This is a pen and paper exercise, write all answers on a piece of paper (yellow pad or bond paper), then submit a photo or scanned image of your answers.

Name: _____

Student Number: _____ Section: _____

I. (0.5 pts each) Given the variable declarations below, write `V` in the blank provided if the statement in each item is (semantically and syntactically) valid. Write `I`, otherwise.

```
char **cptr, *c, x = 'A', y = 'B', z = '2';
int v, w = 7, *p1, *p2, **pptr;
```

_____ 1. `cptr = &c;`
_____ 2. `p1 = &v;`
_____ 3. `pptr = &p1;`
_____ 4. `c = &y;`
_____ 5. `pptr = &v;`
_____ 6. `pptr = p2;`
_____ 7. `cptr = &p2;`
_____ 8. `p2 = *pptr;`
_____ 9. `*p1 = 21;`
_____ 10. `*c = z;`

II. (0.5 pts each) Executing all valid statements in Test I, write in the blank the **output** of the following statements or the **value** of the variables.

_____1. `y`
_____2. `v`
_____3. `*c`
_____4. `**ptr`
_____5. `*cptr`
_____6. `(*p2) + (**pptr)`
_____7. `printf("%c %c", *c, z);`
_____8. `w + w + (*p2 - w)`
_____9. `**pptr + w`
_____10. `*p2 + *p1 + **pptr`

III. (5 pts) Draw on the right column the resulting box-and-arrow diagram of the code snippet from the left. Assume that everything is in the `main()` function. Draw a diagram for each assignment statement to show how the pointers and values change for each assignment statement.

```
1  int x=2, y=3, z=4, *a;
2  int **p, *c, **d;
3
4  p = &c;
5  c = &x;
6  d = p;
7  a = &y;
8  **p = 7;
9  *p = a;
10 **d = *c + **p;
11 *d = &z;
12 *a = x;
```