Solutions to Week1-Assignment1

1. C

The built-in data structures in Python are: Dictionary, List, Tuple only. Class is a data structure that is created by the user.

2. A

Python is a language where we do not need to provide brackets such as '{' and '}' to mark the beginning and ending of a block. This is because it uses indentation to indicate the start and end of the blocks. In the given code snippet, an unnecessary tab has been provided for a statement that does not require any indentation i.e. 'a = a * 10'. This will lead to the 'Indentation Error'.

3. B

In python, ** symbol is used for the exponentiation. Also the precedence of this operator is more than any other operator such as '+', '-', '*' or '/'. Therefore, '1**5' will be evaluated first that is 1, which will then be multiplied with 5 giving a result of '5'.

4. D

The output is 0 0 1 0 2, which is not given in option A, B or C. Hence, the answer is D.

5. C

If 'dict1' is a dictionary, we use dict1.values() to get a list of all the values out of the key-value pairs of the dictionary.

6. B

'x' will take on the values of the list one by one and will print them.

7. A

The 'in' operator is used to check whether a given value is present is a list or not. Since '7' is present in the given list, it will return 'True'. (Please note that in ipython console there is no need to write 'print' before the given statement to get its value)

8. A

The '+' operator when applied to two lists functions as concatenation, and hence will simply provide a list that has the elements of the first list, followed by the elements of the second list.

9. B

list1[1:3] will provide elements with index 1 and 2 only. The index in Python starts with 0 and hence it should give us the element at the 2nd and the 3rd place. Please note that list1[x, y] always provides elements with index x to y-1 (Element at index 'y' is not included).

10. B

The pop() function takes an index as a parameter, and an element. Hence pop(x) removes the element at index 'x' from the list. Therefore, in the given list, the element at index 1, i.e., the second element will be removed.

11. D

time.time() returns the current time in seconds since epoch. And the epoch is midnight, January 1, 1970 GMT (Unix). Please note that system time is measured by a system clock, which is typically implemented as a simple count of the number of ticks that have transpired since some arbitrary starting date, called the epoch. For Unix, the epoch is January 1, 1970 GMT, whereas, for Windows systems, the epoch is 1 January 1601.

12. A, B, C, D

G.add_nodes_from() takes a container of nodes such as list, dict, set, tuple etc. as input. Hence all the options are correct.

13. C

To access an attribute 'weight' of an edge (1,2) in a graph G, we use G[1][2]['weight'].

14. C

To access a dictionary having the degrees of each node in a graph 'G', both nx.degree(G) and G.degree() can be used.

15. A

G.edges() always returns a list if edges. Even in case the network is weighted, G.edges() returns a list of edges. In case we want to access the weights of the edges, we have to call G.edges(data = 'True'), in which case it returns a dictionary having the weights as the values of the key-value pairs.

16. B

freeze() function prevents further addition or removal of the nodes and edges to the network. However, the node and edge attributes can still be modified.

17. C

In order to visualize the network in a particular way, there are many layouts in Networkx. Howevere, there is no layout such as concave_layout().

18. A

There is no function such as change_networkx_labels(). Font size can be changed using draw_networkx_labels() which is available in networkx.