Name - Kiran Mishra
B.Tech CSE (Sec B)
Student ID:- 21122000011108
Registration No. - 210011082435

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Python exam.

F.M - 35.

1)

(i)

```
a = 5
b = 7
z = a & b
print (z)
```

Answer :-

The output will be 5

$a = 101$

$b = 111$

$z = 101$

$z(101)_2 = 5$

The bitwise AND operator returns a 1 in each position for which the corresponding bits of both operands is 1

(ii)

```
a = 5
b = 7
if a == 7 or b == 7:
    print ("Hello")
else:
    print ("HI")
```

Answer :-

ii) a = 5
x = ~a
print(x)

```
  0 0 1 0 1
-       1
-------------
  0 0 1 1 0
```

Answer:-
The output will be **-6**

* The bitwise operator ~ (prononced as tilde) is a complement operator. It takes one bit operand and returns its complement.

iii)

```
a = 5
b = 7
if a == 7 or b == 7
    print ("Hello")
else:
    print ("HI").
```

Answer:-
The output will be **Hello**

The reason is that the 'if statement' executes when ~~any~~ either of the condition is satisfied here b == 7 is true so the word Hello is printed.

(iv)

```
a = 5
b = 7
if a == 7 and b == 7
    print ("Hello")
else :
    print ("HI")
```

Answer :-

The output will be HI

The reason is that the 'and' operator executes only if both the given condition satisfy. Here a is not equal to 7 so one condition goes false and the control shift to the else statement and prints HI.

(v)

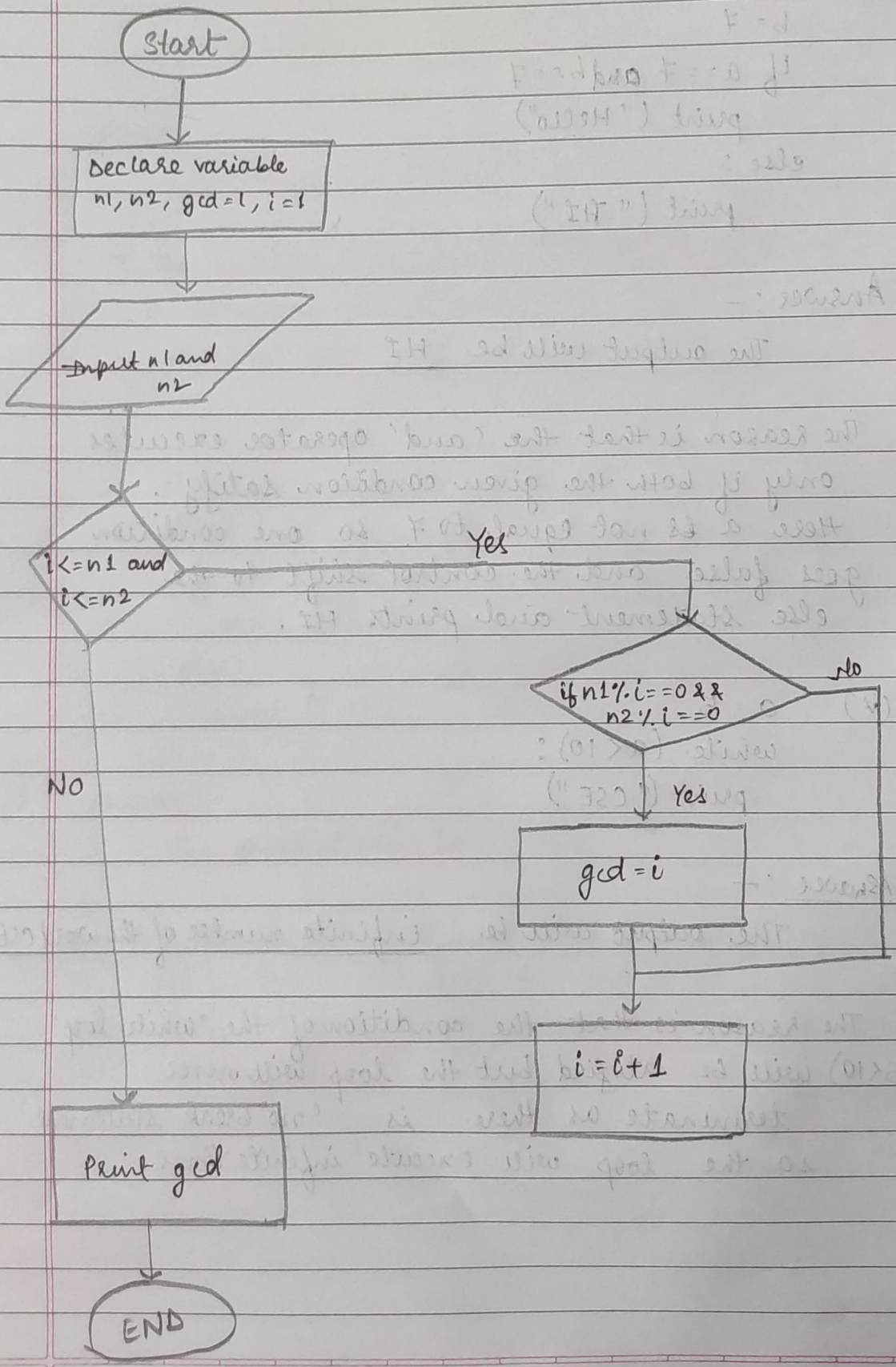
```
a = 5
while (a < 10):
    print ("CSE")
```

Answer :-

The output will be infinite number of the word CSE.

The reason is that the condition of the 'while loop' (5<10) will be satified but the loop will never terminate as there is 'no break statement' so the loop will execute infinite times.

(2)


Start
Declare variable
n1, n2, gcd=1, i=1
Input n1 and
n2
i<=n1 and
i<=n2
Yes
No
if n1%.i==0 &&
n2%.i==0
No
Yes
gcd=i
i=i+1
Print gcd
END

3) Recursion

(i)
```
def hcf (a, b):
    if (b == 0)
        return a
    else:
        return hcf (b, a % b)
a = int (input (" Enter a number : "))
b = int (input (" Enter a number : "))
print (" The gcd of a and b is : ", end = " ")
print (hcf (a, b))
```

(ii)
```
def gcd (n1, n2):
    if (n1 == 0):
        return n2
    else:
        return gcd (n2 % n1, n1)
n1 = int (input (" Enter the first number "))
n2 = int (input (" Enter the second number "))
n3 = int (input (" Enter the third number "))
print (" GCD of the given three numbers is : ",
                    gcd (n1, gcd (n2, n3))
```

(6)

```
s = input ("enter the string")
s = s.replace (" ", "")
p = s.upper ()
v = 0
c = 0
list = ["A","E","I","O","U"]
for letters in p:
    if letters in list:
        v += 1
    else:
        c += 1
print ("Number of vowels in string:", v)
print ("Number of consonants in string:", c).
```

(7)

```
n = int(input("Enter the value : "))
f = 1
for i in range (2, (n//2 +1))
    if (n%.i == 0):
        f = 0
        break
if (f == 1):
    print ("Yes, the no. is prime")
else:
    print ("the no. is not prime").
```