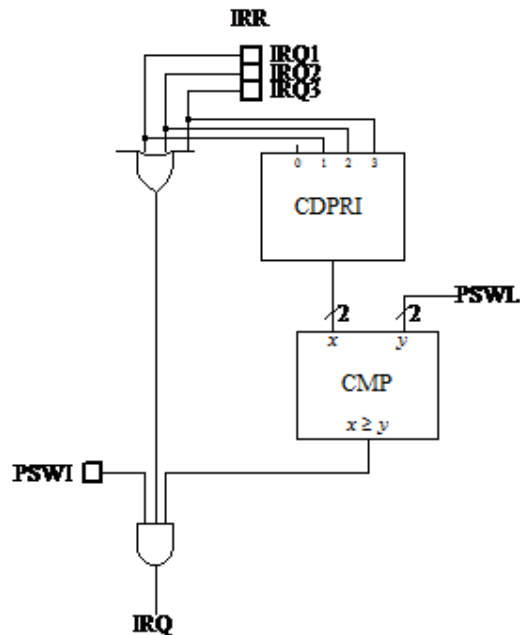


Ispit iz Arhitekture i organizacije računara 2

a) (5p)

Tražena šema prikazana je na slici. Uslovi za prihvatanje prekida su: (1) prekid je dozvoljen (bit I iz PSW je 1) i (2) nivo pristiglog prekida najvišeg prioriteta viši je ili jednak nivou trenutnog izvršavanja koji je kodovan bitima L.



b) (20p)

```
; Dohvatanje instrukcije
BEGIN:   PCout, MARin, Xin
         read, incA, ALUout, PCin
         wmfC
         MDRout, IRin
; Dekodovanje instrukcije
         opcase

; JSR instrukcija
JSR:     SPout, Xin
         decA, ALUout, MARin, SPin, Xin
         PCout, MDRLin
         write, decA, ALUout, SPin
         wmfC
         SPout, MARin
         PCout, MDRHin
         write
         wmfC

; JMP instrukcija
JMP:     PCout, MARin, Xin
         read, incA, ALUout, PCin
         wmfC
         MDRout, TEMPHin
         PCout, MARin, Xin
         read, incA, ALUout, PCin
         wmfC
```

```

MDRout,TEMPLin
TEMPout,PCin,branch(IRQ,INTH)
branch(,BEGIN)

; JZ instrukcija
JZ:    PCout,MARin,Xin
        read,incA,ALUout,PCin
        wmf
        MDRout,TEMPHin
        PCout,MARin,Xin
        read,incA,ALUout,PCin
        wmf
        MDRout,TEMPLin,branch(PSWZ,COND)
        branch(IRQ,INTH)
        branch(,BEGIN)

; JNZ instrukcija
JNZ:    PCout,MARin,Xin
        read,incA,ALUout,PCin
        wmf
        MDRout,TEMPHin
        PCout,MARin,Xin
        read,incA,ALUout,PCin
        wmf
        MDRout,TEMPLin,branch(not(PSWZ),COND)
        branch(IRQ,INTH)
        branch(,BEGIN)

; Izvršavanje uslovnog skoka
COND:    PCout,Xin
        TEMPout,Yin
        add,ALUout,PCin,branch(IRQ,INTH)
        branch(,BEGIN)

; RTS instrukcija
RTS:    SPout,MARin,Xin
        read,incA,ALUout,SPin
        wmf
        MDRout,TEMPHin
        SPout,MARin,Xin
        read,incA,ALUout,SPin
        wmf
        MDRout,TEMPLin
        TEMPout,PCin,branch(IRQ,INTH)
        branch(,BEGIN)

```

```

c) (5p)  START:    LOAD      #0000h
          STORE     R1          ; R1:=0 pocetna vrednost brojaca
          LOAD      #0100h
          STORE     R3          ; R3:=100h pocetna adresa niza
          LOAD      R0          ; A:=R0
          AND       R0          ; A:=A AND R0 provera da li je 0
          JZ        END         ; if(R0=0)goto end
          LOOP:    LOAD      R3(0000h) ; A:=a[i]
          SUB       R2          ; A:=A - R2
          JNZ       NEQU        ; if(a[i]<>R2)goto nequ
          LOAD      R1          ; A:=R1
          ADD       #0001h      ; A:=A + 1
          STORE     R1          ; R1:=A
          NEQU:    LOAD      R3          ; A:=R3
          ADD       #0002h      ; A:=A + 2
          STORE     R3          ; R3:=A
          LOAD      R0          ; A:=R0
          SUB       #0001h      ; A:=A - 1
          STORE     R0          ; R0:=A
          JNZ       LOOP        ; NEXT
          END:

```