

EXERCISE SET 3 ** ANSWER SHEET **

16 pts.

Due Tuesday, March 1st

Iterative and Selection Control

1. Indicate whether each of the following requires a definite loop, or an indefinite loop. (2 pts.)

(a) A loop that adds up the first 100 integers.

DEFINITE LOOP INDEFINITE LOOP

(b) A loop that adds up all the numbers entered by the user until they enter -1.

DEFINITE LOOP INDEFINITE LOOP

2. Using a while loop, write a set of instructions that prints out the integers 1 to 5, each on their own line. (4 pts.)

```
n = 1
while n <= 5
  print n
  n = n + 1
```

3. Complete the following example from the class lecture notes. (3 pts.)

```
if grade on exam is >= 90
  if grade >= 97
    grade is A+
  else
    if grade >= 93
      grade is A
    else
      if grade >= 90
        grade is an A-
      Note: This can be a "catch all" case
  else
    if grade on exam is >= 80
      if grade >= 87
        grade is B+
      else
        if grade >= 83
          grade is B
        else
          if grade >= 80
            grade is an B-
            Note: This can be a "catch all" case
    else
      if grade on exam is >= 80
        if grade >= 87
          grade is B+
        else
          if grade >= 83
```

```

        grade is B
    else
    if grade >= 80           Note: This can be a "catch all" case
        grade is an B-
else
etc.

```

User Input Error Checking

3. Write instructions that prompts the user to enter their last name, checking for any entered invalid characters (e.g., *, \$) and prompts them to re-enter if invalid input found. (4 pts.)

```

validName = False

while not validName
    # get name
    name = input ('Enter your last name: ')

    # check for invalid chars
    k = 0
    validName = True

    while validName and k < len(name)
        letter = name[k]
        if not (('a' >= letter and letter <= 'z') or ('B' >= letter and letter <= 'Z'))
            validName = False

        k = k + 1

```

4. Give a modified version of the question 3 so that an entered name is limited to 24 characters, otherwise it is treated as invalid input. (3 pts.)

```

validName = False

while not validName
    # get name
    name = input ('Enter your last name: ')

    # check valid length
    if len(name) > 24
        validName = False
    else
        # check for invalid chars
        k = 0
        validName = True

        while validName and k < len(name)
            letter = name[k]
            if not (('a' >= letter and letter <= 'z') or ('B' >= letter and letter <= 'Z'))
                validName = False

            k = k + 1

```