CMSC 23000	**Operating Systems**	**Homework 6**
Autumn 2006		**Due November 28**

Consider the following simplified in-memory representation of an Unix-style inode:

```
typedef unsigned int BlockId_t;          // disk-block ID

#define BLOCK_SZB     1024               // the size of a disk block in bytes
#define ID_SZB        sizeof(BlockId_t)  // size of block ID
#define IDS_PER_BLOCK (BLOCK_SZB/ID_SZB) // number of block IDs in a block

typedef struct {
    char     bytes[BLOCK_SZB];
} Block_t;

typedef struct {
    dev_t    dev;
    uid_t    uid;
    gid_t    gid;
    offset_t length;
    Block_t  *direct[12];    // direct access blocks
    Block_t  **indirect1;    // one-level of indirection
    Block_t  ***indirect2;   // two-levels of indirection
} INode_t;
```

Assume that you are given the following function, which takes a device ID and disk-block ID and returns a pointer to the in-memory cache of the named block:

```
void *DiskBlock (dev_t dev, BlockId_t id);
```

Give an implementation of the following procedure for mapping a file offset to the block containing it

```
Block_t *OffsetToBlock (INode_t *inode, offset_t off);
```

This function should return a pointer to the in-memory cache of the data block that contains the given offset in the given file.