytes

(B) 2^{20} bytes

(C) 2^{10} bytes

(D) None of these

84. A record is a collection of

(A) Information

(B) Data files

(C) Data items

(D) Files

85. Rearranging data in a new sequence is known as

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

Mathematics (Questions 86-90)

86. 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

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

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

88. 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

89. 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

90. A vector of magnitude zero is called

(A) Position vector
(B) Null vector
(C) Free vector
(D) None of these

ANSWER KEY - SAMPLE PAPER

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

– 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	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
6	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
11	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
16	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
21	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
26	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
31	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
36	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
41	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
46	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
51	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
56	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
61	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
66	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
71	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
76	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
81	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D
86	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ **C** ○	○ ○ ○ ○
	A B C D	A B C D	A B C D	A B C D	A B C D

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,

Admissions Office
National Textile University, Faisalabad

"Excellence in Education, Innovation for Future"

National Textile University - Shaping Futures, Creating Leaders