

COMPUTER SCIENCE

Class VI

Chapter 9

I. Character Set

I. Write down the symbols of the special characters:

Name	Symbol	Name	Symbol
Hash	#	Semi – Colon	;
Forward Slash	/	Dollar Sign	\$
Astrisk	*	Double quotes	“ ”
Colon	:	Exclamation	!

II. Complete the table with reference to arithmetical operators as shown below:

Operations	Operand	Format Used in QBASIC
Multiplication	*	M * N
Addition	+	M + N
Division	/	M / N
Exponent	^	M ^ N
Subtration	-	M – N

III. Write down the names of the following relational operators.

Relational Operator	Meaning	Relational Operator	Meaning
>	Greater than	<>	Not Equal
<=	Less than or equal to	<	Less than
=	equal	>=	Greater than or equal to

IV. Name the three types of logical operators and also mention how they are used in QBASIC.

Logical Operator	Format used in QBASIC	Result, if A=10, B=8, C=5
AND	(A=B) AND (B=C)	(10 = 8) AND (8=5) → False
OR	(A=B) OR (B=C)	(10 = 8) OR (8=5) → False
NOT	NOT (A=B)	NOT (10=8) → True

V. Convert the following mathematical expression into QBASIC expression.

Mathematical Expression	QBASIC Expression
$4 \times 5 + 15$	$4 * 5 + 15$
$a + bc$	$a + b * c$
$\frac{(ab + cd)}{2}$	$(a * b + c * d) / 2$
pqr	$p * q * r$
$a^2 + b^3 + c^4$	$a ^ 2 + b ^ 3 + c ^ 4$

VI. Rewrite the given instructions in QBASIC:

- $(p * q * r) / 100$
- $m ^ 2 + n ^ 3$
- $(a + b) / (a * b)$
- $(m - 5) * 10$
- $(p + q) * 2$
- $a >= b$
- $(a + b) < (a * b)$
- $(2 * a + 3 * b) >= 50$

Subjective:

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- QBASIC developed by Bill Gates and Paul Allen in the year 1975, it is a high level programming language. It works in an Integrated Development Environment (IDE). QBasic window is used to write the QBasic programs.

2. The features of QBASIC are:
 - It is windows based user – friendly language.
 - It is Compiler – based language.
 - Works with numeric and non-numeric data
 - Easy to find errors and debug errors.
 - Useful for mathematical, scientific and engineering purpose.

3. A set of characters that are allowed to use in QBASIC is known as the Character Set.
The different types of character set are: Alphabets (both small and capital), Numbers (0 to 9) and Special characters (!, @, #, \$, %, ^, &, *).

4. An operator is a symbol which tells the computer to perform certain mathematical and logical calculation.
The different types of operators are:
 - Arithmetical Operators
 - Relational Operators
 - Logical Operators

5. (a) Arithmetic operators are the symbols that represent arithmetic math operations. Examples include + (addition operator), - (subtraction operator), * (multiplication operator), and / (division operator). Eg. $A + B$, $A * B$, etc.
(b) Relational Operators are used to perform comparisons on two values of same type, and after checking the condition it gives the result in either 'true' or 'false'.
Examples of relational operators: (>, <, <=, >=, =, <>) Eg. $A < B$, $A <= B$, etc.
(c) Logical operators are used to compare two or more expressions and give the result in 'true or false' depending upon the situation of the logical expression. Examples of logical operator are: AND, OR, NOT.

6. The rules of mathematical operator are:
 - There must be an operator between two operands.
 - Zero (0) raised to the power of any number is significant.
 - Division by zero (0) is an invalid statement.

II. Constant and Variables

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I. Fill in the blanks

- | | |
|------------------|--------------------------|
| 1. \$ | 4. String / alphanumeric |
| 2. Numeric | 5. Alphabets |
| 3. 12 characters | 6. Numeric |

IV. Name them:

- | | |
|-------------------------|------------------------------------|
| 7. (a) Numeric Variable | (b) Alphanumeric / String Variable |
| 8. (a) Numeric Constant | (b) Alphanumeric / String Constant |

V. Correct the following expressions:

- | | | |
|---------------------------------------|---|-----------------------------------|
| 9. B\$ =WORLD CUP 2007 | → | B\$ = "WORLD CUP 2007" |
| 10. "DELHI PUBLIC SCHOOL" = D\$ | → | D\$ = "DELHI PUBLIC SCHOOL" |
| 11. \$\$A = "ARYA PUBLISHING COMPANY" | → | A\$ = "ARYA PUBLISHING COMPANY" |
| 12. P\$ = (A + B)2 | → | P = (A + B) ^ 2 |
| 13. 4B\$ = "NEW DELHI" | → | B\$ = "NEW DELHI" |
| 14. A= 4P + 5Q | → | A = 4 * P + 5 * Q |
| 15. AVG = (2A + 3B + 4C) / 3 | → | AVG = (2 * A + 3 * B + 4 * C) / 3 |
| 16. A * B = AB + CD | → | AB = A * B + C * D |

VI. Write down the appropriate variables for the following:

- A\$ = "Understanding Information Technology"
- P = A * B * C
- B\$ = "15th August 1947"
- S = ½ * A + ½ * B
- A = 11.99

Subjective:

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I. Define the following terms:

- Variables:** A variable in QBasic is a small amount of computer memory that has been given a name, and is used to store data temporarily.
- Constant:** Constant are the data values stored in a program that remains the same during the program execution.
- Numeric Variable:** A numeric variable is a variable which can store numeric value is called numeric variable. E.g. A=12, B = 3.14.
- Alphanumeric Variable:** Alphanumeric Variable is a combination of one or more characters of alphanumeric values and end a dollar (\$) sign.
E.g. A\$ = "Tripura Agartala" → A\$ is alphanumeric variable.
- Alphanumeric constant:** Alphanumeric constant is a sequence of characters like set of alphabets (a-z), numbers (0 - 9), special characters (!, @, #, \$, %, ^, &, *) enclosed in double quotes marks (" "). E.g. "Hello ! Welcome 2 Holy Cross School".
- Numeric Constant:** Numeric constant is a data that refers to a number that can be with or without decimal point on which mathematical and logical operations can be performed. The numeric data should not be enclosed in double quotes. E.g. 12345, 12.45

II. Give two differences between

- Numeric constants and Alphanumeric constants

Numeric constant	Alphanumeric / String constant
i. It contains data that refers to numbers with or without decimal.	i. It contains data that refers to alphabets, numbers, and special characters.
ii. it is not enclosed in double quotes.	ii. It is enclosed in double quotes.

- Numeric Variable and Alphanumeric Variable

Numeric Variable	Alphanumeric / String Variable
i. They can store numbers or numeric values.	i. They can store set of alphabets, numbers, and special characters.
ii. It is used for mathematical operations.	ii. It is not used for mathematical operations.