Question 1:

Guess the output of this program:

```
st = {1, 2, 3}

del st[1]
del st[2]

print(st)
```

{3}

Error

[] is not supported in sets

Question 2:

Guess the output of this program:

```
st = {}

st.add(1)
st.add(2)
st.add(3)

print(sum(st))
```

6

Error

{} is a dict not set

Question 3:

Guess the output of this program:

```
st = {0}

st.add(1)
st.add(2)
st.add(3)

print(sum(st))
```

6

Error

Question 4:

Guess the output of this program:

```
st1 = {2, 4, 6, 8, 10, 12, 14, 16}
st2 = {3, 6, 9, 12, 15, 18}

print([i for i in range(100) if i in st1 and i in st2])
```

[6, 12]

[6, 9, 12]

Error

Question 5:

Guess the output of this program:

```
st1 = {2, 4, 6, 8, 10, 12, 14, 16, 18}

for i in range(3, 20, 3):
    st1.discard(i)

print(sorted(st1))
```

[2, 4, 8, 10, 14, 16]

[2, 4, 8, 10, 16, 14]

No guarantee

Question 6:

Guess the output of this program:

```
st1 = {1, 5, 7, 8}
st2 = {1, 5, 3, 10}
st3 = {1, 7, 6}
print((st1 & st2) ^ (st1 & st3))
```

{1, 5}

{5, 7}

{1, 7}

Error

Question 7:

Guess the output of this program:

```
st1 = {1, 5, 7, 8}
st2 = {1, 5, 3, 10}

id1 = id(st1)
st1 &= st2
id2 = id(st1)
print(id1 == id2)
```

True

False

Question 8:

Guess the output of this program:

```
st1 = frozenset({1, 5, 7, 8})
st2 = frozenset({1, 5, 3, 10})

id1 = id(st1)
st1 &= st2
id2 = id(st1)
print(id1 == id2)
```

True

False

Question 9:

Guess the output of this program:

```
dct = {1:2, 4:5, 7:8}
st = {3, 6, 9, 10}

total_sum = 0
for (k1, v1), v in zip(dct.items(), sorted(st)):
    total_sum += k1 + v1 + v

print(total_sum)
```

45

55

Error

Good job!

[1, 2, 3] the del has no effect on global st. Also we print list not set

Question 10:

Guess the output of this program:

```
def f(mst):
    del mst

st = {1, 2, 3}
f(st)
print(sorted(st))
```

{1, 2, 3}

None

Error

Something else

Question 11:

Guess the output of this program:

```
school = {
    'grade1' : {
        2020 : {
            'semster1' : {
                'Math' : {('Mostafa', 10), ('Belal', 20), ('Ziad', 30)},
                'Science' : {('Mostafa', 11), ('Belal', 21), ('Ziad', 31)},
            },
            'semster2': {
                'Math': {('Mostafa', 70), ('Belal', 80), ('Mostafa', 90)},
                'Science': {('Mostafa', 71), ('Belal', 81), ('Ziad', 91)},
            }
        }
    }
}

print(sorted(school['grade1'][2020]['semster2']['Science']))
```

Error

[('Belal', 81), ('Mostafa', 71), ('Ziad', 91)]

{('Mostafa', 71), ('Belal', 81), ('Ziad', 91)}

{('Belal', 21), ('Ziad', 31), ('Mostafa', 11)}

[('Belal', 21), ('Mostafa', 11), ('Ziad', 31)]

Question 12:

Guess the output of this program:

```
school = [
    {
        2020 : {
            'semster1' : {
                'Math' : {('Mostafa', 10), ('Belal', 20), ('Ziad', 30)},
                'Science' : {('Mostafa', 11), ('Belal', 21), ('Ziad', 31)},
            },
            'semster2': {
                'Math': {('Mostafa', 70), ('Belal', 80), ('Mostafa', 90)},
                'Science': {('Mostafa', 71), ('Belal', 81), ('Ziad', 91)},
            }
        }
    }
]

school *= 3

print(len(school[1][2020]))
```

Error

1

2

3

Question 13:

Guess the output of this program:

```
def f(iterable):
    st = set()
    return not any(i in st or st.add(i) for i in iterable)

print(f([10, 20, 30, 10, 40]))
```

What does this function do?

True

False

Error

It checks if e.g. list is unique. Observe or st.add(i) return None when called. Observe: any receives a generator object, not a list.

Question 15:

Guess the output of this program:

```
def f(*items):
```

```
    return tuple(sorted(set(items)))

print(f((1, 5, 7, 8, 2, 8, 7, 1, 6)))
```

Describe the function f

(1, 5, 7, 8, 2, 8, 7, 1, 6)

((1, 5, 7, 8, 2, 8, 7, 1, 6),)

(1, 2, 5, 6, 7, 8)

[1, 2, 5, 6, 7, 8]

The function takes a variable number of items, and remove duplicate using set, then return tuple of sorted items. Observe the call is a single tuple. To sort numbers, you should use: print(f(1, 5, 7, 8, 2, 8, 7, 1, 6))

Question 14:

Guess the output of this program:

```
def f(d):
    d.update(dict(zip(d.values(), d.keys())))

d = {1:'Most', 2:'Belal', 3:'Ziad'}
f(d)
print(d)
```

What does this function do?

{1: 'Most', 2: 'Belal', 3: 'Ziad', 'Most': 1, 'Belal': 2, 'Ziad': 3}

{1:'Most', 2:'Belal', 3:'Ziad'}

{'Most': 1, 'Belal': 2, 'Ziad': 3}

{'Most': 1, 'Belal': 2, 'Ziad': 3, 1: 'Most', 2: 'Belal', 3: 'Ziad'}

Question 15:

Guess the output of this program:

```
def f(d):
    return {i:j for j, i in d.items()}

print(f({1:'Most', 2:'Belal', 3:'Ziad'}))
```

What does f() do ?

{'Most': 1, 'Belal': 2, 'Ziad': 3}

{1:'Most', 2:'Belal', 3:'Ziad'}