A. Short Answer:

(1) What are the values of the following expressions?

\[ \frac{10}{5} + 3 \times 2 = \frac{10}{5} + 6 = 8 \]

\[ 3^3 + \left(3 \mod 2\right) \div 2 = 27 + 1 = 28 \]

\[ \frac{1.0}{2.5} \geq 5 - 3 \text{ or } 3 == 1 + 2 \text{ and } 5 \times 2 < 2 \times 5 \quad \text{False} \]

(2) Explain what the `str()` function does.

`str()` casts the input value to a string

e.g. `str(3)` → "3"

(3) Define the term "algorithm."

A sequence of unambiguous steps that defines the process for solving a problem.
B. Comprehension:

(1) What does the code to the right print?

```python
a = 10 
b = 3 * (a-5) 
c = b + (b//a) * a 
print(f"a: {a}"),
print("b: \"+{str(b)}\")
print(f"c: {c:_^5}"),
```

(a: 10
b: 15
c: _25_
)

(2) What does the code to the right print?

```python
a=0 
while a<10:
    print(a)
    if a%2==0:
        a=a+1
    elif a==6:
        a=a
    else:
        a=a*2
```

0 1 2 3 6 7 14

(3) What does the code to the right print?

```python
def fun(x):
    z = x 
    for i in range(3,x):
        z += i 
    return z

a=2 
b=7 
if a*2 < 10 and not b==a+5:
    a = fun(a+b) 
if not (1<a or 3>b):
    b = fun(a*b) 
elif b<=a and b//a+a%a<10*(b-a):
    a = fun(5-a) 
else:
    b = fun(8-a) 
print(a)
print(b)
```

2 18

```
(4) What does the code to the right print?

def f(x):
    return x+g(x)
def g(x):
    return 10-x
def h(x):
    return g(2*x) + f(x+1)
print(h(3))

(5) [4 marks] What does the code to the right print?

def hello(a,b):
    while a<b:
        word = "Hello"
        for i in range(0,a):
            word=word+"!
        a=a+1
        print(word)
hello(2,5)
C. Programming:

(1) Write a program that repeatedly asks the user to enter a positive integer. The program should continue asking the user for numbers until they enter a negative number. At which time the program should output the sum of all of the positive numbers entered.

```python
n=0
sum=0
while(n>=0):
    n = int(input("Enter a number (<0 to quit): "))
    if n>0:
        sum+=n
print(sum)
```

(2) Write a function called evenNums() that takes two integer arguments and returns how many of the arguments are even numbers.

E.g. `evenNums(2,3) → 1`

E.g. `evenNums(4,6) → 2`

```python
def evenNums(a,b):
    if a%2==0 and b%2==0:
        return 2
    elif a%2==0 or b%2==0:
        return 1
    else:
        return 0
```
def sumsFunc(n):
    total = 0
    for i in range(1, n+1):
        rowSum = 0
        for j in range(i, n+1):
            rowSum += j
        print(rowSum)
        total += rowSum
    print(total)