



# Cambridge International AS & A Level

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**COMPUTER SCIENCE**

**9618/21**

Paper 2 Fundamental Problem-solving and Programming Skills

**October/November 2022**

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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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  returns leftmost x characters from ThisString  Example: LEFT("ABCDEFGH", 3) returns "ABC"</p>
<p>RIGHT(ThisString : STRING, x : INTEGER) RETURNS STRING  returns rightmost x characters from ThisString  Example: RIGHT("ABCDEFGH", 3) returns "FGH"</p>
<p>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"</p>
<p>LENGTH(ThisString : STRING) RETURNS INTEGER  returns the integer value representing the length of ThisString  Example: LENGTH("Happy Days") returns 10</p>
<p>LCASE(ThisChar : CHAR) RETURNS CHAR  returns the character representing the lower-case equivalent of ThisChar  Non upper-case alphabetic characters are returned unchanged.  Example: LCASE('W') returns 'w'</p>
<p>UCASE(ThisChar : CHAR) RETURNS CHAR  returns the character representing the upper-case equivalent of ThisChar  Non lower-case alphabetic characters are returned unchanged.  Example: UCASE('a') returns 'A'</p>
<p>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"</p>
<p>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"</p>
<p>NUM_TO_STR(x : &lt;datatype1&gt;) RETURNS &lt;datatype2&gt;  returns a string representation of a numeric value.  Note: &lt;datatype1&gt; may be REAL or INTEGER, &lt;datatype2&gt; may be CHAR or STRING  Example: NUM_TO_STR(87.5) returns "87.5"</p>
<p>STR_TO_NUM(x : &lt;datatype1&gt;) RETURNS &lt;datatype2&gt;  returns a numeric representation of a string.  Note: &lt;datatype1&gt; may be CHAR or STRING, &lt;datatype2&gt; may be REAL or INTEGER  Example: STR_TO_NUM("23.45") returns 23.45</p>

IS\_NUM(ThisString : <datatype>) RETURNS BOOLEAN  
 returns the value TRUE if ThisString represents a valid numeric value.  
 Note: <datatype> may be CHAR or STRING  
 Example: IS\_NUM("-12.36") returns TRUE

ASC(ThisChar : CHAR) RETURNS INTEGER  
 returns an integer value (the ASCII value) of character ThisChar  
 Example: ASC('A') returns 65, ASC('B') returns 66 etc.

CHR(x : INTEGER) RETURNS CHAR  
 returns the character whose integer value (the ASCII value) is x  
 Example: CHR(65) returns 'A', CHR(66) returns 'B' etc.

### 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 DD/MM/YYYY unless otherwise stated.

DAY(ThisDate : DATE) RETURNS INTEGER  
 returns the current day number from ThisDate  
 Example: DAY(04/10/2003) returns 4

MONTH(ThisDate : DATE) RETURNS INTEGER  
 returns the current month number from ThisDate  
 Example: MONTH(04/10/2003) returns 10

YEAR(ThisDate : DATE) RETURNS INTEGER  
 returns the current year number from ThisDate  
 Example: YEAR(04/10/2003) returns 2003

DAYINDEX(ThisDate : DATE) RETURNS INTEGER  
 returns the current day index number from ThisDate where Sunday = 1, Monday = 2 etc.  
 Example: DAYINDEX(12/05/2020) returns 3

SETDATE(Day, Month, Year : INTEGER) RETURNS DATE  
 returns a variable of type DATE with the value of <Day>/<Month>/<Year>  
 Example: SETDATE(26, 10, 2003) returns a date corresponding to 26 October 2003

TODAY() RETURNS DATE  
 returns a variable of type DATE corresponding to the current date.

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

## Comparison Operators

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

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