



Cambridge International AS & A Level

COMPUTER SCIENCE

9618/21

Paper 2 Fundamental Problem-solving and Programming Skills

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INSERT

2 hours

INFORMATION

- This insert contains all the resources referred to in the questions.
- You may annotate this insert and use the blank spaces for planning. **Do not write your answers** on the insert.



This document has **4** pages.

An error will be generated if a function call is not properly formed or if the parameters are of an incorrect type or an incorrect value.

String and character functions

- A string of length 1 may be considered to be either of type CHAR or STRING
- A CHAR may be assigned to, or concatenated with, a STRING
- A STRING of length greater than 1 cannot be assigned to a CHAR

<p>LEFT(ThisString : STRING, x : INTEGER) RETURNS STRING</p> <p>returns leftmost x characters from ThisString</p> <p>Example: LEFT("ABCDEFGH", 3) returns "ABC"</p>
<p>RIGHT(ThisString : STRING, x : INTEGER) RETURNS STRING</p> <p>returns rightmost x characters from ThisString</p> <p>Example: RIGHT("ABCDEFGH", 3) returns "FGH"</p>
<p>MID(ThisString : STRING, x : INTEGER, y : INTEGER) RETURNS STRING</p> <p>returns a string of length y starting at position x from ThisString</p> <p>Example: MID("ABCDEFGH", 2, 3) returns string "BCD"</p>
<p>LENGTH(ThisString : STRING) RETURNS INTEGER</p> <p>returns the integer value representing the length of ThisString</p> <p>Example: LENGTH("Happy Days") returns 10</p>
<p>TO_UPPER(x : <datatype>) RETURNS <datatype></p> <p><datatype> may be CHAR or STRING</p> <p>returns an object of type <datatype> formed by converting all characters of x to upper case.</p> <p>Examples:</p> <ul style="list-style-type: none"> • TO_UPPER("Error 803") returns "ERROR 803" • TO_UPPER('a') returns 'A'
<p>TO_LOWER(x : <datatype>) RETURNS <datatype></p> <p><datatype> may be CHAR or STRING</p> <p>returns an object of type <datatype> formed by converting all characters of x to lower case.</p> <p>Examples:</p> <ul style="list-style-type: none"> • TO_LOWER("JIM 803") returns "jim 803" • TO_LOWER('W') returns 'w'
<p>NUM_TO_STR(x : <datatype1>) RETURNS <datatype2></p> <p>returns a string representation of a numeric value.</p> <p><datatype1> may be REAL or INTEGER, <datatype2> may be CHAR or STRING</p> <p>Example: NUM_TO_STR(87.5) returns "87.5"</p> <p>If x is a negative value, the returned value will be a string beginning with the '-' character.</p>
<p>STR_TO_NUM(x : <datatype1>) RETURNS <datatype2></p> <p>returns a numeric representation of a string.</p> <p><datatype1> may be CHAR or STRING, <datatype2> may be REAL or INTEGER</p> <p>Example: STR_TO_NUM("23.45") returns 23.45</p> <p>If the string begins with the '-' character, the returned value will be negative.</p>

<p>IS_NUM(ThisString : <datatype>) RETURNS BOOLEAN</p> <p>returns TRUE if ThisString represents a valid numeric value. <datatype> may be CHAR or STRING</p> <p>Example: IS_NUM("-12.36") returns TRUE</p>
<p>ASC(ThisChar : CHAR) RETURNS INTEGER</p> <p>returns an integer value (the ASCII value) of character ThisChar</p> <p>Example: ASC('A') returns 65, ASC('B') returns 66</p>
<p>CHR(x : INTEGER) RETURNS CHAR</p> <p>returns the character whose integer value (the ASCII value) is x</p> <p>Example: CHR(65) returns 'A', CHR(66) returns 'B'</p>

Numeric functions

<p>INT(x : REAL) RETURNS INTEGER</p> <p>returns the integer part of x</p> <p>Example: INT(27.5415) returns 27</p>
<p>RAND(x : INTEGER) RETURNS REAL</p> <p>returns a real number in the range 0 to x (not inclusive of x).</p> <p>Example: RAND(87) could return 35.430729</p>

Date functions

Date format is assumed to be DD/MM/YYYY unless otherwise stated.

<p>DAY(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the day number from ThisDate</p> <p>Example: DAY(04/10/2003) returns 4</p>
<p>MONTH(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the month number from ThisDate</p> <p>Example: MONTH(04/10/2003) returns 10</p>
<p>YEAR(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the year number from ThisDate</p> <p>Example: YEAR(04/10/2003) returns 2003</p>
<p>DAYINDEX(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the day index number from ThisDate where Sunday = 1, Monday = 2 etc.</p> <p>Example: DAYINDEX(09/05/2023) returns 3</p>
<p>SETDATE(Day, Month, Year : INTEGER) RETURNS DATE</p> <p>returns a value of type DATE with the value of <Day>/<Month>/<Year></p> <p>Example: SETDATE(26, 10, 2003) returns a date corresponding to 26/10/2003</p>
<p>TODAY() RETURNS DATE</p> <p>returns a value of type DATE corresponding to the current date.</p>

Text file functions

`EOF(FileName : STRING)` RETURNS BOOLEAN

returns `TRUE` if there are no more lines to be read from file `FileName`
will generate an error if the file is not already open in `READ` mode.

Operators

An error will be generated if an operator is used with a value or values of an incorrect type.

&	concatenates (joins) two strings. Example: <code>"Summer" & " " & "Pudding"</code> evaluates to <code>"Summer Pudding"</code> may also be used to concatenate a <code>CHAR</code> with a <code>STRING</code>
AND	performs a logical AND on two Boolean values. Example: <code>TRUE AND FALSE</code> evaluates to <code>FALSE</code>
OR	performs a logical OR on two Boolean values. Example: <code>TRUE OR FALSE</code> evaluates to <code>TRUE</code>
NOT	performs a logical NOT on a Boolean value. Example: <code>NOT TRUE</code> evaluates to <code>FALSE</code>
MOD	finds the remainder when one number is divided by another. Example: <code>10 MOD 3</code> evaluates to <code>1</code>
DIV	finds the quotient when one number is divided by another. Example <code>10 DIV 3</code> evaluates to <code>3</code>

Comparison operators

=	used to compare two items of the same type. evaluates to <code>TRUE</code> if the condition is true, otherwise evaluates to <code>FALSE</code>
>	Notes: <ul style="list-style-type: none"> • may be used to compare types <code>REAL</code> and <code>INTEGER</code> • may be used to compare types <code>CHAR</code> and <code>STRING</code> • case sensitive when used to compare types <code>CHAR</code> and/or <code>STRING</code> • cannot be used to compare two records
<	
>=	
<=	
<>	
	Examples: <ul style="list-style-type: none"> • <code>"Program" = "program"</code> evaluates to <code>FALSE</code> • <code>Count = 4</code> evaluates to <code>TRUE</code> when <code>Count</code> contains the value <code>4</code>

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