

Rešenja zadatka za drugi kolokvijum iz Operativnih sistema 1 Septembar 2014.

1. (10 poena)

```
class Event {
public:
    Event () : mySem(0), mutex(1) {}
    void wait() { mySem.wait(); }
    void signal();
    int val () { return mySem.val(); }
private:
    Semaphore mySem, mutex;
};

inline void Event::signal () {
    mutex.wait();
    if (mySem.val()<1) mySem.signal();
    mutex.signal();
}
```

2. (10 poena)

```
void Linker::firstPass () {
    this.status = OK;
    this.binarySize = 0;
    for (FileReader::reset(); !FileReader::isDone(); FileReader::next()) {
        ObjectFile* objFile = FileReader::currentObjectFile();
        if (objFile==0) {
            Output::error("Fatal internal error: null pointer exception.");
            exit(-1);
        }
        for (objFile.reset(); !objFile.isDone(); objFile.nextSymbol()) {
            Symbol* sym = objFile->getCurrentSymbol();
            if (sym==0) {
                Output::error("Fatal internal error: null pointer exception.");
                exit(-1);
            }
            if (sym->getKind() == Symbol::export) {
                int offset = sym->getOffset();
                offset += this.binarySize;
                int status =
                    SymbolTable::addSymDef(sym->getName(),offset,objFile->getName());
                if (status==-1) {
                    Output::errorMsg("Symbol %d already defined.", sym->getName());
                    this.status = ERROR;
                }
            }
        }
        int size = objFile->getBinarySize();
        this.binarySize += size;
    }
}
```

4. (10 poena)

- a)(3) VA(64): Page1(25):Page2(25):Offset(14).
PA(40): Frame(26):Offset(14).
- b)(7)

```
const unsigned short pg1w = 25, pg2w = 25, offsw = 14;

void setPMTEntry (unsigned* pmt1, unsigned long vaddr, unsigned fr,
                 short r, short w, short x) {
    unsigned pmt1entry = vaddr >> (pg2w + offsw);
    if (pmt1[pmt1entry] == 0)
        pmt1[pmt1entry] = alloc_pmt();
    unsigned* pmt2 = (unsigned*)(pmt1[pmt1entry] << offsw);
    unsigned pmt2entry = (vaddr >> offsw) & ~(-1L << pg2w);
    pmt2[pmt2entry] = (fr << 2) | ((r | w) << 1) | (x | w);
}
```