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Cambridge Assessment International Education

# Cambridge International AS & A Level

**COMPUTER SCIENCE** **9618/23**

Paper 2 Fundamental Problem-solving and Programming Skills **May/June 2021**

INSERT **2 hours**

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**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.



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**Note: An error occurs if a function call is not properly formed, or if the parameters are incorrect.**

**STRING Functions**

`LEFT(ThisString : STRING, x : INTEGER) RETURNS STRING`
returns leftmost `x` characters from `ThisString`

Example: `LEFT("ABCDEFGH", 3)` returns `"ABC"`

`RIGHT(ThisString : STRING, x : INTEGER) RETURNS STRING`
returns rightmost `x` characters from `ThisString`

Example: `RIGHT("ABCDEFGH", 3)` returns `"FGH"`

`MID(ThisString : STRING, x : INTEGER, y : INTEGER) RETURNS STRING`
returns a string of length `y` starting at position `x` from `ThisString`

Example: `MID("ABCDEFGH", 2, 3)` returns `"BCD"`

`LENGTH(ThisString : STRING) RETURNS INTEGER`
returns the integer value representing the length of `ThisString`

Example: `LENGTH("Happy Days")` returns `10`

`LCASE(ThisChar : CHAR) RETURNS CHAR`
returns the character value representing the lower case equivalent of `ThisChar`
Characters that are not upper case alphabetic are returned unchanged

Example: `LCASE('W')` returns `'w'`

`UCASE(ThisChar : CHAR) RETURNS CHAR`
returns the character value representing the upper case equivalent of `ThisChar`
Characters that are not lower case alphabetic are returned unchanged

Example: `UCASE('a')` returns `'A'`

`TO_UPPER(ThisString : STRING) RETURNS STRING`
returns a string formed by converting all characters of `ThisString` to upper case

Example: `TO_UPPER("Error 803")` returns `"ERROR 803"`

`TO_LOWER(ThisString : STRING) RETURNS STRING`
returns a string formed by converting all characters of `ThisString` to lower case

Example: `TO_LOWER("JIM 803")` returns `"jim 803"`

`NUM_TO_STR(x : <data type>) RETURNS STRING`
returns a string representation of a numeric value
Note: `<data type>` may be `REAL` or `INTEGER`

Example: `NUM_TO_STR(87.5)` returns `"87.5"`

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`STR_TO_NUM(x : <data type1>) RETURNS <data type2>`
returns a numeric representation of a string
Note: `<data type1>` may be `CHAR` or `STRING`
Note: `<data type2>` may be `REAL` or `INTEGER`

Example: `STR_TO_NUM("23.45")` returns `23.45`

`IS_NUM(ThisString : STRING) RETURNS BOOLEAN`
returns the value `TRUE` if `ThisString` represents a valid numeric value
Note: `<data type>` may be `CHAR` or `STRING`

Example: `IS_NUM("12.36")` returns `TRUE`
Example: `IS_NUM("-12.36")` returns `TRUE`
Example: `IS_NUM("12.3a")` returns `FALSE`

`ASC(ThisChar : CHAR) RETURNS INTEGER`
returns an integer value (the ASCII value) of `ThisChar`

Example: `ASC('A')` returns `65`

`CHR(x : INTEGER) RETURNS CHAR`
returns the character whose integer value (the ASCII value) is `x`

Example: `CHR(87)` returns `'W'`

**NUMERIC Functions**

`INT(x : REAL) RETURNS INTEGER`
returns the integer part of `x`

Example: `INT(27.5415)` returns `27`

`RAND(x : INTEGER) RETURNS REAL`
returns a real number in the range `0` to `x` (**not** inclusive of `x`)

Example: `RAND(87)` could return `35.43`

**DATE Functions**

**Note: Date format is assumed to be DDMMYYYY unless otherwise stated.**

`DAY(ThisDate : DATE) RETURNS INTEGER`
returns the current day number from `ThisDate`

Example: `DAY(4/10/2003)` returns `4`

`MONTH(ThisDate : DATE) RETURNS INTEGER`
returns the current month number from `ThisDate`

Example: `MONTH(4/10/2003)` returns `10`

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`YEAR(ThisDate : DATE) RETURNS INTEGER`
returns the current year number from `ThisDate`

Example: `YEAR(4/10/2003)` returns `2003`

`DAYINDEX(ThisDate : DATE) RETURNS INTEGER`
returns the current day index number from `ThisDate` where Sunday = 1, Monday = 2, Tuesday = 3 etc.

Example: `DAYINDEX(12/05/2020)` returns `3`

`SETDATE(Day, Month, Year : INTEGER) RETURNS DATE`
returns a variable of type `DATE`

`NOW() RETURNS DATE`
returns the current date

**OTHER Functions**

`EOF(FileName : STRING) RETURNS BOOLEAN`
returns `TRUE` if there are no more lines to be read from file `FileName`

Note: This function will generate an ERROR if the file is not already open in `READ` mode

**OPERATORS**

| | |
|---|---|
| `&` | Concatenates (joins) two strings<br>Example: `"Summer" & " " & "Pudding"` evaluates to `"Summer Pudding"`<br>Note: This operator may also be used to concatenate a character with a string |
| `AND` | Performs a logical `AND` on two Boolean values<br>Example: `TRUE AND FALSE` evaluates to `FALSE` |
| `OR` | Performs a logical `OR` on two Boolean values<br>Example: `TRUE OR FALSE` evaluates to `TRUE` |
| `NOT` | Performs a logical `NOT` on a Boolean value<br>Example: `NOT TRUE` evaluates to `FALSE` |
| `MOD` | Finds the remainder when one number is divided by another<br>Example: `10 MOD 3` evaluates to `1` |
| `DIV` | Finds the quotient when one number is divided by another<br>Example `10 DIV 3` evaluates to `3` |

**Note: An error is generated if an operator is used with a value or values of an incorrect type.**

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