HORIZON OLYMPIAD

1. What is the output of the following code?

```python
x = 10
y = 20
print(x + y)
```

a) 10
b) 20
c) 30
d) Error

Correct Answer: c) 30

2. Which of these variable names is valid in Python?

a) 1variable
b) variable_1
c) variable-1
d) variable 1

Correct Answer: b) variable_1

3. What does the following code output?

```python
for i in range(3):
    print(i)
```

a) 0 1 2
b) 1 2 3
c) 0 1 2 3
d) Error

Correct Answer: a) 0 1 2

4. What is the value of result in the following code?

```python
a = 5
b = 10
result = a * b
```

a) 10
b) 15
c) 50
d) Error

Correct Answer: c) 50

5. Which of the following is used to create a function in Python?

a) function
b) def
c) create
d) func

Correct Answer: b) def

6. What is the output of this code?

```
x = 3
y = 2
if x > y:
    print('X is greater')
```

a) X is greater
b) Y is greater
c) Error
d) No output

Correct Answer: a) X is greater

7. What is the result of the following code?

```
x = 'Python'
print(len(x))
```

a) 5
b) 6
c) 7
d) Error

Correct Answer: b) 6

8. Which operator is used for division in Python?

a) //
b) /
c) *
d) %

Correct Answer: b) /

9. What does the following loop do?

```
for i in range(5):
    print('Hello')
```
a) Prints 'Hello' 5 times
b) Prints 'Hello' 4 times
c) Prints 'Hello' 6 times
d) Error

Correct Answer: a) Prints 'Hello' 5 times

10. What is the result of this expression?
```
x = 10 % 3
print(x)
```
a) 0
b) 1
c) 2
d) Error

Correct Answer: b) 1

11. What keyword is used to check a condition in Python?

a) while
b) if
c) for
d) condition

Correct Answer: b) if

12. What is the output of this code?
```
x = 4
y = 2
z = x ** y
print(z)
```
a) 2
b) 4
c) 8
d) 16

Correct Answer: d) 16

13. What is the correct way to call a function named 'my_function'?

a) call my_function()
b) my_function()
c) run my_function()
d) function my_function()

Correct Answer: b) my_function()

14. Which of these is NOT a valid data type in Python?

a) int
b) str
c) float
d) num

Correct Answer: d) num

15. What will this loop print?

```
for i in range(1, 4):
    print(i)
```

a) 1 2 3
b) 1 2 3 4
c) 0 1 2
d) Error

Correct Answer: a) 1 2 3

16. What will this code output?

```
x = [1, 2, 3]
y = x
y[0] = 0
print(x)
```

a) [0, 2, 3]
b) [1, 2, 3]
c) [1, 2, 0]
d) Error

Correct Answer: a) [0, 2, 3]

17. What is the result of this nested loop?

```
for i in range(3):
    for j in range(2):
        print(i, j)
```

a) All combinations of i and j
b) Only j values
c) Only i values
d) Error

Correct Answer: a) All combinations of i and j

18. What is the purpose of the break statement in Python loops?

a) To skip the current iteration
b) To exit the loop completely
c) To terminate the program
d) None of the above

Correct Answer: b) To exit the loop completely

19. What does this code output?

```python
x = "123"
y = int(x) + 1
print(y)
```

a) "1231"
b) 124
c) Error
d) 1231

Correct Answer: b) 124

20. What will this function print?

```python
def mystery(a, b=2):
    return a ** b

print(mystery(3))
```

a) 6
b) 9
c) 8
d) Error

Correct Answer: b) 9