



REVISION SHEET

SUBJECT: COMPUTER SCIENCE

CLASS-X II

TERM 1

SECTION – 1 MARK QUESTIONS (20 x 1 = 20 Marks)

1. What is the output?
`print(bool(0), bool(-1), bool(""))`
a) True True True b) False True False c) False False False d) True False True
2. Which of the following is a valid float literal in Python?
a) 5_000.0 b) 5,000.0 c) 5000.f d) f5000.0
3. What is the output?
`x = 5`
`x **= 2`
`x //= 3`
`print(x)`
a) 8 b) 9 c) 7 d) 8.33
4. Which of the following functions converts a string to an integer?
a) `str()` b) `int()` c) `float()` d) `chr()`
5. Which of the following is TRUE about keyword arguments in Python functions?
a) They must appear before positional arguments b) They can be passed in any order c) They cannot have default values d) They are not allowed with `*args`
6. What does the return statement do if a function has no explicit return statement?
a) Raises an error b) Returns 0 c) Returns None d) Returns an empty string
7. Which module must be imported to use mathematical functions like `sqrt()` and `pow()`?
a) `random` b) `math` c) `statistics` d) `numpy`
8. Which exception is raised when trying to access a list index that does not exist?
a) `KeyError` b) `IndexError` c) `ValueError` d) `NameError`
9. Which block in exception handling executes only if no exception occurs?
a) `try` b) `except` c) `else` d) `finally`
10. Which file mode opens a file for reading in binary format?
a) `r` b) `rb` c) `rt` d) `r+`
11. Which method of a file object moves the file pointer to a specific position?
a) `tell()` b) `seek()` c) `locate()` d) `move()`

12. Which module is used to read and write CSV files in Python?
a) pickle b) csv c) os d) json
13. In a stack, the operation of adding an element is called:
a) POP b) PUSH c) PEEK d) INSERT
14. Which of the following best describes "Stack Overflow"?
a) Removing from an empty stack b) Adding to a stack that has reached its maximum size c) A syntax error d) None of these
15. Which network topology connects every device to every other device directly?
a) Star b) Bus c) Mesh d) Ring
16. Which device operates at the network layer and is used to connect different networks?
a) Hub b) Switch c) Router d) Repeater
17. Which of the following is a Guided Transmission Medium?
a) Microwave b) Satellite c) Optical Fibre d) Radio Wave
18. Which protocol is used to send emails from a client to a mail server?
a) POP3 b) SMTP c) FTP d) HTTP
19. Assertion (A): The finally block in Python always executes, regardless of whether an exception occurred.
Reason (R): The finally block is typically used to release resources such as closing a file.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.
20. Assertion (A): A Bus topology requires more cable than a Star topology for the same number of nodes.
Reason (R): In Bus topology, all devices share a single central cable, whereas Star topology uses a central device.
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

SECTION – 2 MARK QUESTIONS (20 x 2 = 40 Marks)

21. Write the output:

```
a = "Programming"
print(a[1:8:2])
print(a[::-1])
```
22. Write a function findMax(a, b, c) that accepts three numbers and returns the largest of them using nested if-else (no built-in max()).
23. What is the difference between local and global scope of a variable in Python? Give a short example.
24. Write Python code using try-except to accept an integer from the user, handling ValueError if the input is not a valid integer.

25. What is the difference between the read() and readline() methods of a file object?
26. Write Python code to open a file "log.txt" in append mode and write the string "Session Closed" followed by a newline.
27. What is the purpose of the pickle module in Python? Name the two main functions used for writing and reading objects.
28. Differentiate between a text file and a CSV file, with respect to how data is organized.
29. Write the two conditions under which "Stack Underflow" occurs, and how it is typically handled in a program.
30. What is the difference between PUSH and POP operations on a stack?
31. Differentiate between LAN and MAN on the basis of area covered and ownership.
32. What is the role of a Repeater in a network? Why is it needed over long cable runs?
33. Differentiate between Guided and Unguided transmission media, with one example of each.
34. What is a MAC Address? How is it different from an IP Address?
35. Write the output:

```
def info(name, age=18, city="Delhi"):
    print(name, age, city)
info("Rohan")
info("Meera", 20)
info(city="Mumbai", name="Kabir")
```
36. What is variable-length argument (*args) in a function used for? Give a short example of a function header using it.
37. Write Python code using try-except-finally to open a file "data.txt" and ensure it is closed whether or not an exception occurs while reading it.
38. What will be the output of the following, and why?

```
try:
    print(5 / 0)
except ZeroDivisionError:
    print("Cannot divide by zero")
finally:
    print("Done")
```
39. Write Python code to write a list of numbers [12, 25, 33, 47] to a binary file "nums.dat" using pickle.
40. Write Python code to count and display the number of lines in a text file "report.txt".

SECTION – 3 MARK QUESTIONS (20 x 3 = 60 Marks)

41. Write the output of the following code:

```
D = {"P":10, "Q":25, "R":15}
for k in D:
    if D[k] > 12:
        D[k] += 5
print(D)
print(sum(D.values()))
```

42. Write a function calcBill(units) that calculates and returns the electricity bill based on units consumed: Rs 5/unit for the first 100 units, and Rs 8/unit for units beyond 100.

43. Write a Python program using try-except to accept a list of 5 numbers from the user and display their average, handling ValueError if any input is not numeric.

44. Write a Python program to read the text file "essay.txt" and display the total number of words and characters present in it.

45. A list contains the following record of employees: [EmpName, Department]. Write function Push_HR(L) to push the names of employees working in the 'HR' department onto a stack named 'HRList'.

46. Explain any three advantages of Star topology over Bus topology.

47. Write the output of the following code:

```
def modify(n):
    n = n * 2
    return n
x = 10
y = modify(x)
print(x, y)
```

48. Write a function isPalindrome(s) that accepts a string and returns True if it is a palindrome, otherwise False (without using recursion).

49. Write a Python program to open a text file "marks.txt" and count the number of lines that contain the word "Absent".

50. What are the differences between the append() mode and the write() mode while opening a file for writing?

51. A list contains records in the form [BookName, Available]. Write function Push_Available(L) to push the names of books which are currently marked Available (True) onto a stack named 'BookStack'.

52. Explain the client-server model of a network with a suitable example.

53. What is the purpose of a Gateway in networking? How is it different from a Router?

54. Write a Python program using try-except to accept two numbers and display the result of integer division, handling both ZeroDivisionError and TypeError.

55. Write the output of the following code:

```
def total(*nums):
    s = 0
    for n in nums:
```

```

        s += n
    return s
print(total(1,2,3))
print(total(10,20,30,40))

```

56. Write a Python program to write the numbers from 1 to 20 into a text file "numbers.txt", each on a new line.
57. Write a Python program to read a CSV file "sales.csv" and display only those rows where the third column value (Amount) is greater than 5000.
58. What is the difference between Circuit Switching and Packet Switching?
59. Explain the terms Bandwidth and Data Transfer Rate with respect to computer networks.
60. Write a Python program to accept a binary file name and a search key from the user, and count how many records in the file match a given field value (assume records are dictionaries with a 'ID' field).

SECTION – 4 MARK QUESTIONS (10 x 4 = 40 Marks)

61. Write the following user-defined functions to perform given operations on a binary file "Staff.dat":
 - a) WriteStaff(): to input StaffID, Name, and Salary of employees from the user and write them onto the binary file using pickle.
 - b) ReadHighEarnings(): to read the binary file and display the Name of all staff whose Salary is greater than 60000.
62. Write the following user-defined functions to perform given operations on a CSV file "Orders.csv" with fields OrderID, Item, Amount:
 - a) AddOrder(): to accept and add a new order record to the CSV file.
 - b) TotalSales(): to read the CSV file and display the total of the Amount column across all records.
63. Consider the code below and answer the questions:


```

def process(lst):
    result = []
    for x in lst:
        if x % 2 == 0:
            result.append(x * 2)
        else:
            result.append(x - 1)
    return result
data = [3, 8, 5, 12, 7]
output = process(data)
print(data)
print(output)

```

 - a) What is the output?
 - b) Does the function modify the original list 'data'? Justify.
 - c) What programming concept does this illustrate?
64. Define the following terms with respect to Computer Networks:
 - a) Node b) Protocol c) Domain Name d) Modem

65. Write a Python program that performs the following using proper exception handling:
- Define a function `readNumbers()` that reads numbers from a text file "vals.txt" and returns them as a list. (2)
 - Handle `FileNotFoundError` if "vals.txt" is missing, displaying "File not found!" (2)
66. A list contains records of the form [FlightNo, Status]. Write the following user-defined functions on a stack named 'Delayed':
- `Push_Delayed(L)`: to push the FlightNo of flights whose Status is 'Delayed' onto the stack.
 - `Pop_Delayed()`: to pop and display the elements from the stack, displaying "Underflow" if the stack is empty.
67. Write a function `multiOperations(L)` that accepts a list of numbers and returns a tuple containing (sum of list, count of even numbers, maximum value) — all computed using loops, without built-in `sum()`/`max()`.
68. Write the following user-defined functions to perform given operations on a binary file "Vehicles.dat":
- `AddVehicle()`: to input VehicleNo, Type, and Year from the user and write records to the binary file.
 - `CountByType()`: to read the file and count how many vehicles belong to a Type entered by the user.
69. Explain the following network devices with one line about the function of each:
- Hub
 - Switch
 - Router
 - Access Point
70. Write a Python program using try-except that:
- Defines a function `safeDivide(a, b)` that returns `a/b`, handling `ZeroDivisionError` by returning `None`. (2)
 - Calls the function with three different pairs of values, one of which causes division by zero, and prints the results. (2)

SECTION – 5 MARK QUESTIONS (10 x 5 = 50 Marks)

71. Answer the following based on functions:
- Write a function `digitSum(n)` that accepts an integer and returns the sum of its digits (without recursion). (2)
 - Write a function `isArmstrong(n)` that uses `digitSum`-like logic to check whether `n` is an Armstrong number (e.g., $153 = 1^3 + 5^3 + 3^3$). (3)
72. Write a Python program using proper exception handling that performs the following:
- Define a function `readTemps()` that opens "temps.txt", reads temperature values (one per line), and returns them as a list of floats. (2)
 - Handle `FileNotFoundError`, displaying "File not found!" (1)
 - Handle `ValueError` if any line does not contain a valid number, displaying "Invalid data in file!" (2)
73. Write the following user-defined functions to perform given operations on a binary file "Members.dat":
- `AddMembers()`: to input MemberID, Name, and MembershipType from the user and write records onto the binary file using pickle.
 - `SearchByType()`: to accept a MembershipType from the user, read the binary file, and display the Names of all members having that type.
74. A list contains records of passengers in the form [TicketNo, Name, Class]. Write the following user-defined functions to perform stack operations, using a stack named 'UpgradeList':
- `Push_Upgrade(L)`: to push the TicketNo and Name of passengers whose Class is 'Economy' onto the stack.
 - `Pop_Upgrade()`: to pop and display the elements from the stack. Also display "Underflow" when there

are no elements.

75. SunTech Solutions is setting up a network for its campus having 3 blocks — Admin Block, R&D Block, and Production Block — with the following details:

Block	No. of Computers	Distance from Admin Block
Admin Block	40	-
R&D Block	60	80 m
Production Block	90	150 m

- Suggest the most suitable block to house the server, giving a reason. (1)
- Suggest the type of network (LAN/MAN/WAN) formed. (1)
- Suggest the most suitable device to connect all computers within each block. (1)
- Suggest a suitable topology to connect the three blocks together, and justify your choice. (1)
- Suggest the type of cable that should be used to connect R&D Block and Production Block, given the distance involved. (1)

76. GreenLeaf Ltd. has 4 buildings on its campus — Building A, Building B, Building C, and Building D — with the following layout:

Building	No. of Computers	Distance from Building A
Building A	25	-
Building B	50	60 m
Building C	15	200 m
Building D	35	350 m

- Suggest the most suitable building to house the main server, with reason. (1)
- Suggest the type of network formed within the campus, and the type formed if Building D is later connected to a branch office 30 km away. (1)
- Suggest the most economical device to interconnect the computers within each building. (1)
- Building C is at a distance that may cause signal loss over a standard cable — suggest a solution device to overcome this. (1)
- Suggest a suitable topology for connecting all four buildings, with a brief justification. (1)

77. BrightFuture School is networking its campus consisting of 3 blocks — Junior Block, Senior Block, and Admin Block — with details as follows:

Block	No. of Computers	Distance from Admin Block
Admin Block	20	-
Junior Block	45	50 m
Senior Block	55	100 m

- Suggest the most suitable block to house the server, with reason. (1)
- Suggest the type of network formed. (1)
- Suggest the device needed to connect computers within Senior Block, given it has the maximum number of computers. (1)
- Suggest the topology and cable layout to connect all three blocks with minimum cabling. (1)
- If the school later wants students to access their portal from home over the Internet, what technology/service would be required, and what network type would this represent? (1)

78. Write a Python program that reads a CSV file "Inventory.csv" with fields ItemCode, ItemName, Quantity, and performs the following:

- Display all records where Quantity is less than 5 (low stock alert). (2)
- Count and display the total number of records in the file. (1)

c) Display the ItemName with the highest Quantity. (2)

79. Write the following user-defined functions to perform given operations on a text file "Feedback.txt":

a) WriteFeedback(): to accept feedback comments (one per line) from the user until they type "END", and write each comment to the file. (2)

b) CountPositive(): to read the file and count and display the number of lines containing the word "good" or "excellent" (case-insensitive). (3)

80. Explain the following in the context of Computer Networks, with one real-world example of each:

a) Wi-Fi and its typical use case (1)

b) VoIP and how it differs from traditional telephony (1)

c) The role of a Firewall in network security (1)

d) The difference between Internet, Intranet, and Extranet (2)