## Medium-Level Mixed-Concept MCQs

(Logical operators, loops, assignments, bitwise & arithmetic)

Only one choice is guaranteed correct.

All variables are 32-bit signed integers unless stated otherwise.

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1.

```
x ← 5
y ← 0
while (x && (y += x--))
   ;
print y
```

A. 0

B. 5

C. 15

D. 25

---

2.

```
a ← 3
b ← 4
if (a ^ b) < (a & b)
   print "A"
else
   print "B"
```

A. A

B. B

C. Compile error

D. Runtime crash

---

3.

```
sum ← 0
for i ← 1 to 4 do
   sum += i * (i& 1)
end for
print sum
```

A. 4

B. 6

C. 8

D. 10

---

4.

```
k ← 8
while k > 1
    k >>= 1
print k
```

A. 0

B. 1

C. 2

D. 4

---

5.

```
p ← 10
q ← 5
p -= q *= 2
print p, q
```

A. 0, 10

B. 5, 10

C. 0, 5

D. 10, 5

---

6.

```
x ← 6
y ← 3
z ← (x > y) ? (x |= 1) : (y &= ~1)
print x, y
```

A. 7, 3

B. 6, 2

C. 6, 3

D. 7, 2

7.

```
cnt ← 0
for mask ← 1; mask ≤ 16; mask <<= 1 do
cnt += !!(mask & 10)
end for
print cnt
```

A. 1

B. 2

C. 3

D. 4

---

8.

```
a ← 7
b ← a << 31
if (b < 0) print 1 else print 0
```

A. 0

B. 1

C. Overflow exception

D. Undefined

---

9.

```
x ← 0
for i ← 0 to 2 do
   x ^= 1 <<i
end for
print x
```

A. 0

B. 3

C. 5

D. 7

---

10.

```
m ← 12
n ← 0
while (m & 1 == 0)
    m >>= 1
    n += 1
end while
print n
```

A. 0

B. 1

C. 2

D. 3

---

11.

```
a ← 5
b ← 2
a &= b |= a ^= b
print a, b
```

A. 0, 7

B. 7, 0

C. 5, 7

D. 7, 5

---

12.

```
val ← 0xF0
val |= val>> 4
val&= 0x0F
print val
```

A. 0x00

B. 0x0F

C. 0xF0

D. 0xFF

---

13.

```
x ← 1
while x < 100
```

```
    x <<= 1
print x
```

A. 64

B. 128

C. 256

D. 32

---

14.

```
sum ← 0
i ← 5
do
    sum += i--
while (i& i-1)
print sum
```

A. 9

B. 11

C. 12

D. 15

---

15.

```
a ← 9
b ← 0
if (a & 1) b++ else b--
b *= (a >> 1)
print b
```

A. 0

B. 4

C. 5

D. 9

---

16.

```
x ← 0
for i ← 1 to 5 do
    if (i& 2) continue
    x += i
```

```
end for
print x
```

A. 6

B. 7

C. 9

D. 15

---

17.

```
k ← 15
k &= ~ (1 << 2)
print k
```

A. 11

B. 13

C. 14

D. 15

---

18.

```
cnt ← 0
for i ← 0 to 7 do
   if (i ^ (i>> 1)) & 1
cnt++
end for
print cnt
```

A. 3

B. 4

C. 5

D. 6

---

19.

```
a ← 6
b ← 3
while (a ^= b ^= a ^= b)
   break
print a, b
```

A. 3, 6

B. 6, 3

C. 0, 0

D. Infinite loop

---

20.

```
x ← 0
for i ← 1 to 10 do
   x += (i % 3 == 0) ? i : 0
end for
print x
```

A. 6

B. 9

C. 15

D. 18

---

Answer Key

1 C (15)

2 B

3 A (4)

4 B (1)

5 A (0,10)

6 A (7,3)

7 B (2)

8 B (1)

9 D (7)

10 C (2)

11 A (0,7)

12 B (0x0F)

13 B (128)

14 D (15)

15 C (5)

16 B (7)

17 A (11)

18 B (4)

19 A (3,6)

20 D (18)