1) What is the output of the following program?

```
        .ORIG x3000
         LD       R1, LETA
         LEA      R0, BUFFER
         STR      R1, R0, #0
         ADD      R1, R1, #1
          STR      R1, R0, #1
         ADD      R1, R1, #1
          STR      R1, R0, #2
         ADD      R1, R1, #1
          STR      R1, R0, #3
          TRAP     x22
          LD       R0, LF
          TRAP     x21
          LEA      R0, STRING
          TRAP     x22
          TRAP     x25
LF      .FILL    x000A
LETA    .FILL    x0041
BUFFER .BLKW    #4
STRING .STRINGZ "EFGH"
         .END
```

2) What does the following do?

```
          LEA    R3,Binary
          LD     R6,ASCII
          LD     R7,COUNT
AGAIN     TRAP   x23
          ADD    R0,R0,R6
          STR    R0,R3,#0
          ADD    R3,R3,#1
          ADD    R7,R7,#-1
          BRp    AGAIN
          BRnzp  NEXT_TASK
ASCII     .FILL  xFFD0
COUNT     .FILL  #10
Binary    .BLKW  #10
```

3) What does the following code do?

```
START     LDI     R1, KBSR
          BRzp    START
          LDI     R0, KBDR

EO        LDI     R1, DSR
          BRzp    EO
          STI     R0, DDR

          BRnzp   NEXT_TASK
KBSR     .FILL   xFE00
KBDR     .FILL   xFE02
DSR      .FILL   xFE04
DDR      .FILL   xFE06
```

4) What does the following program do?

```
        .ORIG x3000
        AND R5, R5, #0
         AND R3, R3, #0
         ADD R3, R3, #8
         LEA R0, BB
         LDR R1, R0, #1
         LDR R1, R1, #0
         ADD R2, R1, #0
AGAIN   ADD R2, R2, R2
         ADD R3, R3, #-1
         BRp AGAIN
         LDR R4, R0, #0
         AND R1, R1, R4
         NOT R1, R1
         ADD R1, R1, #1
         ADD R2, R2, R1
         BRnp  NO
         ADD R5, R5, #1
NO      TRAP x25
BB      .FILL xFF00
         .FILL x4000
         .END
```

5) What does the following code do?

```
              .ORIG   x0450
              ST      R7, SaveR7
              ST      R0, SaveR0
              ST      R1, SaveR1
              ST      R3, SaveR3
Loop          LDR     R1, R0, #0
              BRz     Return
L2            LDI     R3,DSR
              BRzp    L2
              STI     R1, DDR
              ADD     R0, R0, #1
              BRnzp   Loop
Return        LD      R3, SaveR3
              LD      R1, SaveR1
              LD      R0, SaveR0
              LD      R7, SaveR7
              RET
DSR           .FILL   xFE04
DDR           .FILL   xFE06
SaveR0        .FILL   x0000
SaveR1        .FILL   x0000
SaveR3        .FILL   x0000
SaveR7        .FILL   x0000
              .END
```