



Full Name : \_\_\_\_\_ Student ID: \_\_\_\_\_

Grade Table (for Lecturer use only)

Question	Points	Score
1	3	
2	3	
3	3	
4	3	
5	3	
6	3	
7	3	
8	3	
9	3	
10	3	
11	3	
12	3	
13	3	
14	3	
15	3	
16	3	
17	3	
18	3	
19	3	
20	3	
21	10	
22	30	
Total:	100	



Instructions for Online Final Exam

Welcome to the final exam of EEE110-Computer Programming and good luck!

- The final exam will be conducted between 14:15 and 15:15. The system will be closed at 15:15. Students must finalise the exam by saving before 15:15.
- The students are also responsible to have a fully-charged laptop computer and 3G internet connection against an interruption in the electricity or internet services. Please note that, allowed number of entries during the exam is determined as 3 due to the internet disconnections.
- This is an open-book exam that means students are allowed to take notes, books, or any other reference material into the exam.
- The exam must be taken completely alone. Showing it or discussing it with anybody is forbidden, including (but not limited to) the other students in the course in current or previous years. Absolutely no communication is allowed between or among students.
- An incorrect answer to a question is awarded no marks with no consideration of any partial credit. Therefore, no partial credit will be given.
- Please sign the below Honour Code statement.

In recognition of and in the spirit of the above rules which constitute Adana Alparslan Türkeş Science and Technology University Honour Code, I certify that I will neither give nor receive unpermitted aid on this examination.

Signature: \_\_\_\_\_



1. (3 points) Which of the followings is **immutable**?
  - (a) Lists
  - (b) Ndarrays
  - (c) Tuples
  - (d) Dictionaries
  
2. (3 points) What will the following code **display**?

```
numbers = list(range(1, 10, 2))  
print(numbers)
```

  - (a) A list of 1, 3, 5, 7, 9
  - (b) A list of 1, 4, 9, 16, 25, 36, 49, 64, 81
  - (c) A list of 2, 4, 6, 8, 10
  - (d) A list of 4, 9, 16, 25, 36, 49, 64, 81, 100
  
3. (3 points) Which of the followings is **the first index** in a list?
  - (a) -1
  - (b) 1
  - (c) 0
  - (d) The size of the list minus one
  
4. (3 points) Which of the following functions returns **the length** of a list?
  - (a) length
  - (b) size
  - (c) len
  - (d) lengthof
  
5. (3 points) Which of the followings is **TRUE**?
  - (a) Lists are immutable.
  - (b) Tuples are mutable.
  - (c) “+” operator can be used to concatenate two lists.
  - (d) Python employs compiler instead of interpreter.
  
6. (3 points) What will the following code **display**?

```
letters = ['A', 'B', 'C', 'D']  
print(letters[3])
```

  - (a) A
  - (b) B
  - (c) C
  - (d) D
  
7. (3 points) Which of the following operators determines whether **one string is contained inside another string**?
  - (a) contains
  - (b) is\_in
  - (c) ==
  - (d) in



8. (3 points) What will the following code **display**?

```
code = 'ABRACADABRA'  
print (code [5:8])
```

- (a) ADA
- (b) ADAB
- (c) CAD
- (d) CADA

9. (3 points) Which of the followings is used to create **an empty dictionary**?

- (a) Curly braces
- (b) Parentheses
- (c) Square brackets
- (d) empty()

10. (3 points) Which of the following programming practices is **centred on creating functions** that are separate from the data that they work on?

- (a) Modular
- (b) Procedural
- (c) Functional
- (d) Object-Oriented

11. (3 points) Which of the following approaches is applied to **hide a class's attribute** from code outside the class?

- (a) Avoid using the self parameter to create the attribute
- (b) Begin the attribute's name with two underscores
- (c) Begin the name of the attribute with private\_\_
- (d) Begin the name of the attribute with the @ symbol

12. (3 points) Which of the followings is **the base class** in an inheritance relationship?

- (a) Subclass
- (b) Superclass
- (c) Slave class
- (d) Child class

13. (3 points) Which of the followings is **the derived class** in an inheritance relationship?

- (a) Subclass
- (b) Master class
- (c) Superclass
- (d) Parent class

14. (3 points) Consider that a function is called once from the main function of a program, and then it calls itself six times. What is the depth of recursion for this case?

- (a) 4
- (b) 5
- (c) 6
- (d) 7



15. (3 points) Which of the following modules is used to create GUI programs in Python?

- (a) GUI
- (b) PythonGUI
- (c) Tkinter
- (d) TGUI

16. (3 points) What will the following code display?

```
import numpy as np

an_array = np.array([[1,2,3],[4,5,6],[7,8,9]])
a_slice = an_array[1:3,:2]
a_slice[1,1] = 1000
print(an_array[2,1])
```

- (a) 1
- (b) 4
- (c) 8
- (d) 1000

17. (3 points) What will the following code display?

```
import numpy as np

an_array = np.array([[1,2,3],[4,5,6],[7,8,9]])
a_slice = np.array(an_array[1:3,:2])
a_slice[1,1] = 1000
print(an_array[2,1])
```

- (a) 1
- (b) 4
- (c) 8
- (d) 1000

18. (3 points) What will the following code display?

```
3*9-3+48/2**3
```

- (a) 22.0
- (b) 26.0
- (c) 30.0
- (d) 32.0

19. (3 points) What will the following code display?

```
x = 3.0
y = 3
x is y
```

- (a) True
- (b) False
- (c) Error
- (d) Infinity



20. (3 points) What will the following code **display**?

```
orienteering = set(['Emre', 'Birand', 'Burak'])  
curling = set(['Duygu', 'Ela', 'Emre'])  
  
for name in curling.difference(orienteering):  
    print(name)
```

- (a) Duygu  
Ela
- (b) Birand  
Burak
- (c) Emre
- (d) Emre  
Birand  
Burak  
Duygu  
Ela

21. (10 points) Prove that Numpy's ndarrays are faster than Python's lists by assuming that the size of both ndarray and list shall be equal to your student number.

22. (30 points) Write a class named *Student* with data attributes for a student's name, identification number, and telephone number. Next, write a class named *Undergraduate* which is a subclass of the *Student* class. The *Undergraduate* class should have a data attribute for a student's year of study, and a Boolean data attribute indicating whether the student intends to carry on his/her master degree within the same department. Demonstrate an instance of the *Undergraduate* class in a simple program.