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Q3)

a) Features of Macro facility

i) Macro Instruction Arguments
ii) Conditional Macro Expansion
iii) Macro calls with macro
iv) Macro instruction defining macros.

A) Macro Instruction Arguments.

- Macro calls replaces the call by a block of code
- No flexibility to modify code that replaces the call
- Extension for providing argument or parameter in macro call
- Arguments that are not specified, are presumed blank by macro processor.

B) Conditional Macro Expansion

- AIF & AGO permit conditional reordering of the sequences of macro expansion.
- AIF
  - conditional branch
  - performs arithmetic test and branches if condition is true
- AGO
  - unconditional branch
  - Machine instruction that appear in the expansion of a macro call.

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C) Macro Instruction defining Macros
- macros can be defined within a mac
- Inner macros definition is not defin until after the outer macro has been called
- Group of macros can be defined for subroutine calls with some standardiz calling sequence
- Individual macros have names of the associated subroutines.

D) Macro calls with macro
- also known as nested macro calls
- A macro can be called within another macro
- A macro can call itself (using AIF or AGO) so long as it doesn't go into an infinite loop.

Need of Macro.
1. Macro are used to make a sequence of computing instruction available to the programmer as a single program statement
2. Program is less tedious and less error prone
3. It can be useful if tokens are concatenated into code to simplify some complex declarations.

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eg:- Macro instruction arguments.

```
A   1, FIVE
A   2, FIVE
A   3, FIVE
 :
 :
 :

A   1, FOUR
A   2, FOUR
A   3, FOUR

FIVE DC F'5'
FOUR DC F'4'
```

```
MACRO
ADDM &ARG
A   1, &ARG
A   2, &ARG
A   3, &ARG
MEND
 :
 :
 :
ADDM FIVE

ADDM FOUR

FIVE DC F'5'

FOUR DC F'4'
```