MANGALORE UNIVERSITY

National Education Policy – 2020
[NEP-2020]

QUESTION BANK

OF
Python Programming
Operating System Concepts

IV SEMESTER BCA

UNIT III

2 marks Questions

1. What is a process? List the four section of the process.
2. What is PCB? List its component.
3. What is Context switch?
4. Define Thread.
5. What is meant scheduling queue?
6. List three types of implementation of queues in buffering
7. Define dispatcher and dispatch latency.
8. Define independent and cooperating processes.
9. What do you mean by Inter Process communication (IPC)
10. What is a scheduler? Mention their types.
11. What is ready queue and device queue?
12. Define CPU and I/O Burst.
13. Define throughput and turnaround time.
14. Define response time and arrival time.
15. What is waiting time?
16. Define preemptive scheduling and non-preemptive scheduling.
17. What do you mean by CPU scheduling?
18. Difference between job and process.
19. List the limitation of SJF.
20. What is aging?
21. List the disadvantages of SJF.
22. Differentiate long term scheduler and short term scheduler.

Three or More Marks questions.

1. Explain process state transition neat diagram.
2. What is PCB? Explain with diagram.
3. Explain process scheduling.
4. With diagram explain queuing diagram representation of process scheduling.
5. Write a note on schedulers.
6. Explain Context switch with diagram.
7. Write a note on Inter Process Communication (IPC).
8. Explain IPC in Message-Passing System.
9. Write a note on Synchronization,
10. Explain operation on process.
11. Explain Preemptive and Non preemptive Scheduling.
12. List and explain various Scheduling Criteria.
13. Explain FCFS scheduling with an example.
14. Explain Shortest-Job-First Scheduling with an example.
15. Explain round robin scheduling algorithm with an example.
16. Explain Priority Scheduling with an example.
17. Explain Multilevel Queue Scheduling.
18. Explain Multilevel Feedback Queue Scheduling.
19. Describe the differences between short-term, medium-term and long-term schedulers.
20. Explain multiprocessor scheduling.

21. Consider the following set of processes, with length of the CPU-burst time given in milliseconds.

Process	Burst time
P1	15
P2	4
P3	10
P4	8
P5	5

Draw gantt chart using round robin with time quantum of 5 milliseconds and find average waiting time.

22. Explain briefly preemptive and non-preemptive priority scheduling.

23. Consider the following set of processes, with length of the CPU-burst time given in milliseconds.

Process	Burst time
P1	6
P2	8
P3	7
P4	3

Find the average turnaround and waiting time. And Also Draw the gantt chart Using SJF.

24. Consider the following set of processes, with length of the CPU-burst time given in milliseconds.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

Python Programming

Two Mark questions

1. How to write a comment line in Python? Mention two types.
2. What is Python Virtual Machine?
3. List any four flavors of Python.
4. Give 2 step process of Python program execution
5. List any four standard datatypes supported by Python.
6. How to determine the data type of a variable? Give the syntax and example
7. What is the purpose of membership operators? Give example
8. How to input data in Python? Give syntax and example
9. List four type conversion functions.
10. List any four categories of Operators in Python.
11. What is indentation? Why it is required?
12. Give syntax of if ..elif statement in Python
13. What is the purpose of else suit in Python loops? Give example
14. What are the rules for naming identifiers?
15. What is an identifier? Give example
16. What are python keywords? Give example
17. What are python Variables?
18. What are the rules for naming variables?
19. Give syntax and example for assigning values to variables
20. Give the syntax and example for str.format() method
21. What is f-string literal? Give an example
22. What are syntax errors? Give example
23. What are Exceptions? Give Example
24. What is use of finally statement ?
25. Differentiate scope and life time of a variable.
26. List any four built in functions in Python.
27. Give the Syntax of user defined function.
28. Give the syntax and example for range() function.
29. What is the meaning of __name__ == __main__ ?

30. Give example of function returning multiple values.
31. What is keyword argument? Give example
32. What is default argument? Give example
33. Differentiate *args and **kwargs

Long Answer Questions

1. Explain any five features of Python.
2. Explain any five flavors of Python .
3. Explain various data types in Python.
4. Explain the Arithmetic operators, logical operators and relational operators with an example.
5. Explain the bitwise operators with examples.
6. How to read different types of input from the keyboard. Give examples
7. Explain use of string.format and f-string with print() function.
8. Explain any five type conversion functions with example.
9. Explain while and for loops with syntax and example.
10. Explain Exception handling in Python with try…except… finally block
11. Give the syntax of range function. Explain use range function in for loop with examples.
12. With syntax and example explain how to define and call a function in Python
13. Explain *args and **kwargs with example
14. With example explain keyword arguments and default arguments to the function.
15. With example explain how command line arguments are passed to python program.
16. Write a program to check for 'ValueError' exception
17. Write a program to check for ZeroDivisionError Exception
18. How to return multiple values from a function definition? Explain with an example

UNIT II

Two Mark questions

1. Give two methods of creating strings in Python.
2. List any two built in functions used with python strings. Mention their use.
3. Why strings are called immutable?
4. What is use of negative indexing? Give example.
5. Give the output of the following Python code:
   ```
   str1 = 'This is Python'
   print( "Slice of String : ", str1[1 : 4 : 1] )
   print ("Slice of String : ", str1[0 : -1 : 2] )
   ```
6. Give the output of following Python code
   ```
   newspaper = "new york times"
   print(newspaper[0:12:4])
   print (newspaper[::4])
   ```
7. Give the syntax and example for split function.
8. Write Python code to print each character in a string.
9. What is list? How to create list ?
10. List any four built-in functions used on list.
11. Write the output of the given python code :
    ```
    aList = [123, 'xyz', 'zara', 'abc'];
    aList.insert (3,2009)
    print ("Final List:", aList)
    ```
12. Give the syntax and example for list slicing
13. What is dictionary? Give example
14. How to access and modify key value pairs of dictionary ?
15. List any four built-in functions used on dictionary.
16. Write a Python code to Traversing of *key:value* Pairs in Dictionaries
17. What is tuple ? How it is created in Python
18. What is the output of print (tuple[1:3]) if tuple = ('abcd', 786 , 2.23, 'john', 70.2)?
19. Give syntax and purpose of two built-in functions used on tuples
20. How to convert tuple in to List ? Give example
21. Differentiate tuple and set datatype.

22. List any two set methods and mention purpose of each method.

Long Answer Questions

1. What is string slicing? Explain with examples
2. Write a note on negative indexing and slicing strings using negative indexing.
3. Explain split and join methods of string with example.
4. Explain concatenation , repetition and membership operations on string.
5. Explain any five string functions with syntax and example.
6. Write a note on indexing and slicing lists.
7. Explain any five list methods with syntax.
8. Write a Python code to implement stack operations using lists
9. Write a Python code to implement queue operations using lists
10. Write a note on nested lists.
11. With example explain how to Access and Modify *key:value* Pairs in Dictionaries
12. Explain any five dictionary methods with syntax.
13. Write a Python Program to Dynamically Build dictionary using User Input as a List
14. Explain with example how to traverse dictionary using *key:value pair*
15. Write a note on indexing and slicing tuples
16. Write a Python program to populate tuple with user input data.
17. Explain any Five set methods.

UNIT III

Two Mark questions

1. List file types supported by Python. Give example for each
2. List any four file access modes in Python.
3. Give the syntax of with statement to open the file.
4. List any two file object attributes and mention its purpose.
5. What is use of seek() and tell() methods.
6. Give syntax of constructor definition in Python.
7. What is self-variable ?
8. How to return object from a method ? Give example
9. How to define private instance variables and methods in Python.
10. What is multipath inheritance ?

11. What is purpose of super() method in inheritance ?
12. Give the general syntax of multiple inheritance.
13. What is operator Overloading ?
14. What is root window? How it is created in Python?
15. What is Canvas? How it is created in Python?
16. Differentiate Canvas and frame.
17. How to add a scrollbar to a Text widget?
18. Differentiate Label and Text Widget.
19. What is an entry widget? How it is created?
20. What is a spin box widget? How it is created?
21. List the values that can be assigned to selectmode property of listbox

Long Answer Questions

1. List and explain various file opening modes with examples.
2. With program example explain how '**with**' statement is used to open and close files
3. With code example explain any two methods to read data from the file.
4. With Code example explain any two methods to write data to the file.
5. Write Python Program to Count the Occurrences of Each Word and Also Count the Number of Words in a text File.
6. Explain declaring a class, defining an object and constructor with syntax and example.
7. What is inheritance? How to implement inheritance in Python? Give an example
8. Explain with example overriding superclass constructor and method
9. Explain multi-level inheritance with example.
10. Explain multiple inheritance in Python with an example.
11. Explain multipath inheritance with example.
12. Explain method overloading and overriding with example
13. Explain the steps involved in creating a GUI application in Python with a suitable example.
14. How to create a button widget and bind it to the event handler? Explain with example.
15. Write a note on arranging Widgets in a frame using layout managers.

16. Explain the process of creating a Listbox widget with a suitable example. Also, explain different values associated with selectmode option.
17. Write a note on
    i) Text Widget ii) Entry Widget

UNIT IV

Two Mark questions

1. How to connect to the SQLite database ? Give example
2. Write SQL code to create table in SQLite database.
3. Write SQL code to insert data in SQLite table..
4. Write SQL code to update SQLite table.
5. What is NumPy in Python ? Give any two uses of NumPy.
6. Give Python code to create NumPy array using array function.
7. How to create two-dimensional arrays using NumPy.
8. List any four NumPy array attributes.
9. Give syntax and example for NumPy arrange() function
10. What is Pandas Library ?
11. What is Padas Series ? Give example.
12. Write Python code to create Dataframe from a dictionary and display its contents.
13. Write Python code to create Dataframe from a tuple and display its contents.
14. What is Pandas DataFame ? How it is created ?
15. Give the Python code to create dataframe from .csv file
16. How to add new column to daataframe ?
17. Give the Python code to create datafram from Excel file.
18. Give Python code to find maximum and minimum values for particular column of dataframe.
19. What is Data Visualization ?
20. What is matplotlib and pyplot ?

Long Answer Questions

1. Explain four SQLite module methods required to use SQLite database.

2. Explain any four SQLite database operations with example.
3. Write a Python Program to demonstrate various SQLite Database operations.
4. Explain any five NumPy array attributes with syntax.
5. Explain any four NumPy array creation functions with example.
6. Write a note on Indexing, slicing, and iterating operations on NumPy array.
7. Explain basic arithmetic operations on NumPy array with examples.
8. With code examples explain creating pandas series using Scalar data and Dictionary.
9. Explain any four string processing methods supported by Pandas Library with example.
10. Explain with example any two methods of creating DataFrame.
11. Explain any five operations on Dataframe with example.
12. Explain Bar Graph creation using Matplot Library module.
13. Write a program to display histogram .
14. Write a Python program to display Pie Chart showing percentage of employees in each department. Assume there are 4 departments namely Sales , Production , HR and Finance.
15. Write a Python Program to create Line Graph showing number of students of a college in various Years. Consider 8 years data.