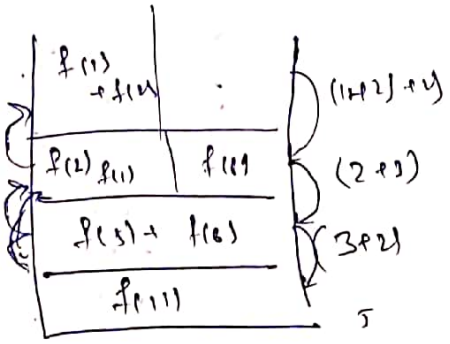
Week-8

* Recursion Call Stack * ①



① Question:

```
def f(n):
    if (n<=1):
        return 1
    if (n%2==0):
        return f(n//2)
    return f(n//2)+f(n//2+1)
```

5) i) f(11)

8

(n<=1) ✗ (n%2) ✗

f(11//2) + f(11//2+1)

↙ ↘

f(5) f(6)

ii) f(5)

n(<=1) ✗

n(%2==0) ✗

rf(2) + f(3)

↙ 1 ↘ 2

rf(1) f(1)+f(2)

↓ ↓ ↓

1 1 1

f(6)

(n<=1) ✗

(n%2==0) ✓ f(3)

f(3)

↓

f(1+2) + (2) = 5

f(11) = 5

② Ques:

```
r(n, a, b)
if (n<=0)
    return
robot(n-1, a, b+n)
print(n, a, b)
robot(n-1, b, a+n)
robot(2, 5, 2)
```

→ (n<=0) ✗

robot(1,5,4) — ①

p(2,5,2) ✓

robot(1,2,7) — ②

r(1,5,7) — ①

if (n<=0) ✗

r(0,5,5)

p(1,5,4)

r(0,7,6)

r(0,5,1) | r(0,7,6)

n(<=0) | (0<=0) ✓

✗ ✗

r(1,2,7) — ②

if (n<=0) ✗

r(0,4,4)

p(1,2,7) —

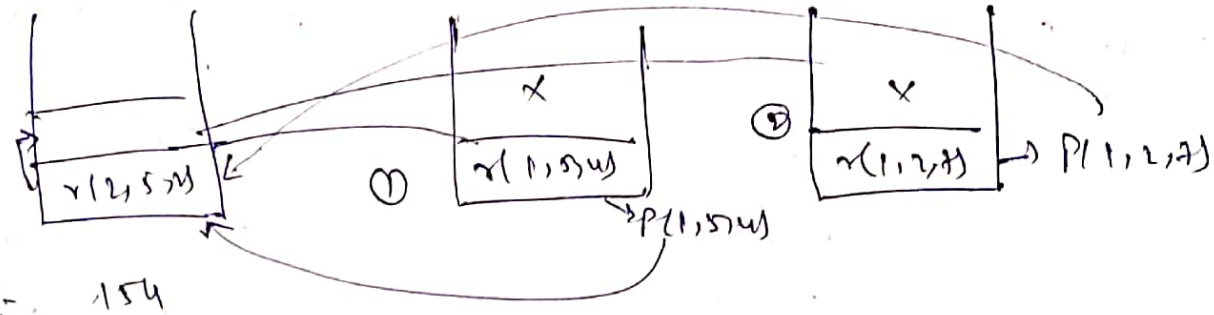
r(0,7,3)

r(0,7,5) | r(0,7,7)

(n<=0) | n(<=0)

↓ | ✗

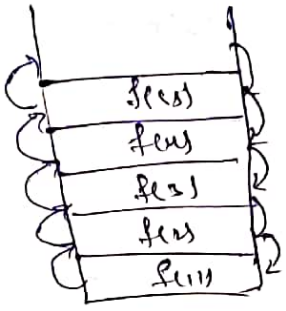
r



O/P :- 154
252
127

③ Question:-

```
f(n):
i=1
if(n>=5):
    return
n=n+i
f+=1
return f(n)
```

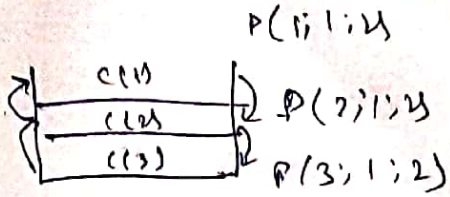



```
f(1)
i=1
n=n+i(1+1=2)
->2
return f(2)
i=1
n=>2+1=3
  f(3)
i=1
n=>3+1=4
  f(4)
i=1
n=4+1=5
  f(5)
```

```
f(5)
if(n>=5):return
  n=5
```

④ Question:-

```
def count(n):
    d=1
    print(n)
    print(d)
    d+=1
    if(n>1): count(n-1)
      print(d)
```



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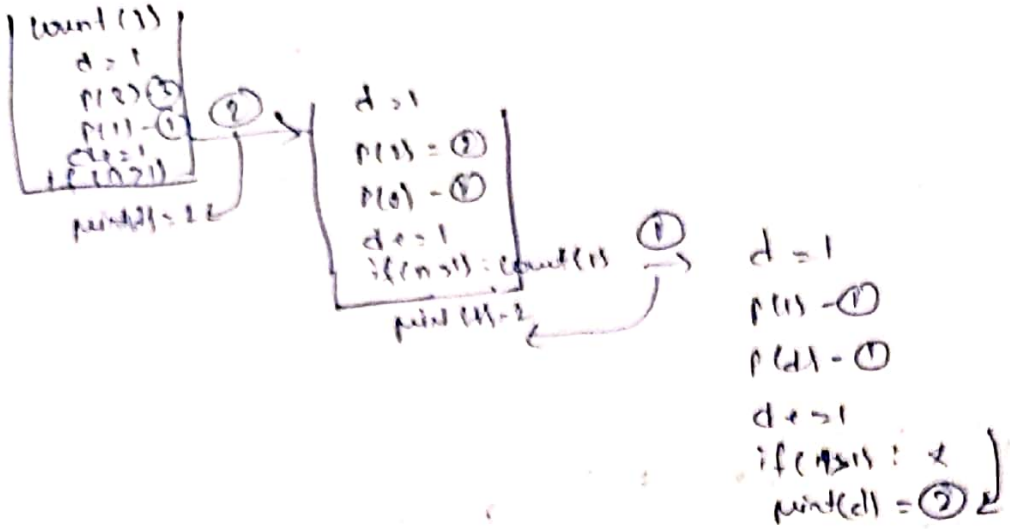
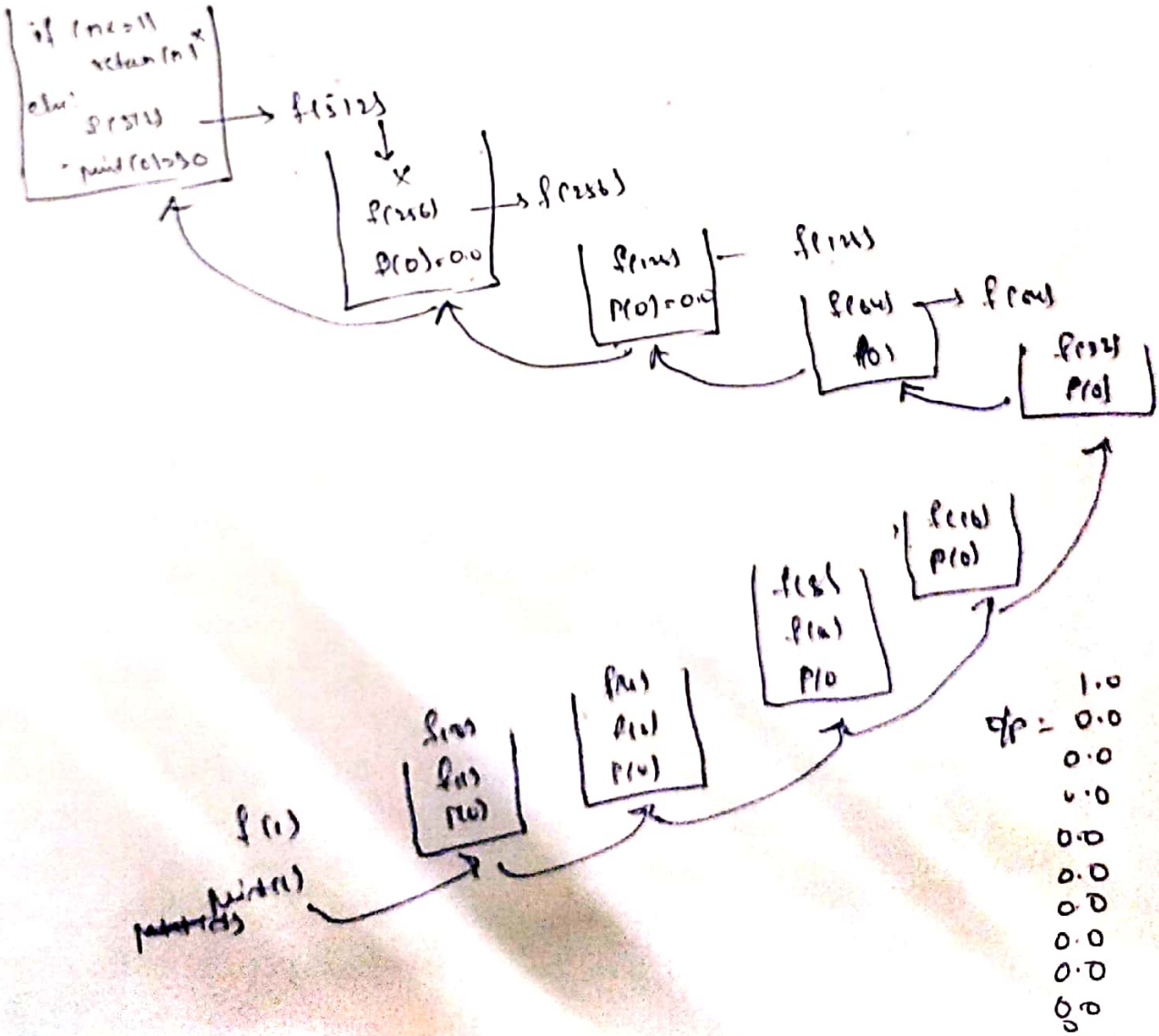


5)

Question:-

```
def f(n)
    if (n<=1):
      p(n)
    else:
      f(n/2)
      print(n*1.5)
```

f(1024)



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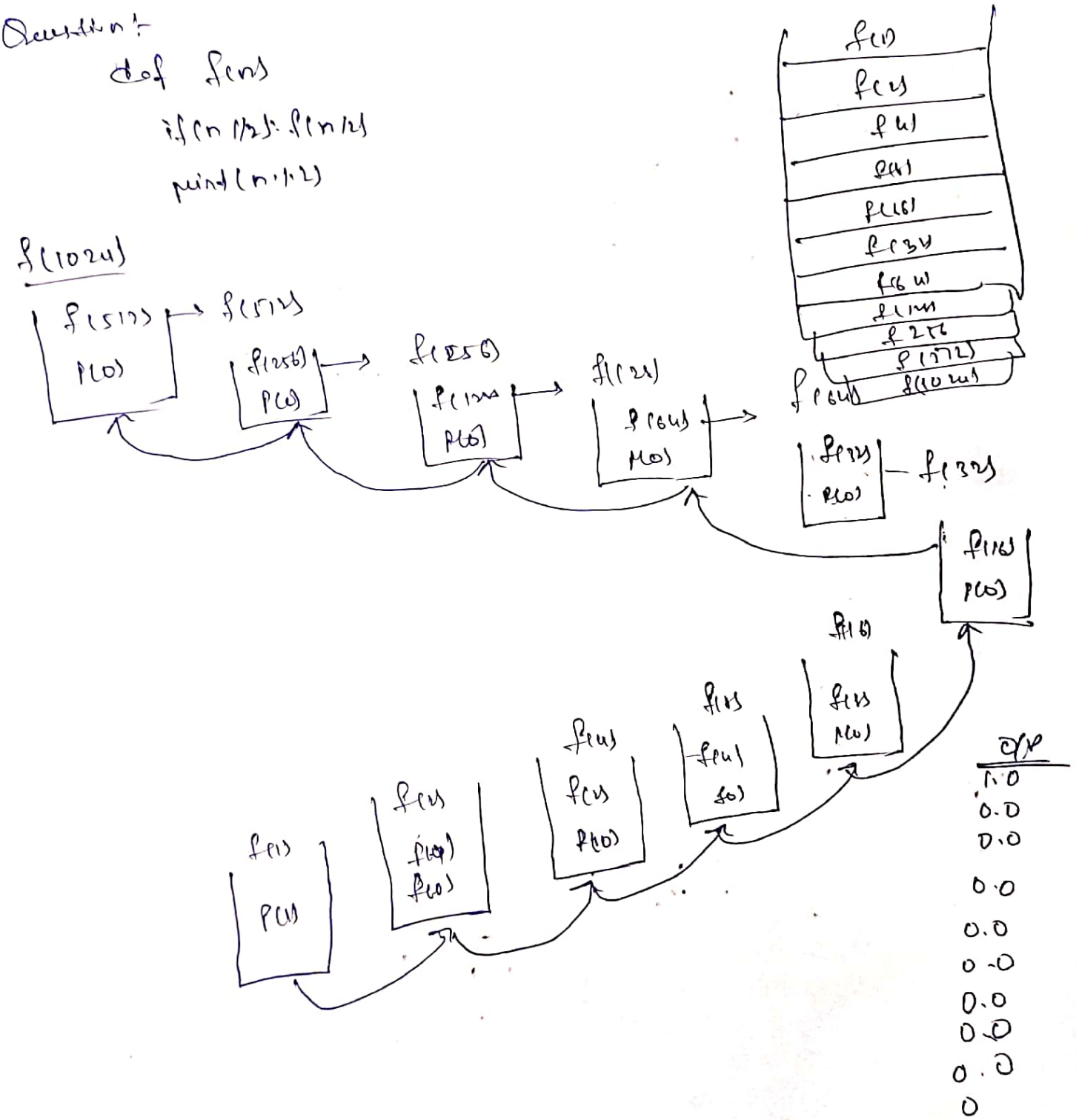
(6) Question :-

```
def f(n):
    if(n//2): f(n//2)
    print(n//2)
```



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