

# Cambridge International AS & A Level

COMPUTER SCIENCE 9618/23

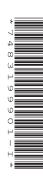
Paper 2 Fundamental Problem-solving and Programming Skills

May/June 2021

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.



## 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 (This String: STRING, x: INTEGER, y: INTEGER) RETURNS STRING returns a string of length y starting at position x from This String

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"

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  $\boldsymbol{x}$ 

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

returns the current month number from this bate

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

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  ${\tt ThisDate}$  where  ${\tt Sunday}$  = 1,  ${\tt Monday}$  = 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  Example: "Summer" & " " & "Pudding" evaluates to "Summer Pudding"  Note: This operator may also be used to concatenate a character with a string
AND	Performs a logical AND on two Boolean values  Example: TRUE AND FALSE evaluates to FALSE
OR	Performs a logical OR on two Boolean values  Example: TRUE OR FALSE evaluates to TRUE
NOT	Performs a logical NOT on a Boolean value  Example: NOT TRUE evaluates to FALSE
MOD	Finds the remainder when one number is divided by another Example: 10 MOD 3 evaluates to 1
DIV	Finds the quotient when one number is divided by another 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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