TÀI LIỆU ÔN TẬP

HKICO

FERMAT Education

KỲ THI OLYMPIC TIN HỌC QUỐC TẾ

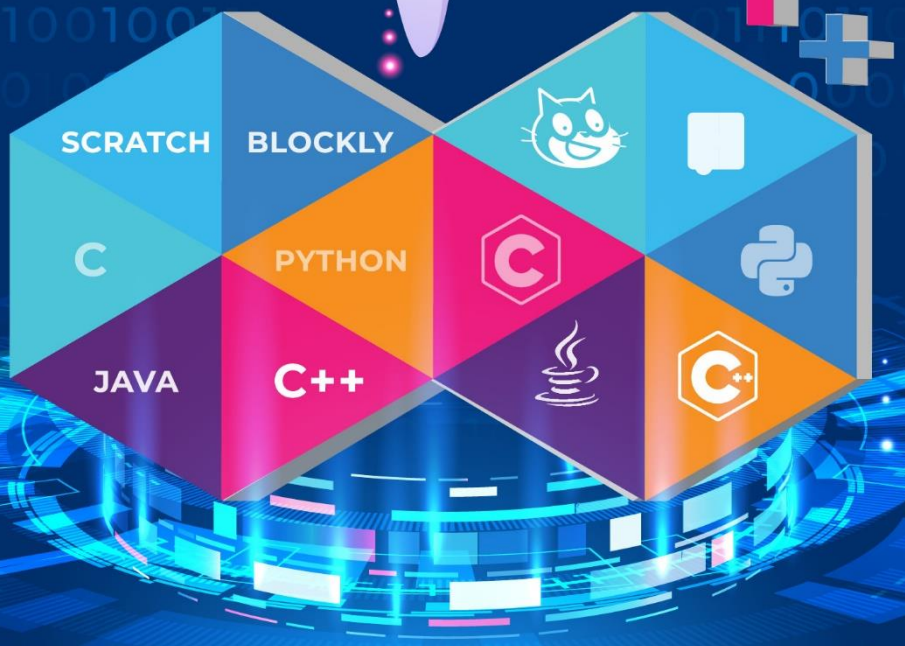
Ngôn ngữ PYTHON

(Sử dụng cho Vòng loại quốc gia và Vòng chung kết quốc gia)

BLOCKLY

SCRATCH

PYTHON



ĐỀ SỐ 1

1. Consider the following Python script:
script.py

```python
print("Welcome to Real Python!")
```

When you click on the file using a Windows file explorer, the script executes but you are unable to see the output. How would you fix that?

A.
```python
import time
print("Welcome to Real Python!")
time.stay(3)
```
B. There is no output as the script has an error.

C.
```python
import time
print("Welcome to Real Python!")
time.sleep(3)
```
D. There is nothing to output
E. None of the above

2. What is the output of the following code?

```
var = "James" * 2  * 3
print(var)
```

A. JamesJamesJamesJamesJamesJames
B. JamesJamesJamesJamesJames
C. JamesJamesJamesJames
D. JamesJamesJames
E. Error: invalid syntax

3. Analyze the given below code

```
class Demo:
   def __init__(self,d):
      self.d=d
   def print(self):
      print(d)
a = Demo(''Hello'')
a.print()
```

A. You cannot use print(self) as a function name.
B. Program will print 'Hello' if we change print(d) to print(self.d)
C. Program has an error because class A does not have a constructor
D. Syntax Error
E. None of the above

4. What will be the output of the following code?

```
minidict = { 'name': 'TutorialsPoint', 'name': 'website'}
print(minidict['name'])
```

A. TutorialsPoint
B. Website
C. ('TutorialsPoint' , 'website')
D. It will show an Error.
E. None of the above

5. Given the following function fun1() Please select the correct function calls

```
def fun1(name, age):
    print(name, age)
```

A. fun1(name='Emma', age=23)
B. fun1(name='Emma', 23)
C. fun1('Emma', 23)
D. fun1(Emma, 23)
E. fun1(nam = Emma, age= 23)

6. What is the output of the add() function call

```
def add(a, b):
    return a+5, b+5

result = add(3, 2)
print(result)
```

A. 15
B. 8
C. (8,7)
D. 7
E. Syntax Error

7. 4 is 100 in binary and 11 is 1011. What is the output of the following bitwise operators?

```
a = 4
b = 11
print(a | b)
print(a >> 2)
```

A. 15
1
B. 14
1
C. 11
4
D. 15
2
E. 14
2

8. What is a correct syntax to output "Hello World" in Python?

A. echo("Hello World");
B. p("Hello World")
C. print("Hello World")
D. echo "Hello World"
E. None of the above

Refer to the following code for question 9 to 10

```
salary = 8000

def printSalary():
  salary = 12000
  print("Salary:", salary)

printSalary();
```

9. Jack executed the code with the python interpreter. What is the output?

A. There are some errors in the code so the output goes to error stream
B. Salary: 8000
C. Salary: 12000
D. Salary:
E. None of the above

10. If Jack wants to print "Salary: 12000 Salary: 8000" what will he do?

A. Add one more command line "print("Salary:", salary)" directly after "printSalary()"
B. Add one more command line "print("Salary:", salary)" directly before "printSalary()"
C. Add the command line "print("Salary:", salary)" to any position
D. Add the command line "printSalary()" to any position
E. None of the above

11. What is the output of the following code?

```
str = "pynative"
print (str[1:3])
```

A. py
B. pyn
C. ynab
D. yn
E. pyna

12. What is the value of "Hello".upper().capitalize()?

A. "Hello"
B. "hello"
C. "HELLO"
D. Runtime Error
E. None of the above

13. What is the statement evaluates the same to the statement below?

```
print(2 * 3 ** 3 * 4)
```

A. print (2*27*4)
B. print (2*3*4)
C. print (2*3**4)
D. print (2*3*3*4)
E. None of the above

14. Which method can be used to replace parts of a string?

A. replaceString() B. replace() C. repl() D. switch() E. replaceStr()

15. What is the value of res after executing this code

```
def outerFun(a, b):
    def innerFun(c, d):
        return c + d
    return innerFun(a, b)

res = outerFun(5, 10)
print(res)
```

A. 15 B. 10 C. 5 D. (5, 10) E. Syntax Error

16. Which of the following is False?

A. `[1] == [1]`
B. `(1,) == (1,)`
C. [5] == [5]
D. `type("asdf") == type("not asdf")`
E. `"asdf" == "not asdf"`

17. What is the output of the following addition (+) operator

```
a = [10, 20]
b = a
b += [30, 40]
print(a)
print(b)
```

A. [10, 20, 30, 40]
[10, 20, 30, 40]
B. [10, 20]
[10, 20, 30, 40]
C. [10, 20, 30, 40]
[10, 20]
D. [40, 30, 20, 10]
[40, 30, 20, 10]
E. None of the above

18. Which of the following operators has the highest precedence?
A. not B. & C. * D. + E. -

19. What is the output of the expression print(-18 // 4)?
A. -4
B. 4
C. -5
D. 5
E. None of the above

20. What is the value of the var after the for loop completes its execution?

```
var = 10
for i in range(10):
    for j in range(2, 10, 1):
        if var % 2 == 0:
            continue
            var += 1
    var+=1
else:
    var+=1
print(var)
```

A. 20 B. 21 C. 10 D. 30 E. None of the above

ĐỀ SỐ 2

1. Which of the following statements is true?

A. Python is an interpreted language.
B. Python is a high-level programming language.
C. Python is an object-oriented language.
D. All of the above.
E. None of the above

2. What is output of:

```
Python >>>
>>> print(r'foo\\bar\nbaz')
```

A. foo\bar
baz
B. foo\\barnbaz
C. foo\bar\nbaz
D. foo\\bar\nbaz
E. None of the above

3. In the Python statement x = a + 5 - b:

- a and b are _____
- a + 5 - b is _____

A. operators, a statement
B. operands, an expression
C. operands, an equation
D. terms, a group
E. operators, an expression

4. Suppose s is assigned as follows:

```
Python
s = 'foobar'
```

All of the following expressions produce the same result except one. Which one?

A. s[::5]
B. s[0] + s[-1]
C. s[::-1][::-5]
D. s[::-1][-1] + s[len(s)-1]
E. s[::-5]

5. What is the output of the following code?

```python
if 'bar' in {'foo': 1, 'bar': 2, 'baz': 3}:
    print(1)
    print(2)
    if 'a' in 'qux':
        print(3)
print(4)
```

A. 4
B. 1
2
4
C. 1
2
3
4
D. 1
E. It doesn't generate any output.

6. What is the output of the following code?

```
class Point:
    def __init__(self, x = 0, y = 0):
      self.x = x+1
      self.y = y+1

p1 = Point()
print(p1.x, p1.y)
```

A. 0 0
B. 1 1
C. 2 2
D. x y
E. None None

7. What is the output of the following program?

```
def Foo(x):
  if (x==1):
    return 1
  else:
    return x+Foo(x-1)

print(Foo(4))
```

A. 1 B. 7 C. 10 D. 24 E. Syntax Error

8. Which of the following operators has the lowest precedence?

A. **

B. +

C. and

D. %

E. not

9. What is the output of the following code?

```
class Test:
    def __init__(self, s):
        self.s = s

    def print(self):
        print(s)

a = Test("Python Class")
a.print()
```

A. The program gives an error because there is no constructor for class Test.

B. Signature for the print method is incorrect, so an error is thrown.

C. Python class

D. The above code will execute correctly on changing print(s) to print(self.s).

E. The program executed with errors

10. What will be the output of the following code?

```
def main():
    myCounter = Counter()
    num = 0

    for i in range(0, 100):
        increment(myCounter, num)

    print("myCounter.counter =", myCounter.counter, ", number of times =", num)

def increment(c, num):
    c.counter += 1
    num += 1

class Counter:
    def __init__(self):
        self.counter = 0

main()
```

A. counter is 101, number of times is 0

B. counter is 100, number of times is 0

C. counter is 100, number of times is 100

D. counter is 101, number of times is 101

E. counter is 0, number of times is 0

11. What gets printed?

```
counter = 1

def doLotsOfStuff():

    global counter

    for i in (1, 2, 3):
        counter += 1

doLotsOfStuff()

print(counter)
```

A. 4
B. 3
C. 2
D. 1
E. 7

12. Which numbers are printed?

```
for i in range(2):
    print(i)

for i in range(4,6):
    print(i)
```

A. 2, 4, 6
B. 0, 1, 2, 4, 5, 6
C. 0, 1, 4, 5
D. 0, 1, 4, 5, 6, 7, 8, 9
E. 1, 2, 4, 5, 6

13. Consider the following code,

```
confusion = {}
confusion[1] = 1
confusion['1'] = 2
confusion[1] += 1

sum = 0
for k in confusion:
    sum += confusion[k]

print(sum)
```

What is the output?

A. 1
B. 2
C. 3
D. 4
E. 5

14. What will be the output of the following Python code snippet if x = 1?

```
x<<2
```

A. 4
B. 2
C. 1
D. 8
E. 10

15. What is the output of the code below:

```
import numpy as np

ary = np.array([1,2,3,5,8])

ary = ary + 1

print (ary[1])
```

A. 3
B. 4
C. 5
D. 1
E. 2

16. Which of the following expressions results in an error?
A. int(1011)
B. int('1011',23)
C. int(1011,2)
D. int('1011')
E. None of the above

17. What is the output of the following Python code?

```
tinytuple = (123, 'techbeamers')
print tinytuple * 2
```

A. (123, 'techbeamers', 123, 'techbeamers')
B. (123, 'techbeamers') * 2
C. (123, 123)
D. ('techbeamers', 'techbeamers')
E. None of the above

18. Which of the following function checks that all characters of a string are in upper case?
A. join(seq)
B. en(string)
C. isupper()
D. ljust(width[, fillchar])
E. None of the above

19. What is the output of the following code:

```
aList = [1,2]
bList = [3,4]

kvps = { '1' : aList, '2' : bList }
theCopy = kvps.copy()

kvps['1'][0] = 5

sum = kvps['1'][0] + theCopy['1'][0]
print(sum)
```

A. 1
B. 2
C. 6
D. 10
E. An exception is thrown

20. What is the output of the following program?

```
def outerFunction():
    global a
    a = 20
    def innerFunction():
        global a
        a = 30
        print('a =', a)
a = 10
outerFunction()
print('a =', a)
```

A. a = 10
B. a = 20
C. a = 30
D. a = 10 a = 30
E. None of the above

ĐỀ SỐ 3

1. Which of the following is correct?

A. Comments are for programmers for better understanding of the program.

B. Python Interpreter ignores comment.

C. You can write multi-line comments in Python using triple quotes, either ''' or """.

D. All of the above

E. None of the above

2. Consider you import a module (hello) into a Python script (script.py) that you are working on. Simultaneously you realize that the module is missing a statement, so you update the module. To make sure your current script imports these new changes in your Python session, what do you need to do?

A. Import importlib and use reload to import the new changes into the module.

```python
import importlib
importlib.reload(hello)
```

B. The Python interpreter will detect the updates in the module.

C. Import importlib and use reload to import the new changes into the module.

```python
import importlib
importlib.reload('hello')
```

D. Do nothing

E. None of the above

3. Consider the following code:

```python
x = 10.0
y = (x < 100.0) and isinstance(x, float)
```

After these are executed, what is the value of y?

A. 0

B. 1

C. True

D. False

E. None of the above

4. What is the output of the print() function call?

```python
s = 'foo'
t = 'bar'
print('barf' in 2 * (s + t))
```

A. True
B. False
C. foo
D. bar
E. Syntax Error

5. Which one of the following if statements will **not** execute successfully?

A.

```python
if (1, 2):
    print('foo')
```

B.

```python
if (1, 2):
                print('foo')
```

C.

```python
if (1, 2): print('foo')
```

D.

```python
if (1, 2):

    print('foo')
```

E.

```python
if (1, 2):
print('foo')
```