Comp2303/comp7306
Sample Mid-semester exam questions
Unless stated otherwise, all C questions refer to the ansi (c90) form of the language compiled with -pedantic and -Wall.

1.Which subversion command records changes in the repository?
(a)update
(b)commit
(c)add
(d)log

2.Which of the following ways of entering kernel mode are visible to user programs:
(a)interupts
(b)exceptions
(c)traps
(d)all of the above
(e)a+b
(f)b+c
(g)a+c

3.Which lines will create a program with debug information?
(a)gcc -c -Ddebug prog.c
(b)gcc -o prog prog.c
(c)gcc -d -o prog prog.c
(d)gcc prog.c
(e)gcc -g prog.c
(f)none of the above

4.The three essential phases in producing a C program are:
(a)compile, optimisation, link
(b)preprocess, compile, link
(c)compile, link, celebrate
(d)None of the above

5.In the following function, which lines would cause errors or warnings:

```
int f(void f)                          [1]
{                                      [2]
     char c="A";                       [3]
     c+=1;          // return next char [4]
     return c;                         [5]
}                                      [6]
```

(a)1,3,4
(b)3,4
(c)4,5
(d)1, 3, 5
(e)2
(f)4
(g)There are no errors or warnings

6.What type are var, foo and baz in the following?

```
int var, foo, *baz;
```

(a)var=int, foo=int, baz=pointer to an int
(b)var=int, foo=int, baz=int
(c)var=unsigned int, foo=unsigned int, baz=pointer to unsigned int
(d)var=unsigned int, foo=unsigned int, baz=unsigned int
(e)none of the above.

7.What type is foo in the following:

```
(*foo)()
```

(a)A pointer to a function which doesn't return anything.
(b)A pointer to a function which takes no parameters.
(c)A pointer to a function which takes unknown parameters.
(d)It is not legal C
(e)none of the above

8.What type is foo in the following:

```
void (*)(int) (*foo)(int);
```

(a)A function which takes an int and returns nothing.
(b)A pointer to a function which takes an int and returns an int pointer.
(c)A pointer to a function which returns nothing and takes a pointer to a function taking an int.
(d)A pointer to a function which takes an int and returns a pointer to a function which returns nothing and takes an int.
(e)It isn't legal C
(f)none of the above.

9.What are the values of x,y, z after the following have been executed:

```
int x=0, y=2, z=4;
x=(z++)/(--y);
```

(a)x=0,y=2,z=4
(b)x=2,y=1,z=5
(c)x=5,y=1,z=4
(d)x=4,y=1,z=5
(e)it is not legal C
(f)none of the above

10.What are the values of x,y,z after the following have been executed:

```
int x=0,y=2,z=4;
int* p=&x;
int* q=&y;
x=z;
*p=x;
p= q;
```

(a)x=0, y=0, z=4
(b)x=4, y=2, z=4
(c)x=0, y=2, z=2
(d)x=2, y=2, z=2
(e)x=4, y=4, z=4
(f)It is not legal C

11.What are the values of x,y,x after the following have been executed

```
int x=0, y=2, z=4;
if ( z=(y & z)) {
    x++;
}
if ( (x==0) || (++x>-1)) {
    y*=2;
}
```

(a) x=0, y=4, z=0
(b) x=1, y=2, z=1
(c) x=1, y=4, z=0
(d) x=0, y=2, z=1
(e)it is not legal C
(f)none of the above

12. What are the values of x,y,z after the following have been executed

```
int x=0, y=2, z=4;
int* px=&x;
int* py=&y;
int* p;
p=px;
*p=2;
py=&z;
*py=1;
```

(a)x=0, y=2, z=4
(b)x=2, y=2, z=2
(c)x=0, y=1, z=4
(d)none of the above
(e)it is not legal C
(f)all of the above

13.What is the value of x after the following has executed:

```
int x=0;
for (int i=1;i<20;++i) {
     x+=i;
     i+=x;
}
```

(a)x=20
(b)x=25
(c)x=210
(d)it is not legal C
(e)none of the above

14.If the current user is *bob* who is a member of the groups *people* and *haxors* which programs can the user execute?

```
-rw-r--r--     bob  people    things              [1]
drwxr-xr-x     bob  people    stuff               [2]
-r-xr--r--     jim  haxors    f.exe               [3]
-r-x------     bob  people    notaprogram         [4]
-rw-r-xr-x     bob  haxors    fake                [5]
-r--r--r-x     jim  others    anotherfake         [6]
```

(a)3
(b)1,2,5,6
(c)4,6
(d)4,5,6
(e)3,5,6
(f)2,3,4,5
(g)none of the above

15.In a traditional unix file system as described in lectures:
If the inode for a file is already in memory, how many distinct blocks must be read to access blocks 2 and 14?
(a)0
(b)1
(c)2
(d)3
(e)4
(f)5
(g)15
(h)42
(i)The filesystem does not have blocks.
(j)none of the above.

16.What differences are there between symbolic links and hard links?
(a)Hard links cannot be removed.
(b)A hard link can prevent a file being deleted.
(c)“symbolic links” has an 's' in it “hard links” doesn't
(d)Symbolic links are present only in a symbolic sense.
(e)A symbolic link cannot exist without a hard link.
(f)None of the above

17.A file system is an abstraction to manage:
(a)Processing power.
(b)Storage.
(c)Working memory.
(d)Time
(e)Everything in unix

18.Under what conditions would a linked filesystem perform better than a traditional unix filesystem:
(a)When files are small.
(b)When fragmentation is an issue.
(c)When jumping around in files.
(d)When playing games.
(e)When playing a movie.
(f)When doing an assignment.
(g)Never.

19.Which of the following are standard shell environment variables?
(a)path
(b)user
(c)osname
(d)home
(e)all of the above
(f)a, b, d
(g)a, b
(h)a, b, c
(i)none of the above