**Lab Assignment No 3**

**Implementation of Pass 1 of a 2 Pass Macroprocessor**

**Batch 1**

**Input:**

| **ALP  with Macro Definition and Macro Call** |
| --- |
| MACRO |
| INCR   &ARG1    &ARG2 |
| ADD  AREG   &ARG1 |
| ADD  BREG   &ARG2 |
| MEND |
| MACRO |
| DECR   &ARG3    &ARG4 |
| SUB  AREG   &ARG3 |
| SUB  BREG   &ARG4 |
| MEND |
| START |
| MOVER  AREG  S1 |
| MOVER  BREG  S1 |
| INCR  D1  D2 |
| DECR D3 D4 |
| S1  DC  5 |
| D1  DC  2 |
| D2  DC  3 |
| D3 DC 4 |
| D4 DC 5 |
| END |

**Output:**

| **MNT** | | |
| --- | --- | --- |
| MNT Index | Macro Name | MDT Index |
| 1 | INCR | 1 |
| 2 | DECR | 5 |
| **MDT** | |
| MDT Index | Instruction |
| 1 | INCR   &ARG1    &ARG2 |
| 2 | ADD  AREG   #1 |
| 3 | ADD  BREG   #2 |
| 4 | MEND |
| 5 | DECR   &ARG3  &ARG4 |
| 6 | SUB  AREG   #3 |
| 7 | SUB  BREG   #4 |
| 8 | MEND |
| **ALA** | |
| ALA Index | Dummy Arguments |
| #1 | &ARG1 |
| #2 | &ARG2 |
| #3 | &ARG3 |
| #4 | &ARG4 |
| **ALP  without Macro Definition but with Macro Call** |
| START |
| MOVER  AREG  S1 |
| MOVER  BREG  S1 |
| INCR  D1  D2 |
| DECR D3 D4 |
| S1  DC  5 |
| D1  DC  2 |
| D2  DC  3 |
| D3 DC 4 |
| D4 DC 5 |
| END |

**Batch 2**

**Input:**

| **ALP  with Macro Definition and Macro Call** |
| --- |
| MACRO |
| ADDS   &L1    &L2 |
| ADD  AREG   &L1 |
| ADD  BREG   &L2 |
| MEND |
| MACRO |
| SUBS   &L3 |
| SUB  CREG   &L3 |
| MEND |
| START |
| MOVER  AREG  S1 |
| MOVER  BREG  S1 |
| ADDS   D1  D2 |
| SUBS D1 |
| S1  DC  3 |
| D1  DC  3 |
| D2  DC  4 |
| END |

**Output:**

| **MNT** | | |
| --- | --- | --- |
| MNT Index | Macro Name | MDT Index |
| 1 | ADDS | 1 |
| 2 | SUBS | 5 |
| **MDT** | |
| MDT Index | Instruction |
| 1 | ADDS   &L1    &L2 |
| 2 | ADD  AREG   #1 |
| 3 | ADD  BREG   #2 |
| 4 | MEND |
| 5 | SUBS   &L3 |
| 6 | SUB  CREG   #3 |
| 8 | MEND |
| **ALA** | |
| ALA Index | Dummy Arguments |
| #1 | &L1 |
| #2 | &L2 |
| #3 | &L3 |

| **ALP  without Macro Definition but with Macro Call** |
| --- |
| START |
| MOVER  AREG  S1 |
| MOVER  BREG  S1 |
| ADDS   D1  D2 |
| SUBS D1 |
| S1  DC  3 |
| D1  DC  3 |
| D2  DC  4 |
| END |

**Batch 3**

**Input:**

| **ALP  with Macro Definition and Macro Call** |
| --- |
| MACRO |
| INCRV   &Label1    &Label2 |
| ADD  CREG   &Label1 |
| ADD  DREG   &Label2 |
| MEND |
| MACRO |
| DECRV   &L1 |
| SUB  CREG   &L1 |
| MEND |
| START |
| MOVER  CREG  S1 |
| MOVER  DREG  S1 |
| INCRV   D1  D2 |
| DECRV D1 |
| S1  DC  3 |
| D1  DC  3 |
| D2  DC  4 |
| END |

**Output:**

| **MNT** | | |
| --- | --- | --- |
| MNT Index | Macro Name | MDT Index |
| 1 | INCRV | 1 |
| 2 | DECRV | 5 |
| **MDT** | |
| MDT Index | Instruction |
| 1 | INCRV   &Label1    &Label2 |
| 2 | ADD  CREG   #1 |
| 3 | ADD  DREG   #2 |
| 4 | MEND |
| 5 | DECRV   &L1 |
| 6 | SUB  CREG   #3 |
| 8 | MEND |
| **ALA** | |
| ALA Index | Dummy Arguments |
| #1 | &Label1 |
| #2 | &Label2 |
| #3 | &L1 |

| **ALP  without Macro Definition but with Macro Call** |
| --- |
| START |
| MOVER  CREG  S1 |
| MOVER  DREG  S1 |
| INCRV   D1  D2 |
| DECRV   D1 |
| S1  DC  3 |
| D1  DC  3 |
| D2  DC  4 |
| END |

**Batch 4**

**Input:**

| **ALP  with Macro Definition and Macro Call** |
| --- |
| MACRO |
| ADDS   &A1    &A2 |
| ADD  AREG   &A1 |
| ADD  BREG   &A2 |
| MEND |
| MACRO |
| SUBS   &A3    &A4 |
| SUB  AREG   &A3 |
| SUB  BREG   &A4 |
| MEND |
| START |
| MOVER  AREG  S1 |
| MOVER  BREG  S1 |
| ADDS  Data1  Data2 |
| SUBS Data2 Data1 |
| S1  DC  5 |
| Data1  DC  2 |
| Data2  DC  3 |
| END |

**Output:**

| **MNT** | | |
| --- | --- | --- |
| MNT Index | Macro Name | MDT Index |
| 1 | ADDS | 1 |
| 2 | SUBS | 5 |
| **MDT** | |
| MDT Index | Instruction |
| 1 | ADDS   &A1    &A2 |
| 2 | ADD  AREG   #1 |
| 3 | ADD  BREG   #2 |
| 4 | MEND |
| 5 | SUBS   &A3  &A4 |
| 6 | SUB  AREG   #3 |
| 7 | SUB  BREG   #4 |
| 8 | MEND |
| **ALA** | |
| ALA Index | Dummy Arguments |
| #1 | &A1 |
| #2 | &A2 |
| #3 | &A3 |
| #4 | &A4 |
| **ALP  without Macro Definition but with Macro Call** |
| START |
| MOVER  AREG  S1 |
| MOVER  BREG  S1 |
| ADDS  Data1  Data2 |
| SUBS Data2 Data1 |
| S1  DC  5 |
| D1  DC  2 |
| D2  DC  3 |
| END |