



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.

Functions

Note: 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

<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 string ThisString</p> <p>Example: LENGTH("Happy Days") returns 10</p>
<p>LCASE(ThisChar : CHAR) RETURNS CHAR</p> <p>returns the character representing the lower-case equivalent of ThisChar</p> <p>Alphabetic characters that are not upper case are returned unchanged.</p> <p>Example: LCASE('W') returns 'w'</p>
<p>UCASE(ThisChar : CHAR) RETURNS CHAR</p> <p>returns the character representing the upper-case equivalent of ThisChar</p> <p>Alphabetic characters that are not lower case are returned unchanged.</p> <p>Example: UCASE('a') returns 'A'</p>
<p>TO_UPPER(ThisString : STRING) RETURNS STRING</p> <p>returns a string formed by converting all characters of ThisString to upper case.</p> <p>Example: TO_UPPER("Error 803") returns "ERROR 803"</p>
<p>TO_LOWER(ThisString : STRING) RETURNS STRING</p> <p>returns a string formed by converting all characters of ThisString to lower case.</p> <p>Example: TO_LOWER("JIM 803") returns "jim 803"</p>
<p>NUM_TO_STR(x : <datatype1>) RETURNS <datatype2></p> <p>returns a string representation of a numeric value.</p> <p>Note: <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>STR_TO_NUM(x : <datatype1>) RETURNS <datatype2></p> <p>returns a numeric representation of a string.</p> <p>Note: <datatype1> may be CHAR or STRING, <datatype2> may be REAL or INTEGER</p> <p>Example: STR_TO_NUM("23.45") returns 23.45</p>

String and Character Functions

<p>IS_NUM(ThisString : <datatype>) RETURNS BOOLEAN</p> <p>returns the value TRUE if ThisString represents a valid numeric value.</p> <p>Note: <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, etc.</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', etc.</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 35.43</p>

Date Functions

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

<p>DAY(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the current day number from ThisDate</p> <p>Example: DAY(04/10/2003) returns 4</p>
<p>MONTH(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the current month number from ThisDate</p> <p>Example: MONTH(04/10/2003) returns 10</p>
<p>YEAR(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the current year number from ThisDate</p> <p>Example: YEAR(04/10/2003) returns 2003</p>
<p>DAYINDEX(ThisDate : DATE) RETURNS INTEGER</p> <p>returns the current day index number from ThisDate where Sunday = 1, Monday = 2, etc.</p> <p>Example: DAYINDEX(12/05/2020) returns 3</p>
<p>SETDATE(Day, Month, Year : INTEGER) RETURNS DATE</p> <p>returns a variable of type DATE with the value of <Day>/<Month>/<Year></p>
<p>TODAY() RETURNS DATE</p> <p>returns a variable of type DATE with the value set 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`

Note: The function will generate an error if the file is not already open in `READ` mode.

Operators

Note: 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> Note: 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. Returns <code>TRUE</code> if the condition is true, otherwise returns <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> 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 variable <code>count</code> contains the value <code>4</code>

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