



CLASS-XII (CBSE)

Computer Science

Workbook Cum Question Bank with Answers



**SCHEDULED CASTES & SCHEDULED TRIBES
RESEARCH & TRAINING INSTITUTE (SCSTRI)
ST & SC DEVELOPMENT DEPARTMENT
BHUBANESWAR**

COMPUTER SCIENCE

Workbook Cum Question Bank with Answers

CLASS-XII (CBSE)

Writer

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2022

FOREWORD



The ST & SC Development Department, Government of Odisha has introduced an innovative education programme for the students appearing in +2 Science and Commerce examination pursuing studies in the ST & SC Development Department Schools (EMRS & HSS) to ensure quality education at +2 level. In this regard it is to mention that an Academic Performance Monitoring Cell (APMC) has been set up in SCSTRTI to monitor the Training and Capacity Building of Teachers of SSD Higher Secondary Schools and Ekalavya Model Residential Schools (EMRS) to enhance quality education for better performance of the students appearing +2 Science and Commerce examination.

Since March 2020 due to Covid-19 Pandemic Situation, the state government has closed all the HSS & EMRS and online classes were going on. The CBSE & CHSE Board were unable to conduct the offline examinations in 2020 and 2021. Since a few months, offline classes are going on. To combat the situation, the CBSE & CHSE Boards have introduced alternate comprehensive examination patterns such as 1st and 2nd Term End Examinations and Quarter End Examinations etc. to be operative from 2021-22 academic session. Accordingly the Question patterns have completely being changed by both Boards.

To face this situation, the APMC has designed Workbook-Cum-Question Bank with Answers as per the new direction of the Boards. The best of subject experts have been roped to formulate self-contained and self-explanatory "Workbook-Cum-Question Bank with Answers" as per the new pattern of examinations of CHSE & CBSE Boards. They have tried to make the material as far as activity based and solution based as feasible.

I would like to extend my sincere thanks to Prof. (Dr.) A. B. Ota, Advisor-Cum-Director and Special Secretary, SCSTRTI. I would also like to thank Dr. S. C. Das, SLPM, APMC and the team of subject experts for their sincere effort in bringing out the Question Bank in a very short time.

The Workbook-Cum-Question Bank with Answers will cater to the needs of students during this pandemic situation and will be extremely useful for students of Science and Commerce of CBSE and CHSE to face the new pattern of examination, as these are designed accordingly.

A handwritten signature in black ink, consisting of a stylized 'R' followed by a horizontal line.

Ranjana Chopra
Principal Secretary
ST & SC Development Department
Govt. of Odisha

From the Director's Desk ...



The ST and SC Development Department, Government of Odisha, has initiated an innovative effort by setting up an Academic Performance Monitoring Cell (APMC) in Scheduled Castes and Scheduled Tribes Research and Training Institute (SCSTRTI) to monitor the Training and Capacity Building of teachers of SSD Higher Secondary Schools and Ekalabya Model Residential Schools (EMRS) under the administrative control of the ST & SC Development Department. This innovative program is intended to ensure quality education in the Higher Secondary Level of the schools of the ST & SC Development Department.

All Ekalabya Model Residential Schools (EMRS) and Higher Secondary Schools (HSS) are closed since March 2020 due to Covid-19 pandemic situation. As a result, the CBSE Board was not able to conduct the final examinations in 2021. As an alternative, the CBSE Board has decided to conduct 1st & 2nd Term End Examinations in December 2021 & April 2022 respectively with new question pattern for both these examinations.

To cope up with this new situation & as per necessities of students, the Academic Performance Monitoring Cell has designed and prepared Workbook Cum Question Bank with Answers in Physics, Chemistry, Biology (Botany & Zoology), Mathematics, Computer Science and English for Class-XII of the Science stream as per the new pattern of examinations being adopted by CBSE Board.

The best of the subject experts in all subjects of the state have been roped to prepare the Workbook-Cum-Question Bank with Answers which are self-contained and self-explanatory.

The tireless efforts and futuristic vision of Prof. (Dr.) A. B. Ota, Advisor-cum-Director and Special Secretary for his guidance in preparation of these books and getting them published in very short time deserve special mention. He has been a bedrock of strength and wisdom to this team during the current pandemic as well.

Hope, these Workbooks will help students in developing their knowledge and skills to come out successful in the +2 Examinations.

I wish the publication all success.

A handwritten signature in black ink, appearing to read 'P. Guha...'. The signature is written in a cursive style.

Smt. Guha Poonam Tapas Kumar, IAS
Director (ST)
ST & SC Development Department
Govt. of Odisha

PREFACE



An innovative education programme has been initiated by setting up an Academic Performance Monitoring Cell (APMC) in Scheduled Castes and Scheduled Tribes Research and Training Institute (SCSTRTI) to monitor the Training and Capacity Building of Teachers of SSD Higher Secondary Schools and Ekalavya Model Residential Schools (EMRS) and to ensure quality education of students studying at +2 level under the administrative control of the ST & SC Development Department.

Due to Covid-2019 pandemic situation, all the schools under administrative control of ST & SC Development Department are closed since March 2020. As a result different Boards were not able to conduct offline examinations in 2020 and 2021. As an alternative, CBSE Board and CHSE Board have made comprehensive examination patterns in the form of 1st & 2nd Term End and 3rd Quarter End examinations respectively to be followed from 2021-22 academic session.

The present situation demands to fulfill the desire of students and designed new pattern of questions, which will cater to the need of students to face the examinations boldly without any fear and nervousness. The APMC under the banner of SCSTRTI has taken the initiative to prepare Workbook-Cum-Question Bank with Answers in Physics, Chemistry, Biology (Botany & Zoology), Mathematics, Information Technology / Computer Science, English and Odia of Science stream and Business Mathematics and Statistics, Business Studies and Management, Accounting, Cost Accountancy, Fundamentals of Management Accounting, Fundamentals of Entrepreneurship, Banking & Insurance etc. of Commerce stream as per the new pattern of questions to be adopted in both CBSE and CHSE Boards and prepared books separately.

The subject experts, who are the best in their respective subjects in the state have been roped in for this exercise. They have given their precious time to make the new pattern of Question Bank as activity and solution based as per the direction of both CBSE and CHSE Boards.

I hope this material will be extremely useful for the students preparing for the +2 examination in different subject of Science and Commerce streams.

A handwritten signature in black ink, consisting of stylized loops and strokes, representing the name of the signatory.

Prof. (Dr.) A. B. Ota

Advisor-Cum-Director & Special Secretary
SCSTRTI, Govt. of Odisha

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UNIT - I

Computational Thinking and Programming - 2

Revision of Python topics covered in Class XI

1. **Who developed the Python language?**
(a) Zim Den
(b) Guido van Rossum
(c) NieneStom
(d) Wick van Rossum
2. **The developer of python language belongs to which country?**
(a) Netherlands (b) New Zealand
(c) Nizeria (d) New Delhi
3. **The Programming language Python name came from**
(a) Popular BBC comedy show "Monty Python's Flying Circus".
(b) Popular comedy circus "Python's Flying Circus".
(c) Comedy serial "Monty Python"
(d) None of these
4. **In which year was the Python language developed?**
(a) 1995 (b) 1972
(c) 1981 (d) 1989
5. **In which language is Python written?**
(a) English (b) PHP
(c) C language (d) All of the above
6. **Which one of the following is the correct extension of the Python file?**
(a) .py (b) .python
(c) .p (d) None of these
7. **In which year was the Python 3.0 version developed?**
(a) 2008 (b) 2000
(c) 2010 (d) 2005
8. **Python is a/an _____ based language.**
(a) Compiler
(b) Interpreter
(c) Both Compiler and Interpreter
(d) None of these
9. **What do we use to define a block of code in Python language?**
(a) Key (b) Brackets
(c) Indentation (d) None of these
10. **Which character is used in Python to make a single line comment?**
(a) / (b) //
(c) # (d) !
11. **Python is _____.**
(a) general purpose, dynamic, high-level, and interpreted programming language.
(b) low-level language
(c) Both a & b
(d) None of these
12. **What is the method inside the class in python language?**
(a) Object (b) Function
(c) Attribute (d) Argument

13. Which of the following declarations is incorrect?
- (a) `_x = 2` (b) `Y = 3`
(c) `2xyz__ = 5` (d) None of these
14. Why does the name of local variables start with an underscore discouraged?
- (a) To identify the variable
(b) It confuses the interpreter
(c) It indicates a private variable of a class
(d) None of these
15. Local variables are variables declared
- (a) Outside a function
(b) Inside a function
(c) Both a and b
(d) None of these
16. Which of the following is not a keyword in Python language?
- (a) `val` (b) `raise`
(c) `try` (d) `with`
17. Which of the following statements is correct for variable names in Python language?
- a. All variable names must begin with an underscore.
b. Can be any length
c. The variable name length is a maximum of 2.
d. All of the above
18. Which of the following declarations is incorrect in python language?
- (a) `xyzp = 500`
(b) `x y z p = 50 60 70 80`
(c) `x,y,z,p = 500`
(d) `x_y_z_p = 5000`
19. Which of the following words cannot be a variable in python language?
- (a) `_val` (b) `val`
(c) `try` (d) `_try_`
20. Which of the following operators is the correct option for power (ab)?
- (a) `a ^ b` (b) `a**b`
(c) `a ^^ b` (d) `a ^ * b`
21. Which of the following precedence order is correct in Python?
- a. Parentheses, Exponential, Multiplication, Division, Addition, Subtraction
b. Multiplication, Division, Addition, Subtraction, Parentheses, Exponential
c. Division, Multiplication, Addition, Subtraction, Parentheses, Exponential
d. Exponential, Parentheses, Multiplication, Division, Addition, Subtraction
22. Which one of the following has the same precedence level?
- a. Division, Power, Multiplication, Addition and Subtraction
b. Division and Multiplication
c. Subtraction and Division
d. Power and Division

23. Which one of the following has the highest precedence in the expression?

- (a) Division (b) Subtraction
(c) Power (d) Parentheses

24. Which of the following functions is a built-in function in python language?

- (a) val() (b) print()
(c) println() (d) None of these

25. Study the following function:

round(4.876)

What will be the output of this function?

- (a) 4 (b) 4.5
(c) 576 (d) 5

26. Which of the following is correctly evaluated for this function?

pow(x,y,z)

- (a) $(x^{**}y)/z$ (b) $(x/y)*z$
(c) $(x^{**}y)\%z$ (d) $(x/y)/z$

27. Study the following function:

all([1,1,0,1])

What will be the output of this function?

- (a) false (b) true
(c) 3 (d) Invalid code

28. Study the following function:

all([1,1,1,1])

What will be the output of this function?

- (a) false (b) true
(c) 3 (d) Invalid code

29. Study the following program:

```
x = 1
while true:
    if x % 5 == 0:
        break
    print(x)
    x + 1 = 1
```

What will be the output of this code?

- (a) error (b) 2 1
(c) 0 3 1 (d) None of these

30. Which of the following is not used as loop in Python?

- (a) for loop
(b) while loop
(c) do-while loop
(d) None of the above

31. Which of the following is false regarding loops in Python?

- (a) Loops are used to perform certain tasks repeatedly.
(b) While loop is used when multiple statements are to be executed repeatedly until the given condition becomes false.
(c) While loop is used when multiple statements are to be executed repeatedly until the given condition becomes true.
(d) for loop can be used to iterate through the elements of lists.

32. How many times will the loop run?

```
i=2
while(i>0):
    i=i-1
```

- (a) 2 (b) 3
(c) 1 (d) 0

- 33. Which one of the following is a valid Python if statement:**
- (a) if a>=2 : (b) if (a >= 2)
 (c) if (a => 22) (d) if a >= 22
- 34. Can we write if/else into one line in python?**
- (a) Yes
 (b) No
 (c) if/else not used in python
 (d) None of the above
- 35. Which statement will check if a is equal to b?**
- (a) if a = b: (b) if a == b:
 (c) if a === c: (d) if a == b
- 36. Does python have Switch case statement?**
- (a) True
 (b) False
 (c) Python has switch statement but we cannot use it.
 (d) None of the above
- 37. What will be the output of the following Python code?**
- ```
for i in range(0,2,-1):
 print("Hello")
```
- (a) Hello  
 (b) Hello Hello  
 (c) Hello Hello Hello  
 (d) None
- 38. Which of the following is a valid for loop in Python?**
- (a) for(i=0; i < n; i++)  
 (b) for i in range(0,5):  
 (c) for i in range(0,5)  
 (d) for i in range(5)
- 39. Which of the following sequences would be generated by the given line of code?**
- ```
range (5, 0, -2)
```
- (a) 5 4 3 2 1 0 -1
 (b) 5 4 3 2 1 0
 (c) 5 3 1
 (d) None of the above
- 40. When does the else statement written after loop executes?**
- (a) When break statement is executed in the loop
 (b) When loop condition becomes false
 (c) Else statement is always executed
 (d) None of the above
- 41. What will be the output of the following code?**
- ```
x = "abcd"
for i in range(len(x)):
 print(i)
```
- (a) Abcd                              (b) 0 1 2 3  
 (c) 1 2 3 4                          (d) a b c d
- 42. For loop in python is**
- (a) Entry control loop  
 (b) Exit control loop  
 (c) Simple loop  
 (d) None of the above

43. In which of the following loop in python, we can check the condition?  
 (a) for loop (b) while loop  
 (c) do while loop (d) None of the above
44. It is possible to create a loop using goto statement in python?  
 (a) Yes (b) No  
 (c) Sometimes (d) None of the above
45. What we put at the last of the loop?  
 (a) semicolon (b) colon  
 (c) comma (d) None of the above
46. Which of the following is the loop in python?  
 (a) for (b) while  
 (c) do while (d) a and b
47. while(0): , how many times a loop run?  
 (a) 0 (b) 1  
 (c) 3 (d) Infinite
48. while(1==3): , how many times a loop run ?  
 (a) 0 (b) 1  
 (c) 3 (d) Infinite
49. if -3 will evaluate to true in python  
 (a) True (b) False  
 (c) Can't say (d) None of these
50. What is the output of the following if statement  
 a, b = 12, 5  
 if a + b:  
 print('True')  
 else:  
 print('False')  
 (a) False (b) True  
 (c) Can't say (d) none of these
51. Python string is the collection of the characters surrounded by  
 (a) single quotes  
 (b) double quotes  
 (c) triple quotes  
 (d) single quotes, double quotes, or triple quotes.
52. Python strings are also called the collection of  
 (a) Unicode characters  
 (b) binary code  
 (c) Both a & b  
 (d) None of these
53. Indexing of the Python strings starts from  
 (a) 0 (b) 1  
 (c) 2 (d) None of these
54. What will be the output of string function capitalize()  
 (a) Convert the first character to upper case  
 (b) Convert last character to upper case  
 (c) Convert all character to upper case  
 (d) None of these
55. What will be the output?  
 txt = "I love apples,  
 apples are my favorite fruit"  
 x = txt.count("apples")  
 print(x)  
 (a) 0 (b) 1  
 (c) 2 (d) 3

- 56. The string method `islower()` returns**
- (a) true if all characters in the string are lower case
  - (b) false if all characters in the string are lower case
  - (c) true if some characters in the string are lower case
  - (d) None of these

- 57. Which string method removes spaces at the beginning and at the end of the string?**
- (a) `strip()`
  - (b) `rstrip()`
  - (c) `lstrip()`
  - (d) None of these

- 58. `isalnum()` methods**
- (a) Returns true, if all characters in the string are numeric
  - (b) Returns true, if all characters in the string are alphanumeric
  - (c) Returns false, if all characters in the string are alphanumeric
  - (d) none of these

- 59. Lists are used to**
- (a) store multiple items in a single variable
  - (b) store single item in a single variable
  - (c) store multiple items in multi variable
  - (d) None of these

- 60. The `append()` method appends an element**
- (a) to the end of the list
  - (b) to the beginning of the list
  - (c) to the middle of the list
  - (d) None of these

- 61. The `reverse()` method reverses**
- (a) the sorting order of the elements
  - (b) the un-order of the elements
  - (c) both order & un-order elements
  - (d) None of these

- 62. What will be the output of below Python code?**

```
str1="Information"
print(str1[2:8])
```

- (a) format
- (b) Formation
- (c) Orma
- (d) ormat

- 63. Study the following code:**

```
x = ['XX', 'YY']
for i in x:
 i.lower()
print(i)
```

What will be the output of this program?

- (a) ['XX', 'YY']
- (b) ['xx', 'yy']
- (c) [XX, yy]
- (d) None of these

- 64. Study the following statement:**

```
>>>"a"+"bc"
```

What will be the output of this statement?

- (a) a+bc
- (b) abc
- (c) a bc+
- (d) a

- 65. Study the following code:**

```
>>>"javatpoint"[5:]
```

What will be the output of this code?

- (a) javatpoint
- (b) java
- (c) point
- (d) None of these



**66. Study the following statements:**

```
>>> print(ord('h') - ord('z'))
```

What will be the output of this statement?

- (a) 18                      (b) -18
- (c) 17                      (d) -17

**67. Study the following program:**

```
i = 1:
while true:
if i%3 == 0:
break
print(i)
```

Which of the following is the correct output of this program?

- (a) 1 2 3                      (b) 3 2 1
- (c) 1 2                      (d) Invalid syntax

**68. Which of the following option is not a core data type in the python language?**

- (a) Dictionary              (b) Lists
- (c) Class                      (d) All of the above

**69. What error will occur when you execute the following code?**

```
MANGO = APPLE
```

- (a) NameError              (b) SyntaxError
- (c) TypeError              (d) ValueError

**70. Which of the following data types is shown below?**

```
L = [2, 54, 'python', 5]
```

What will be the output of this statement?

- (a) Dictionary              (b) Tuple
- (c) List                      (d) Stack

**71. What happens when '2' == 2 is executed?**

- (a) false
- (b) true
- (c) ValueError occurs
- (d) TypeError occurs

**72. Study the following statement**

```
z = {"x":0, "y":1}
```

Which of the following is the correct statement?

- (a) x dictionary z is created
- (b) x and y are the keys of dictionary z
- (c) 0 and 1 are the values of dictionary z
- (d) All of the above

**73. pop() method**

- (a) remove the element with the specified key
- (b) remove the dictionary
- (c) remove element
- (d) none of these

**74. A tuple is a collection which is**

- (a) ordered and changeable.
- (b) ordered and unchangeable
- (c) ordered and unchangeable
- (d) None of these

**75. Which function is used to determine how many items a tuple has**

- (a) tlen()                      (b) len()
- (c) tuplelen()              (d) None of these

## ANSWER KEYS

1. (b) Guido van Rossum
2. (a) Netherlands
3. (a) Popular BBC comedy show "Monty Python's Flying Circus".
4. (d) 1989
5. (c) C language
6. (a) .py
7. (a) 2008
8. (b) Interpreter
9. (c) Indentation
10. (c) #
11. (a) general purpose, dynamic, high-level, and interpreted programming language.
12. (b) function
13. (c) 2xyz\_\_ = 5
14. (c) It indicates a private variable of a class
15. (b) inside a function
16. (a) val
17. (b) Can be any length
18. (b) x y z p = 50 60 70 80
19. (c) \_try
20. (b) a\*\*b
21. (a) Parentheses, Exponential, Multiplication, Division, Addition, Subtraction
22. (b) Division and Multiplication
23. (d) Parentheses
24. (b) print()
25. (d) 5
26. (c) (x\*\*y) % z
27. (a) false
28. (b) true
29. (a) error  
*Explanation:* Syntax error, there should not be a space between + and =.
30. (c) do-while loop
31. (b) While loop is used when multiple statements are to be executed repeatedly until the given condition becomes false
32. (a) 2
33. (a) if a >= 2 :
34. (a) yes  
*Explanation:* Yes, we can write if/else in one line. For e.g i = 5 if a > 7 else 0. So, option a is correct.
35. (b) if a == b:

36. (b) False

37. (a) Hello

38. (b) for i in range(0,5):

39. (c) 5 3 1

*Explanation:* The initial value is 5 which is decreased by 2 till 0 so we get 5, then 2 is decreased so we get 3 then the same thing repeated we get 1 and now when 2 is decreased we get -1 which is less than 0 so we stop and hence we get 5 3 1. So, option c is correct.

40. (b) When loop condition becomes false

41. (b) 0 1 2 3

*Explanation:* len(x) will give 4 and the loop will run for 4 times starting from 0. Hence output will be 0 1 2 3.

42. (a) Entry control loop

43. (b) while loop

44. (b) No

45. (b) colon

46. (d) a and b

47. (a) 0

48. (a) 0

49. (a) True

*Explanation:* In Python, any non-zero value or nonempty container is considered TRUE. So if - 3 will evaluate to true

50. (b) True

*Explanation:* In Python, any non-zero value is considered True. So it will evaluate to true.

51. (d) single quotes, double quotes, or triple quotes.

52. (a) Unicode characters.

53. (a) 0

54. (a) Convert the first character to upper case

55. (c) 2

56. (a) true if all characters in the string are lower case

57. (a) strip( )

58. (b) Returns true, if all characters in the string are alphanumeric

59. (a) store multiple items in a single variable

60. (a) to the end of the list

61. (a) the sorting order of the elements

62. (a) format

*Explanation:* Concept of slicing is used in this question. In string slicing, the output is the substring starting from the first given index position i.e. 2 to one less than the second given index position i.e. (8-1=7) of the given string str1. Hence, the output will be "format".

63. (b) ['xx', 'yy']

64. (b) abc

*Explanation:* In Python, the "+" operator acts as a concatenation operator between two strings.

65. (c) point

*Explanation:* Slice operation is performed on the string.

66. (b) -18

*Explanation:* ASCII value of h is less than the z. Hence the output of this code is 104-122, which is equal to -18.

67. (d) Invalid syntax

*Explanation:* Invalid syntax, because this declaration (i = 1:) is wrong.

68. (c) Class

*Explanation:* Class is not a core data type because it is a user-defined data type.

69. (a) NameError

*Explanation:* Mango is not defined hence the name error.

70. (c) List

*Explanation:* Any value can be stored in the list data type.

71. (a) false

72. (d) All of the above

*Explanation:* All of the above statements is correct regarding Python code.

73. (a) remove the element with the specified key

74. (b) ordered and unchangeable

75. (b) len()



# Functions and Files

1. **Which keyword is use for function?**  
(a) define                      (b) fun  
(c) def                        (d) function
2. **Which of the following items are present in the function header?**  
(a) function name    (b) parameter list  
(c) return value      (d) Both A and B
3. **What is called when a function is defined inside a class?**  
(a) class                      (b) method  
(c) module                    (d) None of these
4. **If return statement is not used inside the function, the function will return**  
(a) None                      (b) 0  
(c) Null                        (d) Arbitrary value
5. **What is a recursive function?**  
(a) A function that calls other function.  
(b) A function which calls itself repeatedly  
(c) Both A and B  
(d) None of the above
6. **Which of the following is the use of id() function in python?**  
(a) Id() returns the size of object.  
(d) Id() returns the identity of the object.  
(c) Both A and B  
(d) None of the above
7. **In which part of memory does the system stores the parameter and local variables of function call?**  
(a) heap  
(b) stack  
(c) Uninitialized data segment  
(d) None of the above
8. **How is a function declared in Python?**  
(a) def function function\_name():  
(d) declare function function\_name():  
(c) deffunction\_name():  
(d) declare function\_name():
9. **Which one of the following is the correct way of calling a function?**  
(a) function\_name()  
(b) call function\_name()  
(c) ret function\_name()  
(d) function function\_name()
10. **You can also create your own functions, these functions are called?**  
(a) built-in functions  
(b) user-defined functions  
(c) py function  
(d) None of the above
11. **Function blocks begin with the keyword?**  
(a) define                      (b) fun  
(c) function                    (d) def

12. The code block within every function starts with?  
 (a) ; (b) ::  
 (c) : (d) %
13. A return statement with \_\_\_\_\_ arguments.  
 (a) No (b) 1  
 (c) 2 (d) Any
14. \_\_\_\_\_ are the arguments passed to a function in correct positional order.  
 (a) Required arguments  
 (b) Keyword arguments  
 (c) Default arguments  
 (d) Variable-length arguments
15. Which of the following will print the pi value defined in math module?  
 (a) print(pi)  
 (b) print(math.pi)  
 (c) from math import pi  
     print(pi)  
 (d) from math import pi  
     print(math.pi)
16. Which operator is used in Python to import modules from packages?  
 (a) . (b) \*  
 (c) -> (d) &
17. Where is function defined?  
 (a) Module  
 (d) class  
 (c) Another Function  
 (d) All of the above
18. Lambda is a function in python?  
 (a) True  
 (b) False  
 (c) Lambda is a function in python but user can not use it.  
 (d) None of the above
19. What is a variable defined outside a function referred to as?  
 (a) local variable  
 (b) global variable  
 (c) static Variable  
 (d) automatic variable
20. What is the output of the following program?  

```
z = lambda x : x * x
print(z(6))
```

 (a) 6 (b) 36  
 (c) 0 (d) error
21. What is the output of the following program?  

```
print (chr(ord(chr(97))))
```

 (a) a (b) A  
 (c) 97 (d) error
22. Choose the correct option with reference to below Python code?  

```
def fn(a):
print(a)
x=90
fn(x)
```

 (a) x is the formal argument.  
 (b) a is the actual argument.  
 (c) fn(x) is the function signature.  
 (d) x is the actual argument.

**23. Which one of the following is incorrect?**

- (a) The variables used inside function are called local variables.
- (b) The local variables of a particular function can be used inside other functions, but these cannot be used in global space.
- (d) The variables used outside function are called global variables.
- (e) In order to change the value of global variable inside function, keyword global is used.

**24. Name the statement that sends back a value from a function.**

- (a) print                      (b) input
- (c) return                    (d) None

**25. Functions that do not return any value are known as:**

- (a) fruitful functions
- (b) void functions
- (c) library functions
- (d) user-defined functions

**26. A variable created or defined within a function body is classified as:**

- (a) local                      (b) global
- (c) built-in                  (d) instance

**27. Which of the following arguments works with implicit values that are used if no value is provided?**

- (a) keyword                  (b) required
- (c) variable-length        (d) default

**28. Which values are used by the functions to communicate information back to the caller?**

- (a) local                      (b) global
- (c) return                    (d) random

**29. What is the output of the program given below?**

```
x = 50
def func(x):
 x = 2
 func(x)
 print('x is now', x)
```

(a) x is now 50              (b) x is now 2  
(c) x is now 100            (d) Error

**30. Fill in the line of code for calculating the factorial of a number:**

```
def fact(num):
 if num == 0 :
 return 1
 else:
 return _____
```

(a) num\*fact(num-1)  
(b) (num-1)\*(num-2)  
(c) num\*(num-1)  
(d) fact(num)\*fact(num-1)

**31. What is the output of the following ?**

```
def fun(n):
 if (n > 100):
 return n - 5
 return fun(fun(n+11))
print(fun(45))
```

(a) 50                              (b) 100  
(c) 74                              (d) Infinite loop

**32. What is the default return value for a function that does not return any value explicitly?**

- (a) None                      (b) int
- (c) double                    (d) null

**33. Which of the following items are present in the function header?**

- (a) function name only
- (b) both function name and parameter list
- (c) parameter list only
- (d) return value

**34. Pick one the following statements to correctly complete the function body in the given code snippet.**

```
def f(number):
```

```
Missing function body
```

```
print(f(5))
```

- (a) return "number"    (b) print(number)
- (c) print("number")    (d) return number

**35. Which of the following function headers is correct?**

- (a) def f(a = 1, b):
- (b) def f(a = 1, b, c = 2):
- (c) def f(a = 1, b = 1, c = 2):
- (d) def f(a = 1, b = 1, c = 2, d):

**36. Which of the following function calls can be used to invoke the below function definition?**

```
def test(a, b, c, d)
```

- (a) test(1, 2, 3, 4)
- (b) test(a = 1, 2, 3, 4)
- (c) test(a = 1, b = 2, c = 3, 4)
- (d) test(a = 1, b = 2, c = 3, d)

**37. Which of the following function calls will cause Error while invoking the below function definition?**

```
def test(a, b, c, d)
```

- (a) test(1, 2, 3, 4)
- (b) test(a = 1, b = 2, c = 3, d = 4)
- (c) test(a = 1, b = 2, c = 3, 4)
- (d) None of these

**38. What is a variable defined outside all the functions referred to as?**

- (a) A static variable
- (b) A global variable
- (c) A local variable
- (d) An automatic variable

**39. What is a variable defined inside a function referred to as**

- (a) A static variable
- (b) A global variable
- (c) A local variable
- (d) An automatic variable

**40. Carefully observe the code and give the answer.**

```
def function1(a)
```

```
a = a + '1'
```

```
a = a * 2
```

```
>>>function1("hello")
```

- (a) indentation Error
- (b) cannot perform mathematical operation on strings
- (c) hello2
- (d) hello2hello2



**41. What is the result of this code?**

```
def print_double(x):
```

```
 print(2 ** x)
```

```
print_double(3)
```

- (a) 8
- (b) 6
- (c) 4
- (d) 10

**42. Which of the given argument types can be skipped from a function call?**

- (a) positional arguments
- (b) keyword arguments
- (c) named arguments
- (d) default arguments

**43. Python function classified into \_\_\_\_\_ categories.**

- (a) 1
- (b) 2
- (c) 3
- (d) 4

**44. Which are python function types**

- (a) Built-in function
- (b) User defined function
- (c) Functions defined in module
- (d) All of these

**45. Functions pre-defined in a particular modules and can be used when the Corresponding module is**

- (a) imported
- (b) exported
- (c) return
- (d) None of these

**46. Function may or may not have return statement.**

- (a) true
- (b) false
- (c) can't say
- (d) None of these

**47. The first line of function definition starts with \_\_\_\_\_ and end with \_\_\_\_\_.**

- (a) def , :
- (b) def , ::
- (c) definition , :
- (d) definition, }

**48. Python refers to value being passed as \_\_\_\_\_.**

- (a) arguments
- (b) parameters
- (c) both A & B
- (d) None of these

**49. Python refers to value being received as \_\_\_\_\_**

- (a) arguments
- (b) parameters
- (c) both A & B
- (d) None of these

**50. Arguments appear in \_\_\_\_\_ and parameters appear in \_\_\_\_\_.**

- (a) function call statement, function header
- (b) function header, function call statement
- (c) both A & B
- (d) None of these

**51. Arguments in python can be one of these value types**

- (a) literals
- (b) variables
- (c) expression
- (d) All of the above

**52. Python supports \_\_\_\_\_ types of formal arguments/parameters.**

- (a) 1
- (b) 2
- (c) 3
- (d) 4

**53. Which one is a not formal argument?**

- (a) positional arguments (required arguments)
- (b) default arguments
- (c) keyword (or named arguments)
- (d) value arguments

**54. Functions that return a value are known as:**

- (a) fruitful functions
- (b) void functions
- (c) library functions
- (d) user-defined functions

**55. Which of these is false about recursion?**

- (a) Recursive function can be replaced by a non-recursive function
- (b) Recursive functions usually take more memory space than non-recursive function
- (c) Recursive functions run faster than non-recursive function
- (d) Recursion makes programs easier to understand

**56. What will be the output of the following Python code?**

```
def test(i,j):
 if(i==0):
 return j
 else:
 return test(i-1,i+j)
print(test(4,7))
```

- (a) 13
- (b) 7
- (c) Infinite loop
- (d) 17

**57. What is tail recursion?**

- (a) A recursive function that has two base cases
- (b) A function where the recursive functions leads to an infinite loop
- (c) A recursive function where the function doesn't return anything and just prints the values
- (d) A function where the recursive call is the last thing executed by the function

**58. Recursion and iteration are the same programming approach.**

- (a) True
- (b) False
- (c) Can't say
- (d) None

**59. What happens if the base condition isn't defined in recursive programs?**

- (a) Program gets into an infinite loop
- (b) Program runs once
- (c) Program runs n number of times where n is the argument given to the function
- (d) An exception is thrown

**60. To open a file c:\scores.txt for reading, we use \_\_\_\_\_.**

- (a) infile = open("c:\scores.txt", "r")
- (b) infile = open("c:\\scores.txt", "r")
- (c) infile = open(file = "c:\scores.txt", "r")
- (d) infile = open(file = "c:\\scores.txt", "r")

**61. To open a file c:\scores.txt for writing, we use \_\_\_\_\_.**

- (a) outfile = open("c:\scores.txt", "w")
- (b) outfile = open("c:\\scores.txt", "w")
- (c) outfile = open(file = "c:\scores.txt", "w")
- (d) outfile = open(file = "c:\\scores.txt", "w")

62. To open a file `c:\scores.txt` for appending data, we use \_\_\_\_\_.  
 (a) `outfile = open("c:\\scores.txt", "a")`  
 (b) `outfile = open("c:\\scores.txt", "rw")`  
 (c) `outfile = open(file = "c:\scores.txt", "w")`  
 (d) `outfile = open(file = "c:\\scores.txt", "w")`
63. To read two characters from a file object `infile`, we use \_\_\_\_\_.  
 (a) `infile.read(2)`  
 (b) `infile.read()`  
 (c) `infile.readline()`  
 (d) `infile.readlines()`
64. To read the next line of the file from a file object `infile`, we use \_\_\_\_\_.  
 (a) `infile.read(2)`  
 (b) `infile.read()`  
 (c) `infile.readline()`  
 (d) `infile.readlines()`
65. The `readlines()` method returns \_\_\_\_\_.  
 (a) `Str`  
 (b) a list of lines  
 (c) a list of single characters  
 (d) a list of integers

## ANSWER KEYS

1. (c) `def`
2. (d) Both A and B
3. (b) `method`
4. (a) `None`
5. (b) A function which calls itself repeatedly
6. (b) `Id()` returns the identity of the object.
7. (b) `stack`
8. (c) `def function_name():`
9. (a) `function_name()`
10. (b) `user-defined functions`
11. (d) `def`
12. (c) `:`
13. (a) `No`
14. (a) `Required arguments`
15. (c) `from math import pi`  
`print(pi)`
16. (a) `.`
17. (d) `All of the above`
18. (a) `True`
19. (b) `global variable`
20. (b) `36`
21. (a) `a`
22. (d) `x is the actual argument.`
23. (b) The local variables of a particular function can be used inside other functions, but these cannot be used in global space

- 24. (c) return
- 25. (b) void functions
- 26. (a) local
- 27. (d) default
- 28. (c) return
- 29. (a) x is now 50
- 30. (a) num\*fact(num-1)
- 31. (b) 100
- 32. (a) None
- 33. (a) both function name and parameter list
- 34. (d) return number
- 35. (c) def f(a = 1, b = 1, c = 2):
- 36. (a) test(1, 2, 3, 4)
- 37. (c) test(a = 1, b = 2, c = 3, 4)
- 38. (b) A global variable
- 39. (c) A local variable
- 40. (a) indentation Error
- 41. (a) 8
- 42. (d) default arguments
- 43. (c) 3
- 44. (d) All of these
- 45. (a) imported
- 46. (a) true
- 47. (a) def , :
- 48. (a) arguments
- 49. (b) parameters
- 50. (a) function call statement, function header
- 51. (d) All of the above
- 52. (c) 3
- 53. (d) value arguments
- 54. (a) fruitful functions
- 55. (c) Recursive functions run faster than non-recursive function
- 56. (d) 17
- 57. (d) A function where the recursive call is the last thing executed by the function
- 58. (b) False
- 59. (a) Program gets into an infinite loop
- 60. (b) infile = open("c:\\scores.txt", "r")
- 61. (b) outfile = open("c:\\scores.txt", "w")
- 62. (a) outfile = open("c:\\scores.txt", "a")
- 63. (a) infile.read(2)
- 64. (c) infile.readline()
- 65. (b) a list of lines

## Chapter : 1

# Python Revision Tour

1. **Python identifiers are case sensitive.**
  - (a) True
  - (b) False
  - (c) Depends on Program
  - (d) Depends on the computer system
2. **Which of the following is an invalid identifier ?**
  - (a) CS\_class\_XII
  - (b) csclass12
  - (c) \_csclass12
  - (d) 12CS
3. **The tiny individual unit in python program is known as \_\_\_\_\_.**
  - (a) Expression      (b) Statement
  - (c) Token            (d) Comment
4. **Which of the following not a token?**
  - (a) Comments      (b) Identifiers
  - (c) Literals        (d) Operators
5. **Which of the following are pre-defined or reserved words that convey a special meaning in programming language?**
  - (a) Identifiers      (b) Literals
  - (c) Keywords       (d) Operators
6. **The different names given to different parts of a program is known as \_\_\_\_\_.**
  - (a) Identifiers      (b) Literals
  - (c) Keywords       (d) Operators
7. **Which of the following literals must terminate in one line?**
  - (a) Single line Strings
  - (b) Multi line strings
  - (c) Numeric Literals
  - (d) All of the above
8. **To include non-graphic characters in python, which of the following is used?**
  - (a) Special Literals
  - (b) Boolean Literals
  - (c) Escape Character Sequence
  - (d) Special Literal - None
9. **The octal literal and hexadecimal literals start with which of the following symbols respectively?**
  - (a) O0 and X0      (b) 0O and 0X
  - (c) Oct0 and Hex0   (d) 0o and 0x
10. **Which of the following literal has either True or False value?**
  - (a) Special Literals
  - (b) Boolean Literals
  - (c) Numeric Literals
  - (d) String Literals
11. **Which of the following are symbols used for computation or logical comparison in a program?**
  - (a) Identifiers      (b) Literals
  - (c) Keywords       (d) Operators

12. Which of the following is correct statement to computer square of variable x in python?
- (a)  $x * 2$  (b)  $x \text{ power } 2$   
(c)  $x ** 2$  (d)  $x // 2$
13. If you want to display the values without decimal place after division, which of the following symbol is used?
- (a)  $/$  (b)  $//$   
(c)  $\%$  (d)  $**$
14. Which of the following is a correct statement?
- (a)  $xyz = 10\ 100\ 1000$   
(b)  $x\ y\ z = 10\ 100\ 1000$   
(c)  $x, y, z = 10, 100, 1000$   
(d)  $x\ y\ z = 10, 100, 1000$
15. Which of the following are symbols used in programming languages to organize statement structures and indicate the rhythm of the program?
- (a) Operators (b) Punctuators  
(c) Functions (d) Literals
16. In python, the single line comments starts with \_\_\_\_\_.
- (a)  $/$  (b)  $//$   
(c)  $\#$  (d)  $'''$
17. In python, the multiline comments starts with \_\_\_\_\_
- (a)  $/$  (b)  $//$   
(c)  $\#$  (d)  $'''$
18. \_\_\_\_\_ are additional readable information to clarify the statement in python.
- (a) Comments (b) Expressions  
(c) Tokens (d) Flow of control
19. Which of the following is a group of statements which are part of another statement or functions?
- (a) Expression (b) Statement  
(c) Block (d) Comment
20. All statements inside a block are intended at same level.
- (a) True  
(b) False  
(c) Not necessarily  
(d) Depends on user's choice
21. By default the input() function returns
- (a) Integer (b) Float  
(c) Boolean (d) String
22. If a function does not return a value then what value will be returned by python in a function?
- (a) int (b) void  
(c) bool (d) none
23. The output of  $d = a + b \% c$  is \_\_\_\_\_, if  $a = 12, b = 5$  and  $c = 3$ .
- (a) 14 (b) 2  
(c) 5 (d) 17
24. Evaluate  $x \% y // x$ , if  $x = 5, y = 4$
- (a) 1.0 (b) 0.0  
(c) 0 (d) 1

25. Which of these arithmetic operators will evaluate first?  
 (a) + (b) -  
 (c) \*\* (d) %
26. Which of the following logical operator will evaluate first?  
 (a) and (b) or  
 (c) not (d) is not
27. How `a>b>c` will be interpreted by python?  
 (a) `a>b` or `a>c` (b) `a>b` not `a>c`  
 (c) `a>b` and `a>c` (d) `a>b` && `a>c`
28. Which of the following statement is correct for and operator?  
 (a) Python only evaluates the second argument if the first one is False  
 (b) Python only evaluates the second argument if the first one is True  
 (c) Python only evaluates True if any one argument is True  
 (d) Python only evaluates False if any one argument is False
29. Which of the following forces an expression to be converted into specific type?  
 (a) implicit type casting  
 (b) mutable type casting  
 (c) immutable type casting  
 (d) explicit type casting
30. \_\_\_\_\_ are stored as individual characters in contiguous locations, with two-way index for each location.  
 (a) lists (b) tuples  
 (c) strings (d) dictionaries
31. What is the output of `- "5" + "5"`?  
 (a) 25 (b) 55  
 (c) 10 (d) Error
32. If `n="Hello"` and user wants to assign `n[0]='F'` what will be the result?  
 (a) It will replace the first character  
 (b) It's not allowed in Python to assign a value to individual character using index  
 (c) It will replace the entire word Hello into F  
 (d) It will remove H and keep rest of the characters
33. Which of the following operator can be used as replication operator?  
 (a) + (b) \*  
 (c) \*\* (d) /
34. Which point can be considered as difference between string and list?  
 (a) Length  
 (b) Indexing and Slicing  
 (c) Mutability  
 (d) Accessing individual elements
35. In list slicing, the start and stop can be given beyond limits. If it is then  
 (a) raise exception `IndexError`  
 (b) raise exception `ValueError`  
 (c) return elements falling between specified start and stop values  
 (d) return the entire list

- 36. In list slicing negative index-1 refers to**  
 (a) first element  
 (b) last element  
 (c) second last element  
 (d) second element
- 37. Which of the following operator cannot used with strings?**  
 (a) == (b) +  
 (c) \* (d) /
- 38. Ms. Hetvee is working on a string program. She wants to display last four characters of a string object named s. Which of the following is statement is true?**  
 (a) s[4:] (b) s[:4]  
 (c) s[-4:] (d) s[:-4]
- 39. The append() method adds an element at**  
 (a) first (b) last  
 (c) specified index (d) at any location
- 40. Which of the following statement is true for extend() list method?**  
 (a) ads element at last  
 (b) ads multiple elements at last  
 (c) ads element at specified index  
 (d) ads elements at random index
- 41. The statement del l[1:3] do which of the following task?**  
 (a) deletes elements 2 to 4 elements from the list  
 (b) deletes 2nd and 3rd element from the list  
 (c) deletes 1st and 3rd element from the list  
 (d) deletes 1st, 2nd and 3rd element from the list
- 42. If l=[11,22,33,44], then output of print(len(l)) will be**  
 (a) 4 (b) 3  
 (c) 8 (d) 6
- 43. Which of the following method is used to delete element from the list?**  
 (a) del() (b) delete()  
 (c) pop() (d) All of these
- 44. What will be the output of following code:**  

```
txt="Term 1"
print(txt*2)
```

 (a) Term 1 Term 2 (b) Term 1Term 1  
 (c) Term 1 2 (d) TTeerrmm 11
- 45. What will be the output of:**  

```
txt="SQP2021"
if txt.isalnum()==True:
print("Term 1 sample paper is out now")
else:
print("Term 1 sample paper is not out till now")
```

 (a) Term 1 sample paper is not out till now  
 (b) Term 1 sample paper is out now  
 (c) SQP2021  
 (d) Error



**46. What will be the output of the following statement given:**

```
txt="term 1. sample paper 2021"
```

```
print(txt.capitalize())
```

- (a) term 1. sample paper 2021
- (b) Term 1. Sample Saper 2021
- (c) Term 1. sample paper 2021
- (d) Term 1. Sample Paper 2021

**47. Which of the following statement prints output as 'B'?**

- (a) char(66)                      (b) ord('B')
- (c) char(66)                      (d) chr(66)

**48. Which of the following statement(s) is/ are correct?**

- (a) Tuples can have only integer elements.
- (b) Tuples can have only string elements.
- (c) Tuples can have various types of elements.
- (d) Tuples can either integer or string, but not both at once.

**49. Which of the following statement creates a tuple?**

- (a) t=[1,,2,3,4]                      (b) t={1,2,3,4}
- (c) t=<1,2,3,4>                      (d) t=(1,2,3,4)

**50. Which of the following statement is correct?**

- (a) Tuples are mutable.
- (b) Tuples are immutable.
- (c) Tuples and lists are same.
- (d) All of these are correct.

**51. What will be the output of the following code:**

```
t=(4,5,6)
```

```
t1=t*2
```

```
print(t1)
```

- (a) (4,5,6,4,5,6)                      (b) (4,4,5,5,6,6)
- (c) (8,10,12)                      (d) None of the above

**52. What will be the output of :**

```
t=(4,5,6)
```

```
del t[1]
```

```
print(t)
```

- (a) (4,6)                      (b) ([4,6])
- (c) [4,6]                      (d) Error

**53. Which of the following operation is supported in python with respect to tuple t?**

- (a) t[1]=33                      (b) t.append(33)
- (c) t=t+t                      (d) t.sum()

**54. Which of the following statements prints the output (4,5)?**

- (a) print(t[:-1]) , print(t[0:2])
- (b) print(t[3]), print(t[:-3])
- (c) print(t[2:3]), print(3:2)
- (d) print(t[0,2]), print[2,3]

**55. What will be the output of the following code:**

```
t=(4,5,6,7,8,9,3,2,1)
```

```
print(t[5:-1])
```

- (a) (8,9,3,2,1)                      (b) (9,3,2)
- (c) (4,5,6,7)                      (d) (2,3,9)

## ANSWER KEYS

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. (a) True</p> <p>2. (d) 12CS</p> <p>3. (c) Token</p> <p>4. (a) Comments</p> <p>5. (c) Keywords</p> <p>6. (a) Identifiers</p> <p>7. (a) Single line Strings</p> <p>8. (a) Escape Character Sequence</p> <p>9. (a) 0o and 0x</p> <p>10. (b) Boolean Literals</p> <p>11. (d) Operators</p> <p>12. (c) <code>x ** 2</code></p> <p>13. (c) %</p> <p>14. (c) <code>x, y, z = 10, 100, 1000</code></p> <p>15. (b) Punctuators</p> <p>16. (c) #</p> <p>17. (c) #</p> <p>Note: Python does not really have syntax for multiline comments. To add a multiline comment you could insert a # for each line</p> <p>18. (a) Comments</p> <p>19. (c) Block</p> <p>20. (a) True</p> <p>21. (d) String</p> <p>22. (d) none</p> <p>23. (a) 14</p> <p>24. (c) 0</p> <p>25. (c) **</p> <p>26. (c) not</p> <p>27. (c) <code>a &gt; b</code> and <code>a &gt; c</code></p> <p>28. (b) Python only evaluates the second argument if the first one is True</p> | <p>29. (d) explicit type casting</p> <p>30. (c) strings</p> <p>31. (b) 55</p> <p>32. (b) It's not allowed in Python to assign a value to individual character using index</p> <p>33. (b) *</p> <p>34. (c) Mutability</p> <p>35. (c) return elements falling between specified start and stop values</p> <p>36. (b) last element</p> <p>37. (d) /</p> <p>38. (c) <code>s[-4:]</code></p> <p>39. (b) last</p> <p>40. (b) adds multiple elements at last</p> <p>41. (b) deletes 2nd and 3rd element from the list</p> <p>42. (a) 4</p> <p>43. (c) <code>pop()</code></p> <p>44. (b) Term 1 Term 1</p> <p>45. (b) Term 1 sample paper is out now</p> <p>46. (c) Term 1. sample paper 2021</p> <p>47. (d) <code>chr(66)</code></p> <p>48. (c) Tuples can have various types of elements.</p> <p>49. (d) <code>t=(1,2,3,4)</code></p> <p>50. (b) Tuples are immutable.</p> <p>51. (a) (4,5,6,4,5,6)</p> <p>52. (d) Error</p> <p>53. (c) <code>t=t+t</code></p> <p>54. (a) <code>print(t[:-1]) , print(t[0:2])</code></p> <p>55. (b) (9,3,2)</p> |
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## Dictionary Topics

1. **Dictionaries are also known as \_\_\_\_\_.  
(a) mappings  
(b) hashes  
(c) associative arrays  
(d) all of the above**
2. **Dictionaries are \_\_\_\_\_ type of python.  
(a) Mutable  
(b) Immutable  
(c) simple  
(d) Complex**
3. **Mr. Subodh is working with a dictionary in python for his project. He wants to display the key, value pair but confuse out of these statements, choose the correct statement for him:  
(a) dict.values()  
(b) dict.keys()  
(c) dict.keyvalues()  
(d) dict.items()**
4. **The fromkeys() method assigns \_\_\_\_\_ value to key in dictionary by default.  
(a) 0  
(b) None  
(c) Empty  
(d) Blank**
5. **Which one of the following is the correct statement for creating a dictionary for assigning a day number to weekdays using short names?  
(a) d={1:Mon,2:Tue,3:Wed,4:Thur}  
(b) d={1:'Mon',2:'Tue',3:'Wed',4:'Thur'}  
(c) d={1;'Mon',2;'Tue',3;'Wed',4;'Thur'}  
(d) d={1-'Mon',2-'Tue',3-'Wed',4-'Thur'}**
6. **Om is learning the concept of dictionary in python. He read something about a dictionary related to a set of elements. But he forgot the term which type of set of elements, suggest from the below-given options:  
(a) sorted                      (b) ordered  
(c) unordered                (d) random**
7. **Eshika is trying to delete an element from the dictionary, but she is getting an error - "the given key is not found in the dictionary". Which of the following command she has used in the python  
(a) del dict[key]  
(b) dict.pop(key)  
(c) dict.popitem(key)  
(d) remove dict[key]**

8. Which of the following is the correct statement for checking the presence of a key in the dictionary?
- <key> in <dictionary\_object>
  - <key> not in <dictionary\_object>
  - <key> found in <dictionary\_object>
  - <key> exists in <dictionary\_object>
9. What will be the output of the following dictionary?
- ```
d={'South Africa':'Faf Du Plesis','India':
'ViratKohli','Pakistan':'BabarAzam','
Australia':'Steve Smith'}
print(d["ViratKohli"])
```
- India
 - India-ViratKohli
 - ViratKohli
 - KeyError
10. Predict the correct output for the following code:
- ```
dict={'Manthan':34,'Vishwa':45,'Mayank':50}
print(dict[0])
```
- Manthan:34
  - 34
  - Manthan
  - Error
11. Marks in the above-created dictionary are changed after rechecking, where Vishwa got 48 marks and Mayank got 49 marks. Choose the correct statement for the same:
- dict.change({'Vishva':48,'Mayank':49})
  - dict.alter({'Vishva':48,'Mayank':49})
  - dict.update({'Vishva':48,'Mayank':49})
  - dict.loc({'Vishva':48,'Mayank':49})
12. What happens when the following statement will be written for the same dictionary created in Que. No. 10?
- ```
dict.update({'Sameer':44})
```
- It will raise an error - KeyError
 - It will add a new key and value at the end of the dictionary
 - It will replace the last key and value with the given key and value
 - It will add a new key and value at the beginning of the dictionary

ANSWER KEYS

- (d) all of the above
- (a) Mutable
- (d) dict.items()
- (b) None
- (b) d={1:'Mon',2:'Tue',3:'Wed',4:'Thur'}
- (c) unordered
- (a) del dict[key]
- (a) <key> in <dictionary_object>
- (d) KeyError
- (d) Error
- (c) dict.update({'Vishva':48,'Mayank':49})
- (b) It will add a new key and value at the end of the dictionary

Working with Functions

- Aman wants to write a function in python. But he doesn't know how to start with it! Select the keyword used to start a function out of the following:**
(a) function (b) start
(c) def (d) fun
- Which of the following is a valid function name?**
(a) start_game() (b) start game()
(c) start-game() (d) All of the above
- Which of the following is not a part of the python function?**
(a) function header (b) return statement
(c) parameter list (d) function keyword
- If the return statement is not used in the function then which type of value will be returned by the function?**
(a) int (b) str
(c) float (d) None
- The function header contains**
(a) function name and parameters only
(b) def keyword along with function name and parameters
(c) return statement only
(d) parameter list only
- The subprogram that acts on data and returns the value sometimes is known as**
(a) Function (b) Module
(c) Class (d) Package
- Read the statements:**
Statement (A) : A function can perform certain functionality
Statement (B) : A function must return a result value
(a) Statement A is correct
(b) Statement B is correct
(c) Statement A is correct but Statement B is not correct
(d) Both are incorrect
- Richa is working with a program where she gave some values to the function. She doesn't know the term to relate these values. Help her by selecting the correct option.**
(a) function value
(b) arguments or parameters
(c) return values
(d) function call
- Mohini wants to know that the symbol : (colon) must be required with which of the following function part?**
(a) function header
(b) function body
(c) return statement
(d) parameters
- Which of the function part contains the instructions for the tasks to be done in the function?**
(a) function header (d) function body
(c) return statement (d) parameters

11. Ananya is trying to understand the features of python functions. She is not understanding the feature that distributes the work in small parts. Select the appropriate term for her out of the following:
- (a) Modularity (b) Reusability
(c) Simplicity (d) Abstraction
12. Which of the following is not a feature supported by python functions
- (a) Modularity (b) Reusability
(c) Simplicity (d) Data Hiding
13. Divya wants to print the identity of the object used in the function. Which of the following function is used to print the same?
- (a) identity() (b) ide()
(c) id() (d) idy()
14. Rashmin is learning the python functions He read the topic types of python functions. He read that functions already available in the python library is called _____.
Fill appropriate word in this blank :
- (a) UDF (User Defined Function)
(b) Built-in Functions
(c) Modules
(d) Reusable Function
15. Which of the following sentence is not correct for the python function?
- (a) Python function must have arguments
(b) Python function can take an unlimited number of arguments
(c) Python function can return multiple values
(d) To return value you need to write the return statement
16. Pranjal wants to write a function to compute the square of a given number. But he missed one statement in the function. Select the statement for the following code:
- ```
defsq(n):

 print(sq(3))
```
- (a) return square of n  
(b) return n\*\*2  
(c) return n  
(d) print("n\*\*n")
17. Select the proper order of execution for the following code:
- ```
(A) def diff(a,b):
(B) c=a-b
(C) print("The Difference is :",c)
(D) x,y=7,3
(E) diff(x,y)
(F) print("Finished")
```
- (a) A -> B -> C -> D -> E -> F
(b) D -> E -> F -> A -> B -> C
(c) D -> E -> A -> B -> C -> F
(d) E -> B -> C -> D -> A -> F

18. What is the maximum and minimum value of c in the following code snippet?

```
import random
```

```
a = random.randint(3,5)
```

```
b = random.randint(2,3)
```

```
c = a + b
```

```
print(c)
```

- (a) 3 , 5 (b) 5, 8
(c) 2, 3 (d) 3, 3
19. By default python names the segment with top-level statement as _____.

- (a) def main() (b) main()
(c) __main__ (d) _main

20. The order of executing statements in a function is called

- (a) flow of execution
(b) order of execution
(c) sequence of execution
(d) process of execution

21. In python function, the function calling another function is known as ____ and the function being called is known ____.

- (a) main, keyword
(b) caller, called
(c) called, caller
(d) executer, execute

22. Archi is confused between arguments and parameters. Select the fact about argument and parameter and solve her doubt

- (a) arguments are those values being passed and parameters are those values received
(b) parameters are those values being passed and arguments are those values received
(c) arguments appear in the function header and parameters appear in the function call
(d) arguments can have same name and parameters can have value type

23. The value is passed through a function call statement is called _____ and the values being received in the definition is known as _____.

- (a) formal parameter, actual parameter
(b) actual parameter, formal parameter
(c) passed parameter, received parameter
(d) value parameter, constant parameter

24. The positional parameters are also known as

- (a) required arguments
(b) mandatory arguments
(c) Both a and b
(d) None of them

25. Which of the following is true about the default argument

- (a) default values are provided in the function call
- b) default values are provided in the function body
- c) default values are provided with the return statement
- d) default values are provided in the function header

26. The default valued parameter specified in the function header becomes optional in the function calling statement.

- (a) Yes (b) No
- (c) Not Sure (d) May be

27. Which of the following function header is correct :

- (a) `def discount(rate=7,qty,dis=5)`
- (b) `def discount(rate=7,qty,dis)`
- (c) `def discount(rate,qty,dis=5)`
- (d) `def discount(qty,rate=7,dis)`

28. Read the following statements and then select the answer:

Statement A: Default arguments can be used to add new parameters to the existing functions

Statement B: Default arguments can be used to combine similar functions into one

- (a) Statement A is correct
- (b) Statement B is correct
- (c) Both are correct
- (d) Both are incorrect

29. What will be the output of the following code?

```
def fun(x=10, y=20):  
    x+=5  
    y = y - 3  
    return x*y  
print(fun(5),fun())
```

- (a) 20, 200
- (b) 170, 255
- (c) 85, 200
- (d) 300, 500

30. What will be the output of the following code?

```
v = 80  
def display(n):  
    global v  
    v = 15  
    if n%4==0:  
        v += n  
    else:  
        v -= n  
print(v, end="#")  
display(20)  
print(v)
```

- (a) 80#80
- (b) 80#100
- (c) 80#35
- (d) 80#20

31. Observe the following lines written for the calling statement and select the appropriate answer:

```
ele_bill(past_reading=200,rate=6,current_reading=345)
ele_bill(current_reading=345,rate=6,past_reading=200)
ele_bill(rate=6,past_reading=200,current_reading=345)
```

- (a) all lines have errors
- (b) Only line 1 will execute and the rest will raise an error
- (c) All lines are correct and no errors
- (d) only line 3 is correct

32. What will be the output of the following?

```
def Val(m,n):
    for i in range(n):
        if m[i]<30:
            m[i]//=5
        elif m[i]%5 == 0:
            m[i]//=3
        else:
            m[i]//=2
    l = [25,8,75,12]
    Val(l,4)
    for i in l:
        print(i,end="$")
```

- (a) 1\$1\$2\$25\$2\$
- (b) 5\$1\$25\$2\$
- (c) 1\$4\$25\$3\$
- (d) 5\$2\$15\$2\$

33. What will be the output of the following code:

```
def or_cap_update(pl,r,i):
    pl['Runs']+=r
    pl['Innings']+=i
    pl1={'S.No':1,'Name':'K
    L Rahul','Runs':528,'Innings':12}
    pl2={'S.No':2,'Name':
    'Rituraj Gaikwad','Runs':521,'Innings':13}
    or_cap_update(pl1,35,1)
    or_cap_update(pl2,35,1)
    print(pl1)
    print(pl2)
```

- (a) {'S.No': 1, 'Name': 'K L Rahul', 'Runs': 35, 'Innings': 1}
{ 'S.No': 2, 'Name': 'RiturajGaikwad', 'Runs': 35, 'Innings': 1}
- (b) {'S.No': 1, 'Name': 'K L Rahul', 'Runs': 563, 'Innings': 13}
{ 'S.No': 2, 'Name': 'RiturajGaikwad', 'Runs': 556, 'Innings': 14}
- (c) {'S.No': 1, 'Name': 'K L Rahul', 'Runs': 528, 'Innings': 12}
{ 'S.No': 2, 'Name': 'RiturajGaikwad', 'Runs': 521, 'Innings': 13}
- (d) {'S.No': 1, 'Name': 'K L Rahul', 'Runs': 528, 'Innings': 1}
{ 'S.No': 2, 'Name': 'RiturajGaikwad', 'Runs': 521, 'Innings': 1}

34. Which of the following variable is defined outside the function?

- (a) local
- (b) global
- (c) enclosed
- (d) All of these

ANSWER KEYS

1. (c) def
2. (a) start_game()
3. (d) function keyword
4. (d) None
5. (b) def keyword along with function name and parameters
6. (a) Function
7. (c) Statement A is correct but Statement B is not correct
8. (b) arguments of parameters
9. (a) function header
10. (b) function body
11. (a) Modularity
12. (d) Data Hiding
13. (c) id()
14. (b) Built-in functions
15. (a) Python function must have arguments
16. (b) return n**2
17. (c) D -> E -> -> A -> B -> C -> F
18. (b) 5,8
19. (c) __main__
20. (a) flow of execution
21. (b) caller, called
22. a) arguments are those values being passed and parameters are those values received
23. b) actual parameter, formal parameter
24. c) Both a and b
25. d) default values are provided in the function header
26. a) Yes
27. c) def discount(rate,qty,dis=5)
28. c) Both are correct
29. b) 170, 255
30. c) 80#35
31. c) All lines are correct and no errors
32. (b) 5\$1\$25\$2\$
33. (b) {'S.No': 1, 'Name': 'K L Rahul', 'Runs': 563, 'Innings': 13}
{'S.No': 2, 'Name': 'Rituraj Gaikwad', 'Runs': 556, 'Innings': 14}
34. (b) global

Function Case Study based Questions

Observe the following code and select appropriate answers for the given questions:

```
total = 1
def multiply(l):#Line 1
for x in l:
    _____ total #Line2
total *= x
return _____ #Line3 - Return variable
l=[2,3,4]
print(multiply(_____),end="") # Line4
print(" , Thank you ")
```

35. Identify the part of function in #Line1?
(a) Function header
(b) Function Calling
(c) Return statement
(d) Default Argument
36. Which of the keyword is used to fill in the blank for #Line2 to run the program without error?
(a) eval (b) def
(c) global (d) return
37. Which variable is going to be returned in #Line3
(a) total (b) x
(c) l (d) None
38. Which variable is required in the #Line4?
(a) total (b) x
(c) l (d) None
39. In the line #Line4 the multiply(l) is called _____
(a) caller (b) called
(c) parameter (d) argument
40. In function header multiply(l), l refers to _____
(a) caller (b) called
(c) parameter (d) argument
41. In function calling multiply(l), l refers to _____
(a) caller (b) called
(c) parameter (d) argument
42. What will be the output of this code?
(a) 2 3 4 , Thank you
(b) 234 , Thank You
(c) 24 , Thank you
(d) Thank You
43. Which of the following statement indicates the correct statement for the formal parameter passing technique?
(a) multiply(l)
(b) multiply(l=[23,45,66])
(c) multiply([23,45,66])
(d) multiply(23,45,66)
44. Which of the following statement indicates the correct statement for the actual parameter passing technique?
(a) multiply(l)
(b) multiply(l=[23,45,66])
(c) multiply([23,45,66])
(d) multiply(23,45,66)

ANSWER KEYS

45. Sonal wants to modify the function with the specification of length of list with default argument statement for the function with the list and 10 elements by default. Which of the following statement is correct?

- (a) `def multiply(n=10,l):`
- (b) `def multiply(l,n=10):`
- (c) `def multiply(l,10):`
- (d) `def multiply(l=[22,34,56,22,33,12,45,66,7,1])`

46. Diya wants to call the function with default argument value in the function to display the product of list tobject l. Select the correc statement for her to the same.

- (a) `multiply(l)`
- (b) `multiply(10)`
- (c) `multiply(l,n)`
- (d) `multiply(n,l)`

35. (a) Function Header

36. (c) global

37. (a) total

38. (c) l

39. (a) caller

40. (b) argument

41. (c) parameter

42. (d) 24, Thank You

43. (a) `multiply(l)`

44. (c) `multiply([23,45,66])`

45. b) `def multiply(l,n=10)`

46. a) `multiply(l)`

Data File Handling

1. A _____ is a bunch of bytes stored on some storage devices like hard-disk, pen-drive etc.
(a) Folder (b) File
(c) Package (d) Library
2. The _____ are the files that store data pertaining to a specific application, for later use.
(a) Data File (b) Program File
(c) Source Code (d) Program Code
3. Which of the following format of files can be created programmatically through python program?
(a) Data Files (b) Video Files
(c) Media Files (d) Binary Files
4. Supriya doesn't know about text file extension. Help her to identify the same out of these:
(a) .text (b) .txt
(c) .txf (d) .tfx
5. In python which of the following is default EOL character?
(a) \eol (b) \enter
(c) \n (d) \newline
6. Which of the following statement is correct for binary files?
(a) The file content returned to user in raw form
(b) Every line needs translation
(c) Each line is terminated by EOL
(d) It stores ASCII or Unicode characters
7. Which of the following statement is not correct for text file?
(A) Contains the information as same as its held in memory
(B) No delimiter for a line
(C) Read and write faster than binary files
(D) Common format for general work
(a) A and B only (b) A, B and C
(c) A, C and D (d) All of them
8. A basic approach to share large data among different organizations carried out through
(a) text files
(b) binary files
(c) spreadsheets or database
(d) email attachments
9. The CSV files can be accessed by
(a) text editor and spreadsheet software
(b) only through python programs
(c) Only spreadsheet software
(d) Only through database software
10. Each line in CSV file is known as
(a) tuple (b) data/record
(c) field (d) format
11. Read the statements and choose the correct answer:
Statement A: It is very difficult to organize unstructured data
Statement B: CSV helps into organize huge amount of data in proper and systematic way

- (a) Only Statement A is correct
 - (b) Only Statement B is correct
 - (c) A and B both are correct
 - (d) None of them is correct

12. Which of the following are features of CSV files:

 - (a) easy to read and manage
 - (b) small in size
 - (c) fast to process data
 - (d) All of them

13. While opening a file for any operation python looking for

 - (a) File in the system folder
 - (b) file in the python installation folder
 - (c) file in the current folder where the .py file is saved
 - (d) file in downloads folder

14. The default directory for the performing the most of the functions is known as

 - (a) active directory
 - (b) current directory
 - (c) working directory
 - (d) open directory

15. Biswajit wants to work with files and directories through python. Select the python module to help him to do his work:

 - a) os
 - b) csv
 - c) pickle
 - d) sys

16. Manoj wants to get the name of the current directory. Select appropriate statement for the same:

 - (a) `os.getcd()`
 - (b) `os.getcurrentdirectory()`
 - (c) `os.getcwd()`
 - (d) `os.currentdirectory()`

ANSWER KEYS

- (b) File
- (a) Data File
- (d) Binary Files
- (b) .txt
- (c) \n
- (a) The file content returned to user in raw form
- (d) All of them
- (c) spreadsheets or database
- (a) text editor and spreadsheet software
- (b) data/record
- (c) A and B both are correct
- (d) All of them
- (c) file in the current folder where the .py file is saved
- (b) current directory
- (a) os
- (c) os.getcwd()

CASE BASED QUESTIONS

1. Rohit, a student of class 12th, is learning CSV File Module in Python. During examination, he has been assigned an incomplete python code (shown below) to create a CSV File 'Student.csv' (content shown below). Help him in completing the code which creates the desired CSV File.

CSV File

```
1,AKSHAY,XII,A
2,ABHISHEK,XII,A
3,ARVIND,XII,A
4,RAVI,XII,A
5,ASHISH,XII,A
```

Incomplete Code

```
import _____ #Statement-1
fh = open( , , newline="") #Statement-2
stuwriter = csv. _____ #Statement-3
data = []
header = ['ROLL_NO', 'NAME', 'CLASS', 'SECTION']
data.append(header)
for i in range(5):
    roll_no = int(input("Enter Roll Number : "))
    name = input("Enter Name : ")
    Class = input("Enter Class : ")
    section = input("Enter Section : ")
    rec = [ _____ ] #Statement-4
    data.append(rec)
    stuwriter. (data) _____ #Statement-5
    fh.close()
```

- i. **Identify the suitable code for blank space in line marked as Statement-1.**
 - (a) csv file (b) CSV
 - (c) csv (d) Csv
- ii. **Identify the missing code for blank space in line marked as Statement-2?**
 - (a) "School.csv","w"
 - (b) "Student.csv","w"
 - (c) "Student.csv","r"
 - (d) "School.csv","r"
- iii. **Choose the function name (with argument) that should be used in the blank space of line marked as Statement-3**
 - (a) reader(fh) (b) reader(MyFile)
 - (c) writer(fh) (d) writer(MyFile)
- iv. **Identify the suitable code for blank space in line marked as Statement-4.**
 - (a) 'ROLL_NO', 'NAME', 'CLASS', 'SECTION'
 - (b) ROLL_NO, NAME, CLASS, SECTION
 - (c) 'roll_no','name','Class','section'
 - (d) roll_no,name,Class,sectionc) co.connect()
- v. **Choose the function name that should be used in the blank space of line marked as Statement-5 to create the desired CSV File?**
 - (a) dump() (b) load()
 - (c) writerows() (d) writerow()

2. Amritya Seth is a programmer, who has recently been given a task to write a python code to perform the following binary file operations with the help of two user defined functions/modules:

a. **AddStudents()** to create a binary file called **STUDENT.DAT** containing student information - roll number, name and marks (out of 100) of each student.

b. **GetStudents()** to display the name and percentage of those students who have a percentage greater than 75. In case there is no student having percentage > 75 the function displays an appropriate message. The function should also display the average percent.

He has succeeded in writing partial code and has missed out certain statements, so he has left certain queries in comment lines. You as an expert of Python have to provide the missing statements and other related queries based on the following code of Amritya.

Answer any four questions (out of five) from the below mentioned questions.

```
import pickle
```

```
def AddStudents():
```

```
_____ #1 statement to open the binary
file to write data
```

```
while True:
```

```
    Rno = int(input("Rno :"))
```

```
    Name = input("Name : ")
```

```
    Percent = float(input("Percent :"))
```

```
    L = [Rno, Name, Percent]
```

```
_____ #2 statement to write the list
L into the file
```

```
Choice = input("enter more (y/n): ")
```

```
if Choice in "nN":
```

```
break
```

```
F.close()
```

```
def GetStudents():
```

```
    Total=0
```

```
    Countrec=0
```

```
    Countabove75=0
```

```
    with open("STUDENT.DAT","rb") as F:
```

```
        while True:
```

```
            try:
```

```
_____ #3 statement to read
```

```
from the file
```

```
Countrec+=1 Total+=R[2] if R[2] > 75:
```

```
print(R[1], " has percent =
```

```
",R[2])
```

```
Countabove75+=1
```

```
except:
```

```
break
```

```
if Countabove75==0:
```

```
print("There is no student who has
percentage more than 75")
```

```
average=Total/Countrec
```

```
print("average percent of class =
",average)
```

```
AddStudents()
```

```
GetStudents()
```


- i. **Which of the following commands is used to open the file "STUDENT.DAT" for writing only in binary format? (marked as #1 in the Python code)**
 - (a) `F= open("STUDENT.DAT",'wb')`
 - (b) `F= open("STUDENT.DAT",'w')`
 - (c) `F= open("STUDENT.DAT",'wb+')`
 - (d) `F= open("STUDENT.DAT",'w+')`
 - ii. **Which of the following commands is used to write the list L into the binary file, STUDENT.DAT? (marked as #2 in the Python code)**
 - (a) `pickle.write(L,f)`
 - (b) `pickle.write(f, L)`
 - (c) `pickle.dump(L,F)`
 - (d) `f=pickle.dump(L)`
 - iii. **Which of the following commands is used to read each record from the binary file STUDENT.DAT? (marked as #3 in the Python code)**
 - (a) `R = pickle.load(F)`
 - (b) `pickle.read(r,f)`
 - (c) `r= pickle.read(f)`
 - (d) `pickle.load(r,f)`
 - iv. **Which of the following statement(s) are correct regarding the file access modes?**
 - (a) 'r+' opens a file for both reading and writing. File object points to its beginning.
 - (b) 'w+' opens a file for both writing and reading. Adds at the end of the existing file if it exists and creates a new one if it does not exist.
 - (c) 'wb' opens a file for reading and writing in binary format. Overwrites the file if it exists and creates a new one if it does not exist.
 - (d) 'a' opens a file for appending. The file pointer is at the start of the file if the file exists.
 - v. **Which of the following statements correctly explain the function of seek() method?**
 - (a) tells the current position within the file.
 - (b) determines if you can move the file position or not.
 - (c) indicates that the next read or write occurs from that position in a file.
 - (d) moves the current file position to a given specified position
3. Krrishnav is looking for his dream job but has some restrictions. He loves Delhi and would take a job there if he is paid over Rs.40,000 a month. He hates Chennai and demands at least Rs. 1,00,000 to work there. In any another location he is willing to work for Rs. 60,000 a month. The following code shows his basic strategy for evaluating a job offer.

Code:

pay = _____

location = _____

if location == "Mumbai":

 print ("I'll take it!") #Statement 1

elif location == "Chennai":

if pay < 100000:

print ("No way") #Statement 2

else:

print("I am willing!") #Statement 3

elif location == "Delhi" and pay > 40000:

print("I am happy to join") #Statement 4

elif pay > 60000:

print("I accept the offer") #Statement 5

else:

print("No thanks,I can find something better") #Statement 6

On the basis of the above code, choose the right statement which will be executed when different inputs for pay and location are given.

i. **Input: location="Chennai", pay=50000**

- (a) Statement 1 (b) Statement 2
(c) Statement 3 (d) Statement 4

ii. **Input: location = "Surat" ,pay = 50000**

- (a) Statement 2 (b) Statement 4
(c) Statement 5 (d) Statement 6

iii. **Input- location = "Any Other City", pay = 1**

- (a) Statement 1 (b) Statement 2
(c) Statement 4 (d) Statement 6

iv. **Input location = "Delhi", pay = 500000**

- (a) Statement 6 (b) Statement 5
(c) Statement 4 (d) Statement 3

v. **Input-location="Lucknow", pay=65000**

- (a) Statement 2 (b) Statement 3
(c) Statement 4 (d) Statement 5

4. Consider the following code and answer the questions that follow: Book={1:'Thriller', 2:'Mystery', 3:'Crime', 4:'Children Stories'}
Library ={'5':'Madras Diaries','6':'Malgudi Days'}

i. **Ramesh needs to change the title in the dictionary book from 'Crime' to 'Crime Thriller'. He has written the following command:**

Book['Crime']='Crime Thriller'

But he is not getting the answer. Help him choose the correct command:

- (a) Book[2]='Crime Thriller'
(b) Book[3]='Crime Thriller'
(c) Book[2]='(Crime Thriller)'
(d) Book[3]='(Crime Thriller)'

ii. The command to merge the dictionary Book with Library the command would be:

- (a) d=Book+Library
- (b) print(Book+Library)
- (c) Book.update(Library)
- (d) Library.update(Book)

iii. What will be the output of the following line of code: print(list(Library))

- (a) ['5','Madras Diaries','6','Malgudi Days']
- (b) ('5','Madras Diaries','6','Malgudi Days')
- (c) ['Madras Diaries','Malgudi Days']
- (d) ['5','6']

iv. In order to check whether the key 2 is present in the dictionary Book, Ramesh uses the following command:

2 in Book

He gets the answer 'True'. Now to check whether the name 'Madras Diaries' exists in the dictionary Library, he uses the following command:

'Madras Diaries' in Library

But he gets the answer as 'False'. Select the correct reason for this:

- (a) We cannot use the in function with values. It can be used with keys only.
- (b) We must use the function Library.values() along with the in operator
- (c) We can use the Library.items() function instead of the in operator
- (d) Both b and c above are correct.

v. With reference to the above declared dictionaries, predict the output of the following code fragments

Code 1

```
Library=Book
Library.pop(2)
print(Library)
print(Book)
```

Code 2

```
Library=Book.copy()
Library.pop(2)
print(Library)
print(Book)
```

(a) **Code 1**

```
{1: 'Thriller', 2: 'Mystery', 3: 'Crime', 4: 'Children Stories'}
{1: 'Thriller', 2: 'Mystery', 3: 'Crime', 4: 'Children Stories'}
```

Code 2

```
{1: 'Thriller', 3: 'Crime', 4: 'Children Stories'}
{1: 'Thriller', 3: 'Crime', 4: 'Children Stories'}
```

(b) **Code 1**

```
{2:'Mystery'}
{1: 'Thriller', 2: 'Mystery', 3: 'Crime', 4: 'Children Stories'}
```

Code 2

```
{1: 'Thriller', 3: 'Crime', 4: 'Children Stories'}
{1: 'Thriller', 3: 'Crime', 4: 'Children Stories'}
```

(c) **Code 1**

```
{1: 'Thriller', 3:'Crime', 4: 'Children Stories'}
{1: 'Thriller', 3: 'Crime', 4: 'Children Stories'}
```

Code 2

```
{1: 'Thriller', 3:'Crime', 4: 'Children Stories'}
{1: 'Thriller', 2:'Mystery', 3: 'Crime', 4:'Children Stories'}
```

(d) **Code 1**

```
{1: 'Thriller', 3:'Crime', 4: 'Children Stories'}
{1: 'Thriller', 2: 'Mystery', 3: 'Crime', 4: 'Children Stories'}
```

Code 2

```
{1: 'Thriller', 3:'Crime', 4: 'Children Stories'}
{1: 'Thriller', 3: 'Crime', 4: 'Children Stories'}
```

5. In a Database, there are two tables with the instances given below:

Table: STUDENTS

ADMNO	NAME	CLASS	SEC	RNO	ADDRESS	PHONE
1211	MEENA	12A	D	4	A-26	3245678
1212	VANI	10A	D	1	B-25	5456789
1213	MEENA	12B	A	1	NULL	NULL
1214	KARISH	10B	B	3	AB-234	4567890

Table: SPORTS

ADMNO	GAME	COACHNAME	GRADE
1215	CRICKET	MR. RAVI	A
1213	VOLLEYBALL	MR. AMANDEEP	B
1211	VOLLEYBALL	MR. GOVARDHAN	A
1212	BASKET BALL	MR TEWARI	B

- i. Choose the command to display name and game of those students whose address is available in students' table.
- (a) SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO AND ADDRESS IS NOT NULL;
 - (b) SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO AND ADDRESS IS NULL;
 - (c) SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO, ADDRESS IS NULL;
 - (d) SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO NOT ADDRESS IS NULL;
- ii. Identify the statement to delete a column phone from the table students.
- (a) ALTER TABLE STUDENTS DROP PHONE;
 - (b) DROP PHONE;
 - (c) UPDATE DROP PHONE;
 - (d) DELETE FROM STUDENTS WHERE DROP PHONE;

iii. **Choose the command to display Name of the students who are studying in class 12 and their corresponding Coach names**

- (a) SELECT NAME, COACHNAME FROM STUDENTS, SPORTS WHERE CLASS LIKE "12%" AND STUDENTS.ADMNO =SPORTS.ADMNO;
- (b) SELECT NAME, COACHNAME FROM STUDENTS, SPORTS WHERE CLASS LIKE "12%" AND STUDENTS.ADMNO= SPORTS.ADMNO;
- (c) SELECT NAME, COACHNAME FROM STUDENTS, SPORTS WHERE CLASS LIKE "12%" AND ADMNO.STUDENTS =ADMNO.SPORTS;
- (d) SELECT NAME, COACHNAME FROM STUDENTS, SPORTS WHERE CLASS LIKE="12%" AND STUDENTS.ADMNO =SPORTS.ADMNO;

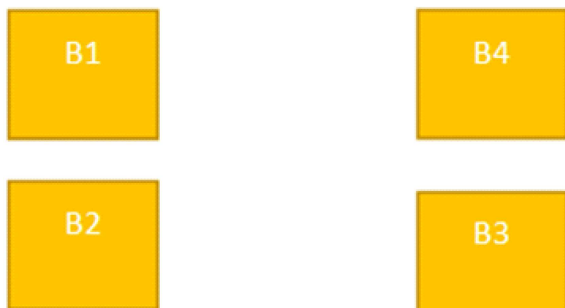
iv. **Which two select queries will give the same output**

- (A) SELECT NAME, GRADE FROM STUDENTS,SPORTS WHERE ADDRESS IS NULLAND STUDENTS.ADMNO =SPORTS.ADMNO ;
 - (B) SELECT NAME, GRADE FROM STUDENTS,SPORTS WHERE ADDRESS IS NOT NULL AND STUDENTS.ADMNO =SPORTS.ADMNO ;
 - (C) SELECT NAME, GRADE FROM STUDENTS,SPORTS WHERE ADDRESS IS NULL OR STUDENTS.ADMNO=SPORTS.ADMNO ;
 - (D) SELECT ST.NAME, SP.GRADE FROM STUDENTS ST,SPORTS SP WHERE ADDRESS IS NULLAND ST.ADMNO=SP.ADMNO ;
- (a) A and B (b) B and C (c) A and D (d) C and D

v. **Choose the command to count the number of students who play volleyball**

- (a) SELECT COUNT(*) FROM STUDENTS,SPORTS WHERE GAME="VOLLEYBALL" AND STUDENTS.ADMNO =SPORTS.ADMNO;
- (b) SELECT COUNT(GAME) FROM STUDENTS,SPORTS WHERE GAME="VOLLEYBALL" AND STUDENTS.ADMNO=SPORTS.ADMNO;
- (c) SELECT COUNT(*) FROM STUDENTS,SPORTS WHERE GAME="VOLLEYBALL" ;
- (d) SELECT COUNT(*) FROM STUDENTS,SPORTS WHERE SPORTS="VOLLEYBALL" AND STUDENTS.ADMNO =SPORTS.ADMNO;

6. A company ABC Enterprises has four blocks of buildings as shown:



Center to center distance between various blocks

B3 TO B1	50 M
B1 TO B2	60 M
B2 TO B4	25 M
B4 TO B3	170 M
B3 TO B2	125 M
B1 TO B4	90 M

Number of computers in each block :

B1	150 M
B2	15 M
B3	15 M
B4	25 M

Computers in each block are networked but blocks are not networked. The company has now decided to connect the blocks also.

- i. **Suggest the most appropriate topology for the connections between the blocks.**
 - (a) Ring topology (b) Star topology
 - (c) Mesh topology (d) Bus topology
- ii. **The company wants internet accessibility in all the blocks. The suitable and cost-effective technology for that would be:**
 - (a) Satellite (b) Lease line
 - (c) Telephone line (d) Broadband

- iii. **Which one of the following devices will you suggest for connecting all the computers with in each of their blocks?**

- (a) Switch/Hub (b) Modem
- (c) Telephone (d) Repeater

- iv. **The company is planning to link its head office situated in New Delhi with the offices in hilly areas. Suggest a way to connect it economically:**

- (a) Micro waves (b) Coaxial cable
- (c) Fibre optic (d) Radio waves

- v. **Suggest the most appropriate location of the server, to get the best connectivity for maximum number of computers.**

- (a) BLOCK B2 (b) BLOCK B1
- (c) BLOCK B4 (d) BLOCK B3

7. Millions of computer science students have taken a course on algorithms and data structures, typically the second course after the initial one introducing programming. One of the basic data structures in such a course is the stack. The stack has a special place in the emergence of computing as a science, as argued by Michael Mahoney, the pioneer of the history of the theory of computing. The Stack can be used in many computer applications, few are given below:

- (a) In recursive function
- (b) When function is called.
- (c) Expression conversion such as - Infix to Postfix, Infix to Prefix, Postfix to Infix, Prefix to Infix.

In Stack, insertion operation is known as Push whereas deletion operation is known as Pop.

Code - 1

```
def push(Country,N):  
Country. (len(Country),N)) #Statement 1  
#Function Calling Country=[]  
C=['Indian', 'USA', 'UK', 'Canada',  
'Sri Lanka']  
for i in range(0,len(C), ): #Statement 2  
push(Country,C[i]) print(Country)
```

Required Output:

['Indian', 'UK', 'Sri Lanka']

Code - 2

```
def pop(Country):  
if : #Statement 3  
return "Under flow"  
else:  
return Country. () #Statement 4  
#Function Calling  
for i in range(len(Country)+1):  
print( ) #Statement 5
```

Required Output:

Sri Lanka UK

India Under flow

Fill the above statement based on given questions:

- i. **Identify the suitable code for the blank of statement 1.**
 - (a) .append()
 - (b) .insert()
 - (c) .extend()
 - (d) .append(len(Country),N)
- ii. **Fill the statement 2, to insert the alternate element from Country list.**
 - (a) 3 (b) 0
 - (c) -1 (d) 2
- iii. **Fill the statement 3, to check the stack is empty.**
 - (a) Country=[]
 - (b) Country.isEmpty()
 - (c) len(country)==0
 - (d) No of the above
- iv. **Fill the statement 4, to delete an element from the stack.**
 - (a) pop(1)
 - (b) pop()
 - (c) del country[1]
 - (d) Country.delete(1)
- v. **Fill the statement 5, to call the pop function.**
 - (a) pop(C)
 - (b) pop(Country)
 - (c) call pop(Country)
 - (d) def pop(Country)

8. Arun, during Practical Examination of Computer Science, has been assigned an incomplete search() function to search in a pickled file student.dat. The File student.dat is created by his Teacher and the following information is known about the file.

- File contains details of students in [roll_no,name,marks] format.
- File contains details of 10 students (i.e. from roll_no 1 to 10) and separate list of each student is written in the binary file using dump().

Arun has been assigned the task to complete the code and print details of roll number 1.

```
def search():
```

```
f = open("student.dat",____) #Statement-1
```

```
_____: #Statement-2
```

```
while True:
```

```
rec = pickle. _____ #Statement-3
```

```
if(_____): #Statement-4
```

```
print(rec)
```

```
except:
```

```
pass
```

```
_____ #Statement-5
```

i. In which mode Arun should open the file in Statement-1?

- (a) r (b) r+
(c) rb (d) wb

ii. Identify the suitable code to be used at blank space in line marked as Statement- 2

- (a) if(rec[0]==1) (b) for i in range(10)
(c) try (d) pass

iii. Identify the function (with argument), to be used at blank space in line marked as Statement-3.

- (a) load()
(b) load(student.dat)
(c) load(f)
(d) load(fin)

iv. What will be the suitable code for blank space in line marked as Statement-4.

- (a) rec[0]==2 (b) rec[1]==2
(c) rec[2]==2 (d) rec[0]==1

v. Which statement Arun should use at blank space in line marked as Statement- 4 to close the file.

- (a) file.close() (b) close(file)
(c) f.close() (d) close()

9. Radha Shah is a programmer, who has recently been given a task to write a python code to perform the following CSV file operations with the help of two user defined functions/modules:

- (a) CSVOpen() : to create a CSV file called BOOKS.CSV in append mode containing information of books - Title, Author and Price.

(b) CSVRead() : to display the records from the CSV file called BOOKS.CSV where the field title starts with 'R'.

She has succeeded in writing partial code and has missed out certain statements, so she has left certain queries in comment lines.

```
import csv
def CSVOpen():
    with open('books.csv', '_____', newline='')
    as csvf:                #Statement-1
    cw= _____          #Statement-2
                                #Statement-3

    cw.writerow(['Rapunzel', 'Jack', 300])
    cw.writerow(['Barbie', 'Doll', 900])
    cw.writerow(['Johnny', 'Jane', 280])
    def CSVRead():
    try:
    with open('books.csv', 'r') as csvf: cr=
                                #Statement-4

    for r in cr:
    if _____ :          #Statement-5
    print(r)
    except:
    print('File Not Found')
    CSVOpen()
    CSVRead()
```

You as an expert of Python have to provide the missing statements and other related queries based on the following code of Radha.

Answer any four questions (out of five) from the below mentioned questions.

i. **Choose the appropriate mode in which the file is to be opened in append mode (Statement 1)**

- (a) w+ (b) ab
- (c) r+ (d) a

ii. **Which statement will be used to create a csv writer object in Statement 2.**

- (a) csv.writer(csvf)
- (b) csv.writer(csvf)
- (c) csvf.writer()
- (d) cs.writer(csvf)

iii. **Choose the correct option for Statement 3 to write the names of the column headings in the CSV file, BOOKS.CSV.**

- (a) cw.writerow('Title','Author','Price')
- (b) cw.writerow(['Title','Author','Price'])
- (c) cw.writerows('Title','Author','Price')
- (d) cw.writerows(['Title','Author','Price'])

iv. **Which statement will be used to read a csv file in Statement 4.**

- (a) cs.read(csvf) (b) csv.reader(csvf)
- (c) csvf.read() (d) csvf.reader(cs)

v. **Fill in the appropriate statement to check the field Title starting with 'R' for Statement 5 in the above program.**

- (a) r[0][0]=='R'
- (b) r[1][0]=='R'
- (c) r[0][1]=='R'
- (d) r[1][1]=='R'

10. Ankita is writing a program to perform some operations in Queue. She has created three Insert_in_Queue(Student), Delete_from_Queue(Student) and Print_Queue(Student) methods/functions in Python to add a new Student name, delete a Student name and print list of student from a queue, considering them to act as insert, delete and print operations of the Queue data structure. She is not getting the desired result. Help her to get the desired result from the given python code.

```
def Insert_in_Queue(queue):  
a=input("enter student name: ")  
queue. _____ # Statement-1  
def Delete_from_Queue (queue):  
if ( _____): # Statement-2  
print("Queue empty")  
else:  
print("Deleted element is: ",queue[0])  
del queue[ _____] #Statement-3  
def Print_Queue(queue):  
if not _____: #Statement-4  
print(queue[ : _____]) # Statement-5
```

- i. **What Ankita should write to complete the Statement-1 to store the student name?**

- (a) queue.append(a)
- (b) queue=append(a)
- (c) queue.append=a
- (d) append(a).queue

- ii. **Fill in the blank in Statement-2 to check whether the queue is empty or not?**

- (a) isEmpty(Queue)
- (b) isEmpty(q)
- (c) Queue.isEmpty
- (d) Empty.Queue

- iii. **Fill in the blank in Statement-3 with index number.**

- (a) delete(0) (b) del queue[0]
- (c) delete.queue(0) (d) queue.delete[0]

- iv. **Select the correct option to complete the statement at statement-4.**

- (a) isEmpty() (b) Empty()
- (c) len() = 0 (d) not Empty

- v. **Specify the range to print all queue elements in statement-5?**

- (a) print(queue=[0:len=(queue)])
- (b) print(queue[0:len(queue)])
- (c) print(queue[[0:len]])
- (d) print(queue[0=len(queue)])

11. Your teacher has given you a method/function FilterWords() in python which read lines from a text file NewsLetter.TXT, and display those words, which are lesser than 4 characters. Your teachers intentionally kept few blanks in between the code and asked you to fill the blanks so that the code will run to find desired result. Do the needful with the following python code.

```
def FilterWords():
c=0
file=open('NewsLetter.TXT',' ____')
#Statement-1
line = file _____. #Statement-2
word = _____ #Statement-3
for c in word:
    if _____: #Statement-4
        print(c)
_____ #Statement-5
FilterWords()
```

(i) **Write mode of opening the file in statement-1?**

- (a) a (b) ab
(c) w (d) r

ii. **Fill in the blank in statement-2 to read the data from the file.**

- (a) File.Read() (b) file.read()
(c) read.lines() (d) readlines()

iii. **Fill in the blank in statement-3 to read data word by word.**

- (a) Line.Split() (b) Line.split()
(c) line.split() (d) split.word()

iv. **Fill in the blank in statement-4, which display the word having lesser than 4 characters.**

- (a) len(c) ==4 (b) len(c)<4
(c) len () = 3 (d) len () ==3

v. **Fill in the blank in Statement-5 to close the file.**

- (a) file.close() (b) File.Close()
(c) Close() (d) end()

ANSWER KEYS

- | | | | |
|-----------|-----------|-----------|------------|
| 1. i. (c) | 4. i. (b) | 7. i. (b) | 10. i. (a) |
| ii. (b) | ii. (d) | ii. (d) | ii. (a) |
| iii. (c) | iii. (d) | iii. (c) | iii. (b) |
| iv. (d) | iv. (b) | iv. (b) | iv. (a) |
| v. (c) | v. (c) | v. (b) | v. (b) |
| 2. i. (a) | 5. i. (a) | 8. i. (c) | 11. i. (d) |
| ii. (c) | ii. (a) | ii. (c) | ii. (b) |
| iii. (a) | iii. (a) | iii. (c) | iii. (c) |
| iv. (a) | iv. (c) | iv. (d) | iv. (b) |
| v. (d) | v. (a) | v. (c) | v. (a) |
| 3. i. (b) | 6. i. (b) | 9. i. (d) | |
| ii. (d) | ii. (d) | ii. (b) | |
| iii. (d) | iii. (a) | iii. (b) | |
| iv. (c) | iv. (d) | iv. (b) | |
| v. (d) | v. (b) | v. (a) | |

Sample Question Paper Class: XII

Session : 2021-22 Computer Science (Code 083)
(Theory: Term-1)

Maximum Marks: 35

Time Allowed: 90 Minutes

General Instructions:

- The question paper is divided into 3 Sections - A, B and C.
- Section A, consist of 25 Questions (1-25). Attempt any 20 questions.
- Section B, consist of 24 Questions (26-49). Attempt any 20 questions.
- Section C, consist of 6 case study based Questions (50-55). Attempt any 5 questions.
- All questions carry equal marks.

Section-A

This section consists of 25 Questions (1 to 25). Attempt any 20 questions from this section. Choose the best possible option.

- Find the invalid identifier from the following**
(a) none (b) address
(c) name (d) pass
- Consider a declaration `L = (1, 'Python', '3.14')`. Which of the following represents the data type of L?**
(a) list (b) tuple
(c) dictionary (d) string
- Given a Tuple `tup1 = (10, 20, 30, 40, 50, 60, 70, 80, 90)`. What will be the output of `print(tup1[3:7:2])`?**
(a) (40,50,60,70,80) (b) (40,50,60,70)
(c) (40,60) (d) (40,60)
- Which of the following option is not correct?**
(a) if we try to read a text file that does not exist, an error occurs.
(b) if we try to read a text file that does not exist, the file gets created.
(c) if we try to write on a text file that does not exist, no error occurs.
(d) if we try to write on a text file that does not exist, the file gets created.
- Which of the following options can be used to read the first line of a text file `Myfile.txt`?**
(a) `myfile = open('Myfile.txt'); myfile.read()`
(b) `myfile = open('Myfile.txt','r'); myfile.read(n)`
(c) `myfile = open('Myfile.txt'); myfile.readline()`
(d) `myfile = open('Myfile.txt'); myfile.readlines()`
- Assume that the position of the file pointer is at the beginning of 3rd line in a text file. Which of the following option can be used to read all the remaining lines?**
(a) `myfile.read()`
(b) `myfile.read(n)`
(c) `myfile.readline()`
(d) `myfile.readlines()`
- A text file `student.txt` is stored in the storage device. Identify the correct option out of the following options to open the file in read mode.**
(i) `myfile = open('student.txt','rb')`
(ii) `myfile = open('student.txt','w')`
(iii) `myfile = open('student.txt','r')`
(iv) `myfile = open('student.txt')`
(a) only i (b) both i and iv
(c) both iii and iv (d) both i and iii

8. The return type of the input() function is
(a) string (b) integer
(c) list (d) tuple
9. Which of the following operator cannot be used with string data type?
(a) + (b) in
(c) * (d) /
10. Consider a tuple tup1 = (10, 15, 25, and 30). Identify the statement that will result in an error.
(a) print(tup1[2]) (b) tup1[2] = 20
(c) print(min(tup1)) (d) print(len(tup1))
11. Which of the following statement is incorrect in the context of binary files?
(a) Information is stored in the same format in which the information is held in memory.
(b) No character translation takes place
(c) Every line ends with a new line character
(d) Pickle module is used for reading and writing
12. What is the significance of the tell() method?
(a) tells the path of file
(b) tells the current position of the file pointer within the file
(c) tells the end position within the file
(d) checks the existence of a file at the desired location
13. Which of the following statement is true?
(a) pickling creates an object from a sequence of bytes
(b) pickling is used for object serialization
(c) pickling is used for object deserialization
(d) pickling is used to manage all types of files in Python
14. Syntax of seek function in Python is myfile.seek(offset, reference_point) where myfile is the file object. What is the default value of reference_point?
(a) 0 (b) 1
(c) 2 (d) 3
15. Which of the following components are part of a function header in Python?
(a) Function Name
(b) Return Statement
(c) Parameter List
(d) Both a and c
16. Which of the following function header is correct?
(a) def cal_si(p=100, r, t=2)
(b) def cal_si(p=100, r=8, t)
(c) def cal_si(p, r=8, t)
(d) def cal_si(p, r=8, t=2)
17. Which of the following is the correct way to call a function?
(a) my_func() (b) def my_func()
(c) return my_func (d) call my_func()
18. Which of the following character acts as default delimiter in a csv file?
(a) (colon): (b) (hyphen)-
(c) (comma), (d) (vertical line)|

19. **Syntax for opening Student.csv file in write mode is `myfile = open("Student.csv","w",newline="")`.**
What is the importance of `newline=""`?
(a) A newline gets added to the file
(b) Empty string gets appended to the first line.
(c) Empty string gets appended to all lines.
(d) EOL translation is suppressed
20. **What is the correct expansion of CSV files?**
(a) Comma Separable Values
(b) Comma Separated Values
(c) Comma Split Values
(d) Comma Separation Values
21. **Which of the following is not a function / method of csv module in Python?**
(a) `read()` (b) `reader()`
(c) `writer()` (d) `writerow()`
22. **Which one of the following is the default extension of a Python file?**
(a) `.exe` (b) `.p++`
(c) `.py` (d) `.p`
23. **Which of the following symbol is used in Python for single line comment?**
(a) `/` (b) `/*`
(c) `//` (d) `#`
24. **Which of the following statement opens a binary file `record.bin` in write mode and writes data from a list `lst1 = [1,2,3,4]` on the binary file?**
a. `with open('record.bin','wb') as myfile: pickle.dump(lst1,myfile)`
b. `with open('record.bin','wb') as myfile: pickle.dump(myfile,lst1)`
c. `with open('record.bin','wb+') as myfile: pickle.dump(myfile,lst1)`
d. `with open('record.bin','ab') as myfile: pickle.dump(myfile,lst1)`
25. **Which of these about a dictionary is false?**
a) The values of a dictionary can be accessed using keys
b) The keys of a dictionary can be accessed using values
c) Dictionaries aren't ordered
d) Dictionaries are mutable

Section-B

This section consists of 24 Questions (26 to 49). Attempt any 20 questions.

26. What is the output of following code:

```
T=(100)
```

```
print(T*2)
```

- (a) Syntax error (b) (200,)
(c) 200 (d) (100,100)

27. Suppose content of 'Myfile.txt' is:

```
Twinkle twinkle little star
```

```
How I wonder what you are
```

```
Up above the world so high
```

```
Like a diamond in the sky
```

What will be the output of the following code?

```
myfile = open("Myfile.txt") data =
```

```
myfile.readlines() print(len(data))
```

```
myfile.close()
```

- (a) 3 (b) 4
(c) 5 (d) 6

28. Identify the output of the following Python statements.

```
x = [[10.0, 11.0, 12.0],[13.0, 14.0, 15.0]]
```

```
y = x[1][2]
```

```
print(y)
```

- (a) 12.0 (b) 13.0
(c) 14.0 (d) 15.0

29. Identify the output of the following Python statements.

```
x = 2
```

```
while x < 9:
```

```
print(x, end="") x = x + 1
```

- (a) 12345678 (b) 123456789
(c) 2345678 (d) 23456789

30. Identify the output of the following Python statements.

```
b = 1
```

```
for a in range(1, 10, 2):
```

```
b += a + 2
```

```
print(b)
```

- (a) 31 (b) 33
(c) 36 (d) 39

31. Identify the output of the following Python statements.

```
lst1 = [10, 15, 20, 25, 30]
```

```
lst1.insert( 3, 4)
```

```
lst1.insert( 2, 3)
```

```
print (lst1[-5])
```

- (a) 2 (b) 3
(c) 4 (d) 20

32. Raghav is trying to write a tuple tup1 = (1,2,3,4,5) on a binary file test.bin. Consider the following code written by him.

```
import pickle
```

```
tup1 = (1,2,3,4,5)
```

```
myfile = open("test.bin",'wb') pickle.
```

```
_____ #Statement 1
```

```
myfile.close()
```

Identify the missing code in Statement 1.

- (a) dump(myfile,tup1)
(b) dump(tup1, myfile)
(c) write(tup1,myfile)
(d) load(myfile,tup1)

33. A binary file employee.dat has following data

Empno	Empname	Salary
101	Anuj	50000
102	Arijita	40000
103	Hanika	30000
104	Firoz	60000
105	Vijaylakshmi	40000

```
def display(eno): f=open("employee.dat","rb")
totSum=0
try:
while True:
R=pickle.load(f) if
R[0]==eno:
```

_____ #Line1

```
totSum=totSum+R[2]
```

```
except:
```

```
    f.close()
```

```
print(totSum)
```

When the above mentioned function, display (103) is executed, the output displayed is 190000.

Write appropriate jump statement from the following to obtain the above output.

- (a) jump (b) break
(c) continue (d) return

34. What will be the output of the following Python code?

```
def add (num1, num2): sum =
num1 + num2
sum = add(20,30)
print(sum)
```

- (a) 50 (b) 0
(c) Null (d) None

35. Evaluate the following expression and identify the correct answer.

$16 - (4 + 2) * 5 + 2 ** 3 * 4$

- (a) 54 (b) 46
(c) 18 (d) 32

36. What will be the output of the following code?

```
def my_func(var1=100, var2=200): var1+=10
    var2 = var2 - 10 return
    var1+var2
print(my_func(50),my_func())
(a) 100 200 (b) 150 300
(c) 250 75 (d) 250 300
```

37. What will be the output of the following code?

```
value = 50
def display(N): global value value = 25
if N%7==0:
value = value + N else:
value = value - N print(value, end="#")
display(20)
print(value)
(a) 50#50 (b) 50#5
(c) 50#30 (d) 5#50#
```

38. What will be the output of the following code?

```
import random
List=["Delhi","Mumbai","Chennai","Kolkata"]
for y in range(4):
x = random.randint(1,3)
print(List[x],end="#")
(a) Delhi#Mumbai#Chennai#Kolkata#
(b) Mumbai#Chennai#Kolkata#Mumbai#
(c) Mumbai# Mumbai #Mumbai # Delhi#
(d) Mumbai# Mumbai #Chennai # Mumbai
```


39. What is the output of the following code snippet?

```
def ChangeVal(M,N): for i in range(N):  
    if M[i]%5 == 0:  
        M[i]//=5 if M[i]%3 == 0:  
        M[i]//=3 L = [25,8,75,12]  
    ChangeVal(L,4) for i in L:  
    print(i,end="#")
```

- (a) 5#8#15#4# (b) 5#8#5#4#
(c) 5#8#15#14# (d) 5#18#15#4#

40. Suppose content of 'Myfile.txt' is

Humpty Dumpty sat on a wall
Humpty Dumpty had a great fall
All the king's horses and all the king's men
Couldn't put Humpty together again

What will be the output of the following code?

```
myfile = open("Myfile.txt") record =  
myfile.read().split() print(len(record))  
myfile.close()
```

- (a) 24 (b) 25
(c) 26 (d) 27

41. Find the output of the following code:

```
Name="PythoN3.1"  
R=""  
for x in range(len(Name)): if  
    Name[x].isupper():  
    R=R+Name[x].lower()  
    elif Name[x].islower():  
    R=R+Name[x].upper() elif  
    Name[x].isdigit():  
    R=R+Name[x-1]  
else:  
    R=R+"#"  
print(R)
```

- (a) pYTHOn##@ (b) pYTHOnN#@
(c) pYTHOn#@ (d) pYTHOnN@#

42. Suppose content of 'Myfile.txt' is

Honesty is the best policy.

What will be the output of the following code?

```
myfile = open("Myfile.txt") x =  
myfile.read() print(len(x))  
myfile.close()
```

- (a) 5 (b) 25
(c) 26 (d) 27

43. Suppose content of 'Myfile.txt' is

Culture is the widening of the mind and of the spirit.

What will be the output of the following code?

```
myfile = open("Myfile.txt")  
x = myfile.read()  
print(y)  
y = x.count('the')  
myfile.close()
```

- (a) 2 (b) 3
(c) 4 (d) 5

44. What will be the output of the following code?

```
x = 3  
def myfunc(): global x x+=2  
print(x, end='')  
print(x, end='')  
myfunc()  
print(x, end='')
```

- (a) 3 3 3 (b) 3 4 5
(c) 3 3 5 (d) 3 5 5

45. Suppose content of 'Myfile.txt' is
Ek Bharat Shreshtha Bharat

What will be the output of the following code?

```
myfile = open("Myfile.txt")
vlist = list("aeiouAEIOU")
vc=0
x = myfile.read()
for y in x:
    if(y in vlist):
        vc+=1
print(vc)
myfile.close()
```

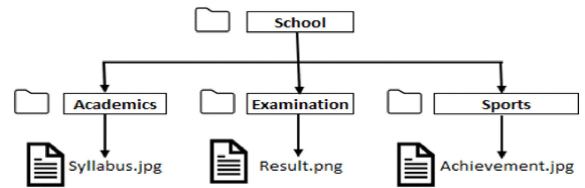
(a) 6 (b) 7
(c) 8 (d) 9

46. Suppose content of 'Myfile.txt' is

```
Twinkle twinkle little star
How I wonder what you are
Up above the world so high
Like a diamond in the sky
Twinkle twinkle little star
What will be the output of the following code?
myfile = open("Myfile.txt")
line_count = 0
data = myfile.readlines()
for line in data:
    if line[0] == 'T':
        line_count += 1
print(line_count)
myfile.close()
```

(a) 2 (b) 3
(c) 4 (d) 5

47. Consider the following directory structure.



Suppose root directory (School) and present working directory are the same. What will be the absolute path of the file Syllabus.jpg?

- (a) School/syllabus.jpg
(b) School/Academics/syllabus.jpg
(c) School/Academics/../syllabus.jpg
(d) School/Examination/syllabus.jpg
48. Assume the content of text file, 'student.txt' is:

```
Arjun Kumar
Ismail Khan
Joseph B
Hanika Kiran
```

What will be the data type of data_rec?

```
myfile = open("Myfile.txt")
data_rec = myfile.readlines()
myfile.close()
```

- (a) string (b) list
(c) tuple (d) dictionary
49. What will be the output of the following code?
- ```
tup1 = (1,2,[1,2],3)
tup1[2][1]=3.14
print(tup1)
```
- (a) (1,2,[3.14,2],3)    (b) (1,2,[1,3.14],3)  
(c) (1,2,[1,2],3.14)    (d) Error Message

## **Section-C**

### **Case Study based Questions**

***This section consists of 6 Questions (50 -55) Attempt any 5 questions.***

Rohit, a student of class 12, is learning CSV File Module in Python. During examination, he has been assigned an incomplete python code (shown below) to create a CSV File 'Student.csv' (content shown below). Help him in completing the code which creates the desired CSV File.

#### **CSV File**

1,AKSHAY,XII,A  
2,ABHISHEK,XII,A  
3,ARVIND,XII,A  
4,RAVI,XII,A  
5,ASHISH,XII,A

#### **Incomplete Code**

```
import _____ #Statement-1
fh = open(_____,_____, newline="") #Statement-2
stuwriter = csv._____ #Statement-3
data = []
header = ['ROLL_NO', 'NAME', 'CLASS', 'SECTION']
data.append(header)
for i in range(5):
 roll_no = int(input("Enter Roll Number : "))
 name = input("Enter Name : ")
 Class = input("Enter Class : ")
 section =input("Enter Section")
 rec = [_____] #Statement-4
 data.append(_____) #Statement-5
 stuwriter._____ (data) #Statement-6
fh.close()
```

50. Identify the suitable code for blank space in the line marked as Statement-1.  
(a) csv file (b) CSV  
(c) csv (d) cvs
51. Identify the missing code for blank space in line marked as Statement-2.  
(a) "Student.csv","wb"  
(b) "Student.csv","w"  
(c) "Student.csv","r"  
(d) "Student.cvs","r"
52. Choose the function name (with argument) that should be used in the blank space of line marked as Statement-3.  
(a) reader(fh) (b) reader(MyFile)  
(c) writer(fh) (d) writer(MyFile)
53. Identify the suitable code for blank space in line marked as Statement-4.  
(a) 'ROLL\_NO', 'NAME', 'CLASS', 'SECTION'  
(b) ROLL\_NO, NAME, CLASS, SECTION  
(c) 'roll\_no','name','Class','section'  
(d) roll\_no,name,Class,section
54. Identify the suitable code for blank space in the line marked as Statement-5.  
(a) data (b) record  
(c) rec (d) insert
55. Choose the function name that should be used in the blank space of line marked as Statement-6 to create the desired CSV File?  
(a) dump() (b) load()  
(c) writerows() (d) writerow()

## ANSWER KEYS

### Section-A

1. (d)
2. (b)
3. (d)
4. (b)
5. (c)
6. (d)
7. (c)
8. (a)
9. (d.)
10. (b)
11. (c)
12. (b)
13. (b)
14. (a)
15. (d)
16. (d)
17. (a)
18. (c)
19. (d)
20. (b)
21. (a)
22. (c)
23. (d)
24. (a)
25. (b)

### Section-B

26. (c)
27. (b)
28. (d)
29. (c)
30. (c)
31. (b)
32. (b)
33. (c)
34. (d)
35. (c)
36. (d)
37. (b)
38. (b)
39. (b)
40. (c)
41. (b)
42. (d)
43. (b)
44. (d)
45. (b)
46. (a)
47. (b)
48. (b)
49. (b)

### Section-C

50. (c)
51. (b)
52. (c)
53. (d)
54. (c)
55. (c)

# Sample Question Paper Class: XII

Session : 2021-22 Computer Science (Code 083)  
(Theory: Term-1)

Maximum Marks: 35

Time Allowed: 90 Minutes

## General Instructions:

- The question paper is divided into 3 Sections - A, B and C.
- Section A, consist of 25 Questions (1-25). Attempt any 20 questions.
- Section B, consist of 25 Questions (26-50). Attempt any 20 questions.
- Section C, consist of 5 case study based Questions (51-55). Attempt any 5 questions.
- All questions carry equal marks.

## Section-A

1. Which of the following is an invalid variable?

- (a) my\_string\_1      (b) 1st\_string  
(c) Foo                (d) \_

2. What type of data is:  
arr = [(1,1),(2,2),(3,3)]?

- (a) Array of tuples    (b) Tuples of lists  
(c) List of tuples      (d) Invalid type

3. Write the output of the following code segment :

```
for i in range(-1,-6,-5):
 print(i*i)
```

- (a) 1                      (b) 1 2  
(c) Error                (d) Infinite loop

4. What is the output of the following program :

```
print((1, 2) + (3, 4))
```

- (a) (1, 2), (3, 4)  
(b) (4, 6)  
(c) (1, 2, 3, 4)  
(d) Invalid Syntax

5. Which of the following statements are true?

- (a) When you open a file for reading, if the file does not exist, an error occurs  
(b) When you open a file for writing, if the file does not exist, a new file is created  
(c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file  
(d) All of the mentioned

6. To open a file c:\scores.txt for appending data, we use \_\_\_\_\_

- (a) outfile = open("c:\\scores.txt", "a")  
(b) outfile = open("c:\\scores.txt", "rw")  
(c) outfile = open(file = "c:\scores.txt", "w")  
(d) outfile = open(file = "c:\\scores.txt", "w")

7. What is the correct syntax of open() function?

- (a) file = open(file\_name [, access\_mode] [, buffering])  
(b) file object = open(file\_name [, access\_mode] [, buffering])  
(c) file object = open(file\_name)  
(d) none of the mentioned

8. What is the two built-in functions to read a line of text from standard input, which is by default the keyboard?  
 (a) Insert (b) Input  
 (c) Read (d) Scanner
9. Which one of these is floor division?  
 (a) // (b) /  
 (c) % (d) None of the above
10. What will be the output of the following Python code snippet?  

```
d1 = {"john":40, "peter":45}
d2 = {"john":466, "peter":45}
d1 > d2
```

 (a) True (b) False  
 (c) Error (d) None
11. Which of the following is not true about binary files?  
 (a) Binary files are store in terms of bytes  
 (b) When you open binary file in text editor will show garbage values  
 (c) Binary files represent ASCII value of characters  
 (d) All of the above
12. This method returns an integer that specifies the current position of the file object.  
 (a) seek() (b) load()  
 (c) position() (d) tell()
13. Which module is to be imported for working in binary file?  
 (a) unpickle (b) pickle  
 (c) pickling (d) unpickling
14. Which of the following items are present in the function header?  
 (a) function name (b) parameter list  
 (c) return value (d) Both A and B
15. Which of the following function headers is correct?  
 (a) def fun(a = 2, b = 3, c)  
 (b) def fun(a = 2, b, c = 3)  
 (c) def fun(a, b = 2, c = 3)  
 (d) def fun(a, b, c = 3, d)
16. Which of the following would you relate to a function call made with an argument passed as its parameter?  
 (a) function invocation  
 (b) pass by value  
 (c) pass by reference  
 (d) pass by name
17. Which of the following is not a function of csv module?  
 (a) readline() (b) writerow()  
 (c) reader() (d) writer()
18. Which of these about a dictionary is false?  
 (a) The values of a dictionary can be accessed using keys  
 (b) The keys of a dictionary can be accessed using values  
 (c) Dictionaries may or may not be ordered  
 (d) None of the above
19. What is output for  $2 * 2 ** 3$   
 (a) 12 (b) 64  
 (c) 16 (d) 35

**20. Which of the following statements are true?**

- (a) When you open a file for reading, if the file does not exist, an error occurs
- (b) When you open a file for writing, if the file does not exist, a new file is created
- (c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file
- (d) All of the mentioned

**21. What is output of `33 == 33.0`**

- (a) False                      (b) True
- (c) 33                        (d) None of the above

**22. Functions that do not return any value are known as**

- (a) fruitful functions
- (b) void functions
- (c) library functions
- (d) user-defined functions

**23. A variable created or defined within a function body is classified as-**

- (a) Local                      (b) global
- (c) instance                  (d) build-in

**24. Give output:**

```
s='Welcome to SPSEC'
print(s.find('come'), end= "")
print(s.find('o'))
```

- (a) 4 3                        (b) 3 4
- (c) 3 3                        (d) 4 4

**25. Give output:**

```
s='My'
s1='City'
s2=s[1]+s1[len(s1)-1:]
print(s2)
```

- (a) MyCity                    (b) CityMy
- (c) Mt d                      (d) My

## **Section-B**

**26. To read the next line of the file from a file object `infile`, we use \_\_\_\_\_**

- (a) `read(2)`                      (b) `infile.read()`
- (c) `readline()`                      (d) `infile.readlines()`

**27. Which of the following file mode is not a valid file mode?**

- (a) `rw`                              (b) `ab`
- (c) `w+`                              (d) `r+`

**28. If we want to add more contents in an existing file, file must be opened in.....mode.**

- (a) `binary`                      (b) `append`
- (c) `write`                        (d) it is not possible

**29. Which method is used to convert Python objects for writing data in binary file?**

- (a) `write()`                      (b) `load()`
- (c) `store()`                      (d) `dump()`

**30. Which is not the valid mode for binary files?**

- (a) `r`                                (b) `rb`
- (c) `wb`                              (d) `wb+`

**31. Which of the following function is used to read the data in binary file?**

- (a) `read()`                      (b) `open()`
- (c) `dump()`                      (d) `load()`

**32. Suresh wants to open the binary file `student.dat` in read mode. He writes the following statement but he does not know the mode. Help him to find the same.**

```
F=open('student.dat', _____)
```

- (a) `r`                                (b) `rb`
- (c) `w`                                (d) `wb`

**33. What is the output of the following program?**

```
L= list('123456')
L[0]=L[5]=0
L[3]=L[-2]
print (L)
```

- (a) [0, '2', '3', '4', '5', 0]
- (b) ['6', '2', '3', '5', '5', '6']
- (c) ['0', '2', '3', '5', '5', '0']
- (d) [0, '2', '3', '5', '5', 0]

**34. What is the result of executing the following code?**

```
number=5
while number <=5:
if number <5:
number=number+1
print(number)
```

- a) The program will loop indefinitely
- b) The value of number will be printed exactly 1 time
- c) The while loop will never get executed
- d) The value of number will be printed exactly 5 times

**35. What is the output of the following?**

```
i=1
while True:
if i%007==0:
break
print(i)
i+=1
```

- (a) 1 2 3 4 5 6                      (b) 1 2 3 4 5 6 7
- (c) Error                              (d) None of these

**36. What is the output of the following program?**

```
L1=[]
L1.append([1,[2,3],4])
L1.extend([7,8,9])
print(L1[0][1][1]+L1[2])
```

- (a) Type Error: can only concatenate list (not "int") to list
- (b) 12
- (c) 11
- (d) 38

**37. What will be the output of the following Python code?**

```
def f1(a,b=[]):
b.append(a)
return b
print (f1(2,[3,4]))
```

- (a) [3,2,4]                              (b) [2,3,4]
- (c) [3,4,2]                              (d) Error

**38. What is the output?**

```
Y=[2,5J,6]
Y.sort()
```

- (a) [2,6,5J]                              (b) [5J,2,6]
- (c) [6,5J,2]                              (d) Error

**39. What will be the output of the following program?**

```
tuple=("Check")*3
print (tuple)
```

- (a) Unexpected
- (b) (3Check)
- (c) CheckCheckCheck
- (d) Syntax Error



**40. Predict the output of the following code:**

```
x,y=2,4
if(x+y==10):
 print("true")
else:
 print("false")
```

- (a) true                      (b) false  
(c) no output                (d) none

**41. Choose the answer for statement 1**

```
import _____ #statement 1
rec=[]
while True:
 rn=int(input("Enter"))
 nm= input("Enter")
 temp=[rn,nm]
 rec.append(temp)
 ch=input("enter choice(Y/N)")
 ifch.upper=="N":
 break
F=open("stud.dat","_____") #statement 2
_____.dump(rec,f) #statement 3
_____.close() #statement 4
(a) csv (b) unpickle
(c) pickle (d) load
```

**42. Write the output of the First Print statements :**

```
f=open("data.txt",'w')
f.write("Hello")
f.write("Welcome to my Blog")
f.close()
f=open("data.txt", 'r')
d=f.read(5)
```

```
print(d) # First Print Statement
f.seek(10)
d=f.read(3)
print(d) # Second Print Statement
f.seek(13)
d=f.read(5)
print(d) # Third Print Statement
d=f.tell()
print(d) # Fourth Print Statement
(a) Hello
(b) Hell
(c) Ello
(d) None of the above
```

**43. Ram opened a file in a certain mode. After opening the file, he forgot the mode. The interesting facts about that mode are " If the file doesn't exist, then a new file will be created" and "After opening file in that mode the file handle will be at the end of the file" Help him to identify the correct mode.**

- (a) read mode  
(b) write mode  
(c) append mode  
(d) binary and read mode

**44. What is the output of the following code.**

```
defouterFun(a,b):
 definnerFun(c,d):
 returnc+d
 returninnerFun(a,b)
res=outerFun(5,10)
print(res)
```

- (a) 15                      (b) Syntax Error  
(c) (5, 10)                (d) (10,5)

**45. What will be printed when the following code executes?**

```
def test(a,b=5):
 print(a,b)
test(-3)
```

- (a) -3, b                      (b) a, 5
- (c) -3, 5                     (d) -3 5

**46. What value is printed when the following code is executed?**

```
name="Jane Doe"
def myFunction (parameter):
 value="First"
 value= parameter
 print (value)
myFunction("Second")
```

- (a) Value                      (b) Second
- (c) Parameter                (d) First

**47. What will be the output of the following snippet?**

```
f = None
for i in range (5):
 with open ("data.txt", "W") as f:
 if i > 2:
 break
print (f.closed)
```

- (a) True                      (b) False
- (c) None                      (d) Error

**48. What will be the output of following Python code?**

```
x=['ab', 'cd']
for i in x:
 x.append(i.upper())
print(x)
```

- (a) ['AB', 'CD']
- (b) ['ab', 'cd', 'AB', 'CD']
- (c) ['ab', 'cd']
- (d) None of mentioned

**49. What is printed by the following statements?**

```
D={"cat":12, "dog": 10, "cow": 20, "bear":25}
print(25 in D)
```

- (a) True
- (b) False
- (c) Error
- (d) None

**50. Given tup=(5,3,1,9,0), which of the following two statements will give the same output?**

- (a) print(tup[:-1])
- (b) print(tup[0:5])
- (c) print(tup[0:4])
- (d) print(tup[-4:])

## Section-C

### (Case Study Based Question)

Mr. Zack Sullivan loves programming. He joined an institute for learning. He is learning python. He learned all the python concepts like strings, lists, tuple, dictionaries etc. but he wants to learn file handling in python. He is trying to learn binary file handling. His teacher gave him partial code to write and read data from employee.dat having structure empno, name, salary. Help Zack to complete the code:

```
_____ # statement 1
Def addrecords():
fw= _____ #statement 2
dict={}
ch='y'
whilech=='y':
eno=int(input("enter employee number"))
nm= input("enter employee name")
sal=int(input("enter employee salary"))
dict={'empno':eno,'name':nm,'salary':sal}
_____ # statement 3
ch=input("add more record")
fw.close()
function to display records
def display():
dict={}
fr= _____ # statement 4
dict= _____ # statement 5
fr.close()
print("data :",dict)
```

### Answer questions (51-55) based on above case study

51. Help Zack to import the module to perform binary file operation in statement 1.  
(a) csv (b) random  
(c) pickle (d) file
52. Which statement is used from the following for statement 2 to open the binary file in write mode?  
(a) open("employee.dat",'w')  
(b) open("employee.dat",'wb')  
(c) open("employee.dat",'w+')  
(d) open("employee.dat",'r')
53. Which statement is used from the following for statement 3 to write dictionary data created in above code, namely dict, is written in binary file employee.dat file?  
(a) dump(dict,fw)  
(b) pickle.write(dict,fw)  
(c) save(dict,fw)  
(d) pickle.store(dict)
54. Which statement is used from the following for statement 4 to open the binary file in read mode?  
(a) open("employee.dat",'r')  
(b) open("employee.dat",'r+')  
(c) open("employee.dat",'a')  
(d) open("employee.dat",'rb')
55. Complete statement 5 to read data in dictionary namely dict from the opened binary file?  
(a) dict=pk.read(fr)  
(b) dict=pickle.load(fr)  
(c) load(dict,fr)  
(d) none of these

## ANSWER KEYS

### Section-A

1. (b)
2. (c)
3. (a)
4. (c)
5. (d)
6. (a)
7. (b)
8. (b)
9. (a)
10. (d)
11. (c)
12. (d)
13. (b)
14. (d)
15. (c)
16. (b)
17. (a)
18. (c)
19. (c)
20. (d)
21. (b)
22. (b)
23. (a)
24. (b)
25. (d)

### Section-B

26. (c)
27. (a)
28. (b)
29. (d)
30. (a)
31. (d)
32. (b)
33. (c)
34. (a)
35. (d)
36. (c)
37. (c)
38. (d)
39. (c)
40. (b)
41. (c)
42. (a)
43. (c)
44. (a)
45. (c)
46. (b)
47. (d)
48. (b)
49. (b)
50. (b)

### Section-C

51. (c)
52. (b)
53. (a)
54. (d)
55. (c)

# TERM-II

## UNIT - I

### Computational Thinking and Programming - 2

1. **A stack is which of the following type of data structure?**
  - (a) Linear
  - (b) Dynamic
  - (c) Circular
  - (d) All of these
2. **Stack data structure is following \_\_\_\_\_ principle.**
  - (a) LIFO
  - (b) FIFO
  - (c) Both A & B
  - (d) None of these
3. **Process of inserting an element in stack is called \_\_\_\_\_.**
  - (a) Create                      (b) Push
  - (c) Evaluation                (d) Pop
4. **Which of the following is true about linked list implementation of stack?**
  - (a) In push operation, if new nodes are inserted at the beginning of linked list, then in pop operation, nodes must be removed from end.
  - (b) In push operation, if new nodes are inserted at the end, then in pop operation, nodes must be removed from the beginning.
  - (d) Both of the above
5. **In a stack, if a user tries to remove an element from empty stack it is called \_\_\_\_\_.**
  - (a) Underflow
  - (b) Empty collection
  - (c) Overflow
  - (d) Garbage Collection
6. **Entries in a stack are "ordered". What is the meaning of this statement?**
  - (a) A collection of stacks is sortable
  - (b) Stack entries may be compared with the '<' operation
  - (c) The entries are stored in a linked list
  - (d) There is a Sequential entry that is one by one
7. **Process of removing an element from stack is called \_\_\_\_\_**
  - (a) Create                      (b) Push
  - (c) Evaluation                (d) Pop
8. **Pushing an element into stack already having five elements and stack size of 5, then stack becomes**
  - (a) Overflow                      (b) Crash
  - (c) Underflow                      (d) User flow

9. Which of the following applications may use a stack?
- (a) A parentheses balancing program
  - (b) Tracking of local variables at run time
  - (c) Compiler Syntax Analyzer
  - (d) All of the mentioned
10. The data structure required to check whether an expression contains balanced parenthesis is?
- (a) Stack
  - (b) Queue
  - (c) Array
  - (d) Tree

## ANSWER KEYS

- |        |         |
|--------|---------|
| 1. (a) | 6. (d)  |
| 2. (a) | 7. (d)  |
| 3. (b) | 8. (a)  |
| 4. (d) | 9. (d)  |
| 5. (a) | 10. (a) |

## Long Type Questions

1. What is a Stack? What basic operations can be performed on them?

Stack is a basic data structure where insertion and deletion of data takes place at one end called the top of the Stack, i.e., it follows the Last-In-First-Out (LIFO) principle.

Following basic operations can be performed on Stacks.

- (i) PUSH, i.e., insertion of element in the Stack
  - (ii) POP, i.e., deletion of an element from the Stack
  - (iii) Displaying all the elements in the Stack.
2. What do you mean by data structure? Explain your answer with a suitable example.
3. What do you mean by the LIFO structure? Support your answer with real-life examples.
4. Enlist a few of the fields where you feel a stack is used in real life.
5. What are the basic operations that can be performed on the stack?
6. What are the underflow and overflow conditions?
7. Write steps on how you implement stack?

# UNIT - II

## Computer Networks

### SET - I

1. **A set of nodes connected by \_\_\_\_\_ is called a Network.**  
(a) link (b) wire  
(c) hardware (d) None of these
2. **Computer Network is**  
(a) Collection of hardware components and computers  
(b) Interconnected by communication channels  
(c) Sharing of resources and information  
(d) All of the Above
3. **The best example of computer network is \_\_\_\_\_.**  
(a) Switch (d) Router  
(c) Internet (d) None of these
4. **How many layers of OSI Reference Model have?**  
(a) 4 (b) 5  
(c) 6 (d) 7
5. **The exchange of data between two devices through transmission medium is called \_\_\_\_\_.**  
(a) Communication  
(b) Data Communication  
(c) Both A & B  
(d) None of these
6. **\_\_\_\_\_ is a set of rules which govern data communication.**  
(a) Protocol (b) Message  
(c) Information (d) All of these
7. **What is the meaning of Bandwidth in Network?**  
(a) Transmission capacity of a communication channels  
(b) Connected Computers in the Network  
(c) Class of IP used in Network  
(d) None of Above
8. **Repeater operates in which layer of the OSI model?**  
(a) Physical layer  
(b) Data link layer  
(c) Network layer  
(d) Transport layer
9. **\_\_\_\_\_ is to regenerate the signal over the same network before the signal becomes too weak.**  
(a) Hub (b) Repeater  
(c) Switch (d) Router
10. **A \_\_\_\_\_ is a multiport repeater.**  
(a) Hub (b) Bridge  
(c) Switch (d) Gateway

11. **Bridge works in which layer of the OSI model?**
  - (a) Application layer
  - (b) Transport layer
  - (c) Network layer
  - (d) Data link layer
12. **What is the use of Bridge in Network?**
  - (a) to connect two LANs
  - (b) to separate LANs
  - (c) to control Network Speed
  - (d) All of the above
13. **A \_\_\_\_\_ is used to connect two LANs working on same protocol.**
  - (a) Hub
  - (b) Bridge
  - (c) Switch
  - (d) Gateway
14. **Router operates in which layer of OSI Reference Model?**
  - (a) Physical Layer
  - (b) Network Layer
  - (c) Transport Layer
  - (d) Application Layer
15. **What does Router do in a network?**
  - (a) Forwards a packet to all outgoing links
  - (b) Forwards a packet to the next free outgoing link
  - (c) Determines on which outgoing link a packet is to be forwarded
  - (d) Forwards a packet to all outgoing links except the originated link
16. **\_\_\_\_\_ normally connects LANs and WANs together.**
  - (a) Hub
  - (b) Bridge
  - (c) Switch
  - (d) Routers
17. **Routing tables of a router keeps track of \_\_\_\_\_.**
  - (a) MAC Address Assignments
  - (b) Port Assignments to network devices
  - (c) Distribute IP address to network devices
  - (d) Routes to use for forwarding data to its destination
18. **Layer-2 Switch is also called**
  - (a) Multiport Hub
  - (b) Multiport Switch
  - (c) Multiport Bridge
  - (d) Multiport NIC
19. **A \_\_\_\_\_ is a multi-port bridge with a buffer.**
  - (a) Hub
  - (b) Bridge
  - (c) Switch
  - (d) Routers
20. **A \_\_\_\_\_ is designed for small physical areas such as an office, group of buildings within 10KM radius.**
  - (a) LAN
  - (b) WAN
  - (c) MAN
  - (d) None of these
21. **A \_\_\_\_\_ covers towns and cities within 50KM radius.**
  - (a) LAN
  - (b) WAN
  - (c) MAN
  - (d) None of these



- 22. It is used for the network that covers large distance such as cover states and countries.**  
 (a) LAN (b) WAN  
 (c) MAN (d) None of these
- 23. \_\_\_\_\_ is a standard for short-distance wireless communication.**  
 (a) Wi-Fi (b) WAN  
 (c) MAN (d) None of these
- 24. Which of the following is/are the advantages of wireless LANs.**  
 i. Installation speed and simplicity  
 ii. Installation flexibility  
 iii. Scalability  
 (a) i and ii only (b) ii and iii only  
 (c) i and iii only (d) All i, ii and iii
- 25. What does protocol defines?**  
 (a) Protocol defines what data is communicated.  
 (b) Protocol defines how data is communicated.  
 (c) Protocol defines when data is communicated.  
 (d) All of above
- 26. What is the benefit of the Networking?**  
 (a) File Sharing  
 (b) Easier access to Resources  
 (c) Easier Backups  
 (d) All of the Above
- 27. Which of the following is not the Networking Devices?**  
 (a) Gateways (b) Window  
 (c) Routers (d) Firewalls
- 28. Which of the following is Software?**  
 (a) Routers (b) Firewalls  
 (c) Gateway (d) Modems
- 29. Physical or logical arrangement of network is**  
 (a) Topology  
 (b) Routing  
 (c) Networking  
 (d) None of the mentioned
- 30. In which topology there is a central controller or hub?**  
 (a) Star (b) Mesh  
 (c) Ring (d) Bus
- 31. This topology requires multipoint connection**  
 (a) Star (b) Bus  
 (c) Ring (d) None of these
- 32. Bus, ring and star topologies mostly used in the**  
 (a) LAN (b) MAN  
 (c) WAN (d) Internetwork
- 33. Combination of two or more topologies are called**  
 (a) Star (b) Bus  
 (c) Ring (d) Hybrid
- 34. Which of the following is not type of the network topology?**  
 (a) Mesh (b) Bus  
 (c) Ring (d) Stub

- 35. In a network with 24 computers, which topology would require the most extensive cabling?**
- (a) Bus (b) Mesh  
(c) Star (d) Tree
- 36. Mesh topology has \_\_\_\_\_ physical channels to link 'n' devices.**
- (a) n (b)  $n(n-1)/2$   
(c) (n-1) (d) None of these
- 37. In the star topology we use a central device**
- (a) Hub (b) Electrical cable  
(c) Bus (d) None of these
- 38. Which topology is called completely connected network?**
- (a) Star (b) Mesh  
(c) Tree (d) Bus
- 39. Data communication system spanning states, countries, or the whole world is \_\_\_\_\_**
- (a) LAN  
(b) WAN  
(c) MAN  
(d) None of the mentioned
- 40. Expand WAN?**
- (a) World Area Network  
(b) Wide Area Network  
(c) Web Area Network  
(d) None of the mentioned
- 41. Internet is**
- (a) A local computer network  
(b) A worldwide network of computers  
(c) An interconnected network of computers  
(d) A worldwide interconnected network of computers which use a common protocol to Communicate with one another
- 42. Internet requires**
- (a) An international agreement to connect computers  
(b) A local area network  
(c) A commonly agreed set of rules to communicate between computers  
(d) A World Wide Web
- 43. Each computer connected to the internet must**
- (a) Be an IBM PC  
(b) Have a unique IP address  
(c) Be internet compatible  
(d) Have a modem connection
- 44. \_\_\_\_\_ is a device that routes data packets based on their IP address.**
- (a) Router (b) Bridge  
(c) Switch (d) Gateway
- 45. Which of the following is a type of computer network?**
- (a) Telnet (b) MAN  
(c) Bluetooth (d) HTTP
- 46. Which of the following is a valid network topology?**
- (a) WAN (b) MAN  
(c) Ring (d) PAN

- 47. Which network device is used to amplify signal in long-distance networking?**  
 (a) Switch (b) Repeater  
 (c) Hub (d) Bridge
- 48. WLL stands for \_\_\_\_\_.**  
 (a) Wireless Local Loop  
 (b) Wireless local Link  
 (c) Wire Less link  
 (d) None of these
- 49. Modem is used mostly for?**  
 (a) Mostly for file system  
 (b) A modern empty memory modules  
 (c) Connecting to internet  
 (d) None of above
- 50. Which type of cable is most likely in use with rj-45 connectors?**  
 (a) 10base2 (b) 10base5  
 (c) 10baseT (d) 10baseFL
- 51. HTTP is \_\_\_\_\_ protocol.**  
 (a) application layer (b) transport layer  
 (c) network layer (d) data link layer
- 52. In the network HTTP resources are located by**  
 (a) uniform resource identifier  
 (b) unique resource locator  
 (c) unique resource identifier  
 (d) union resource locator
- 53. The term FTP stands for?**  
 (a) File transfer program  
 (b) File transmission protocol  
 (c) File transfer protocol  
 (d) File transfer protection
- 54. \_\_\_\_\_ is used for FTP data.**  
 (a) Port 20 (b) Port 21  
 (c) Port 22 (d) Port 23
- 55. The File Transfer Protocol is built on \_\_\_\_\_.**  
 (a) data centric architecture  
 (b) service oriented architecture  
 (c) client server architecture  
 (d) connection oriented architecture
- 56. IPv4 address length is \_\_\_\_\_ bits.**  
 (a) 16 (b) 32  
 (c) 64 (d) 128
- 57. How many address space can be generated in IPv4?**  
 (a) 2<sup>16</sup> (b) 2<sup>32</sup>  
 (c) 2<sup>64</sup> (d) 2<sup>128</sup>
- 58. IPv6 address length is \_\_\_\_\_ bits.**  
 (a) 16 (b) 32  
 (c) 64 (d) 128
- 59. Identify the class of the following IP address: 191.1.2.3.**  
 (a) class A (b) class B  
 (c) class C (d) none of the above
- 60. A host can get its IP address from its server by using \_\_\_\_\_ as the source address and \_\_\_\_\_ as the destination address.**  
 (a) 255.255.255.255; 0.0.0.0  
 (b) 127.0.0.0; 255.255.255.255  
 (c) 0.0.0.0; 255.255.255.255  
 (d) None of the above

## ANSWER KEYS

- |         |         |         |
|---------|---------|---------|
| 1. (a)  | 21. (c) | 41. (d) |
| 2. (d)  | 22. (b) | 42. (c) |
| 3. (c)  | 23. (a) | 43. (b) |
| 4. (d)  | 24. (d) | 44. (a) |
| 5. (b)  | 25. (d) | 45. (b) |
| 6. (a)  | 26. (d) | 46. (c) |
| 7. (a)  | 27. (b) | 47. (b) |
| 8. (a)  | 28. (b) | 48. (a) |
| 9. (b)  | 29. (a) | 49. (c) |
| 10. (a) | 30. (a) | 50. (c) |
| 11. (d) | 31. (b) | 51. (a) |
| 12. (a) | 32. (a) | 52. (b) |
| 13. (b) | 33. (d) | 53. (c) |
| 14. (b) | 34. (d) | 54. (a) |
| 15. (c) | 35. (b) | 55. (c) |
| 16. (d) | 36. (b) | 56. (b) |
| 17. (d) | 37. (a) | 57. (b) |
| 18. (c) | 38. (b) | 58. (d) |
| 19. (c) | 39. (b) | 59. (b) |
| 20. (a) | 40. (b) | 60. (c) |

## SET - II

**1. A Computer Network:**

- (a) Is a collection of hardware components and computers?
- (b) Is interconnected by communication channels
- (c) Allows sharing of resources and information
- (d) All of the above

**2. What is a Firewall in computer network?**

- (a) The physical boundary of network
- (b) An operating system of computer network
- (c) A system designed to prevent unauthorized access
- (d) A web browsing software

**3. What is the use of Bridge in the Network?**

- (a) To connect LANs
- (b) To separate LANs
- (c) To control network speed
- (d) All of the above

**4. Each IP packet must contain:**

- (a) Only Source address
- (b) Only Destination address
- (c) Source and Destination address
- (d) Source or Destination address

**5. Which of these is not a communication channel?**

- (a) Satellite                      (b) Microwave
- (c) Radio wave                  (d) Wi-Fi

**6. MAN Stands for \_\_\_\_.**

- (a) Metropolitan Area Network
- (b) Main Area Network
- (c) Metropolitan Access Network
- (d) Metro Access Network

**7. Which of the following is the smallest network?**

- (a) WAN                              (b) MAN
- (c) PAN                                (d) LAN

**8. Which transmission media is capable of having a much higher bandwidth (data capacity)?**

- (a) Coaxial
- (b) Twisted pair cable
- (c) Untwisted cable
- (d) Fiber optic

**9. Which type of transmission media is the least expensive to manufacture?**

- (a) Coaxial
- (b) Twisted pair cable
- (c) CAT cable
- (d) Fiber optic

**10. A device that forwards data packet from one network to another is called a**

- (a) Bridge                              (b) Router
- (c) Hub                                    (d) Gateway

- 11. What is a standalone computer?**  
(a) A computer that is not connected to a network  
(b) A computer that is being used as a server  
(c) A computer that does not have any peripherals attached to it  
(d) A computer that is used by only one person
- 12. Which of the following is the fastest media of data transfer?**  
(a) Co-axial Cable  
(b) Untwisted Wire  
(c) Telephone Lines  
(d) Fiber Optic
- 13. Hub is a**  
(a) Broadcast device  
(b) Unicast device  
(c) Multicast device  
(d) None of the above
- 14. Switch is a**  
(a) Broadcast device  
(b) Unicast device  
(c) Multicast device  
(d) None of the above
- 15. The device that can operate in place of a hub is a:**  
(a) Switch (b) Bridge  
(c) Router (d) Gateway
- 16. In computer, converting a digital signal in to an analog signal is called**  
(a) modulation (b) demodulation  
(c) conversion (d) transformation
- 17. What is the address size of IPv6?**  
(a) 32 bit (b) 64 bit  
(c) 128 bit (d) 256 bit
- 18. Which of these is not an example of unguided media?**  
(a) Optical Fiber Cable  
(b) Radio wave  
(c) Bluetooth  
(d) Satellite
- 19. Two devices are in network if**  
(a) A process in one device is able to exchange information with a process in another device  
(b) A process is running on both devices  
(c) The processes running of different devices are of same type  
(d) None of the above.
- 20. Which of the following is not the Networking Devices?**  
(a) Gateways (b) Linux  
(c) Routers (d) Firewalls
- 21. The location of a resource on the internet is given by its?**  
(a) Protocol (b) URL  
(c) E-mail address (d) ICQ
- 22. The term HTTP stands for?**  
(a) Hyper terminal tracing program  
(b) Hypertext tracing protocol  
(c) Hypertext transfer protocol  
(d) Hypertext transfer program

23. Which software prevents the external access to a system?  
(a) Firewall (b) Gateway  
(c) Router (d) Virus checker
24. Which one of the following is the most common internet protocol?  
(a) HTML (b) NetBEUI  
(c) TCP/IP (d) IPX/SPX
25. The term FTP stands for?  
(a) File transfer program  
(b) File transmission protocol  
(c) File transfer protocol  
(d) File transfer protection
26. Which one of the following is not a network topology?  
(a) Star (b) Ring  
(c) Bus (d) Peer to Peer
27. Which of the following is not a unit for data transfer rate?  
(a) MBPS (b) KBPS  
(c) SBPS (d) GBPS
28. This was the first network.  
(a) CSNET (b) NSFNET  
(c) ANSNET (d) ARPANET
29. A \_\_\_\_\_ is a data communication system within a building, campus, or between near by buildings.  
(a) MAN  
(b) LAN  
(c) WAN  
(d) None of the above
30. \_\_\_\_\_ is a collection of many separate networks.  
(a) A MAN (b) An internet  
(c) A LAN (d) None of the above
31. A \_\_\_\_\_ is a set of rules that governs data communication.  
(a) forum  
(b) protocol  
(c) standard  
(d) None of the above
32. Which of the following is required to communication between two computers?  
(a) Communication hardware  
(b) Communications software  
(c) Protocol  
(d) All of above including access to transmission medium
33. Bluetooth is an example of  
(a) Wide area network  
(b) Virtual private network  
(c) Local area network  
(d) Personal area network
34. A device which can be connected to a network without using cable is called  
(a) Distributed device  
(b) Centralized device  
(c) Open-source device  
(d) Wireless device
35. The vast network of computers that connects millions of people all over the world is called  
(a) Internet (b) Hypertext  
(c) LAN (d) Web

36. **MAC address is of \_\_\_\_\_.  
(a) 24 bits                      (b) 36 bits  
(c) 42 bits                      (d) 48 bits**
37. **Which of the following appears harmless but actually performs malicious functions such as deleting or damaging files.  
(a) WORM                      (b) Virus  
(c) Trojan Horse              (d) Malware**
38. **Name the protocol that is used to send emails.  
(a) FTP                      (b) SMTP  
(c) HTTP                      (d) TCP**
39. **Name the protocol that is used to receive emails  
(a) POP                      (b) VOIP  
(c) DHCP                      (d) FTP**
40. **Rajesh has purchased a new Smart TV and wants to cast a video from his mobile to his new Smart TV. Identify the type of network he is using:  
(a) LAN                      (b) MAN  
(c) WAN                      (d) PAN**
41. **The topology in which all nodes are individually connected to a central connection point:  
(a) Ring                      (b) Bus  
(c) Star                      (d) Tree**
42. **Which of the following best describes uploading information?  
(a) Sorting data on a disk drive  
(b) Sending information to a host computer  
(c) Receiving information from a host computer  
(d) Sorting data on a hard drive**
43. **The term IPv4 stands for?  
(a) Internet Protocol Version 4  
(b) Internet Programming Version 4  
(c) International Programming Version 4  
(d) None of these**
44. **In specific, if the systems use separate protocols, which one of the following devices is used to link two systems?  
(a) Repeater                      (b) Gateway  
(c) Bridge                      (d) Hub**
45. **DNS is the abbreviation of  
(a) Dynamic Name System  
(b) Dynamic Network System  
(c) Domain Name System  
(d) Domain Network Service**
46. **What is the meaning of Bandwidth in Network?  
(a) Transmission capacity of a communication channels  
(b) Connected Computers in the Network  
(c) Class of IP used in Network  
(d) None of Above**



- 47. What does protocol defines?**
- (a) Protocol defines what data is communicated.
  - (b) Protocol defines how data is communicated.
  - (c) Protocol defines when data is communicated.
  - (d) All of above
- 48. Which of the following can be Software?**
- (a) Routers                      (b) Firewalls
  - (c) Gateway                      (d) Modems
- 49. The loss in signal power as light travels down the fiber is called\_\_\_\_\_.**
- (a) Attenuation                      (b) Propagation
  - (c) Scattering                      (d) Interruption
- 50. Which of the following TCP/IP protocols is used for transferring files form one machine to another?**
- (a) FTP                              (b) SNMP
  - (c) SMTP                              (d) RPC
- 51. Which of the following protocol is used for remote terminal connection service?**
- (a) RARP                              (b) UDP
  - (c) FTP                              (d) TELNET
- 52. Which of the following is considered as the unsolicited commercial email?**
- (a) Virus
  - (b) Malware
  - (c) Spam
  - (d) All of the above
- 53. It can be a software program or a hardware device that filters all data packets coming through the internet, a network, etc. it is known as the\_\_\_\_\_.**
- (a) Antivirus                      (b) Firewall
  - (c) Cookies                      (d) Malware
- 54. The term "TCP/IP" stands for\_\_\_\_\_.**
- (a) Transmission Contribution Protocol / Internet Protocol
  - (b) Transmission Control Protocol / Internet Protocol
  - (c) Transaction Control protocol / Internet Protocol
  - (d) Transmission Control Protocol / Internet Protocol
- 55. Which of the following is a type of independent malicious program that never required any host program?**
- (a) Trojan Horse                      (b) Worm
  - (c) Trap Door                      (d) Virus
- 56. In order to ensure the security of the data / information, we need to \_\_\_\_\_ the data.**
- (a) Encrypt
  - (b) Decrypt
  - (c) Delete
  - (d) None of the above
- 57. Firewall is the type of \_\_\_\_\_.**
- (a) Virus
  - (b) Security threats
  - (c) Worm
  - (d) None of the above

58. It allows a visited website to store its own information about a user on the user's computer:
- (a) Spam                      (b) Cookies
  - (c) Malware                (d) Adware
59. In which of the following switching methods, the message is divided into small packets?
- (a) Message switching
  - (b) Packet switching
  - (c) Circuit switching
  - (d) None of these
60. Which of the following switch methods creates a point-to-point physical connection between two or more computers?
- (a) Message switching
  - (b) Packet switching
  - (c) Circuit switching
  - (d) None of these
61. MAC address is also called \_\_\_\_\_.  
 (a) Physical address  
 (b) Logical address  
 (c) Source address  
 (d) Destination address
62. ARPANET stands for \_\_\_\_\_.  
 (a) Advanced Recheck Projects Agency Internet  
 (b) Advanced Recheck Projects Agency Network  
 (c) Advanced Research Projects Agency Network  
 (d) Advanced Research Projects Agency Internet
63. Which of the following devices is not a networking device?
- (a) Hub
  - (b) Switch
  - (c) Bridge
  - (d) None of these
64. How many pins does RJ-45 contain?
- (a) Two                      (b) Four
  - (c) Eight                    (d) Ten
65. NIC Stands for -  
 (a) Network Identity Card  
 (b) Network Interface Code  
 (c) National Interface Card  
 (d) Network Interface Card
66. Which of the following is not a type of guided or wired communication channel?
- (a) Twisted Pair        (b) Coaxial
  - (c) Fibre Optic        (d) WiMax
67. Which of the following is not a type of unguided or wireless communications channel?
- (a) Microwave        (b) Radiowave
  - (c) Ethernet            (d) Sattelite
68. Which of the following wireless medium consists of a parabolic antena mounted on towers?
- (a) Sattelite              (b) Radiowave
  - (c) Microwave        (d) Infrared

69. Which of the following cable consist of a solid wire core surrounded by one or more foil or wire shields?
- (a) Ethernet Cables
  - (b) Coaxial Cables
  - (c) Fiber Optic Cables
  - (d) Power Cable
70. A collection of hyperlinked documents on the internet forms the ?
- (a) World Wide Web (WWW)
  - (b) E-mail system
  - (c) Mailing list
  - (d) Hypertext
71. Protocols are set of rules to govern \_\_\_\_\_
- (a) Communication
  - (b) Standard
  - (c) Metropolitan communication
  - (d) Bandwidth
72. An internet is a \_\_\_\_\_
- (a) Collection of WANS
  - (b) Network of networks
  - (c) Collection of LANS
  - (d) Collection of identical LANS and WANS
73. Which protocol is commonly used to retrieve email from a mail server?
- (a) FTP
  - (b) IMAP
  - (c) HTML
  - (d) TELNET
74. Which of the following allows user to view a webpage?
- (a) Operating System
  - (b) Website
  - (c) Interpreter
  - (d) Internet Browser
75. A network router joins two \_\_\_\_\_ together?
- (a) Computers
  - (b) Switches
  - (c) Networks
  - (d) Gateway
76. A network point that provides entrance into another network is called as \_\_\_\_\_
- (a) Node
  - (b) Gateway
  - (c) Switch
  - (d) Router
77. TELNET used \_\_\_\_\_ protocol for data connection
- (a) TCP
  - (b) UDP
  - (c) IP
  - (d) DHCP
78. Google Chrome is example of
- (a) Programming Language
  - (b) Web Server
  - (c) Protocol
  - (d) Web Browser
79. Name the transmission media best suitable for connecting to hilly areas.
- (a) Co-axial Cable
  - (b) Twisted pair
  - (c) Microwave
  - (d) Optical fiber
80. Rahul wants to establish computer network in his cyber café, which of the following device will be suggested by you to connect each computer in the cafe?
- (a) Switch
  - (b) Modem
  - (c) Gateway
  - (d) Repeater

## ANSWER KEYS

|         |         |         |         |
|---------|---------|---------|---------|
| 1. (d)  | 21. (b) | 41. (c) | 61. (a) |
| 2. (c)  | 22. (c) | 42. (b) | 62. (c) |
| 3. (a)  | 23. (a) | 43. (a) | 63. (d) |
| 4. (c)  | 24. (c) | 44. (b) | 64. (c) |
| 5. (d)  | 25. (c) | 45. (c) | 65. (c) |
| 6. (a)  | 26. (d) | 46. (a) | 66. (d) |
| 7. (c)  | 27. (c) | 47. (d) | 67. (c) |
| 8. (d)  | 28. (d) | 48. (b) | 68. (c) |
| 9. (b)  | 29. (b) | 49. (a) | 69. (b) |
| 10. (b) | 30. (b) | 50. (a) | 70. (a) |
| 11. (a) | 31. (b) | 51. (d) | 71. (a) |
| 12. (d) | 32. (d) | 52. (c) | 72. (b) |
| 13. (a) | 33. (d) | 53. (b) | 73. (b) |
| 14. (b) | 34. (d) | 54. (b) | 74. (d) |
| 15. (a) | 35. (a) | 55. (b) | 75. (c) |
| 16. (a) | 36. (d) | 56. (a) | 76. (b) |
| 17. (c) | 37. (c) | 57. (d) | 77. (a) |
| 18. (a) | 38. (b) | 58. (b) | 78. (d) |
| 19. (a) | 39. (a) | 59. (b) | 79. (c) |
| 20. (b) | 40. (d) | 60. (c) | 80. (a) |

## Very Short Answer Type Questions (1 mark)

1. Give one example of each - Guided media and unguided media.
2. Name the protocol that is used to transfer file from one computer to another.
3. Name the transmission media best suitable for connecting to desert areas.
4. Rearrange the following terms in increasing order of speedy medium of data transfer: Telephone line, Fiber Optics, Coaxial Cable, Twisted Paired Cable.
5. Which of the following appears harmless but actually performs malicious functions such as deleting or damaging files.  
(a) WORM                      (b) Virus  
(c) Trojan Horse      (d) Malware
6. Name the transmission media suitable to establish PAN.
7. Name the protocol that is used to upload and download files on internet
8. Name the protocol that is used to send emails.
9. Name the protocol that is used to receive emails.
10. Name the transmission media best suitable for connecting to hilly areas.
11. Name the fastest available transmission media.
12. Sunil has purchased a new Smart TV and wants to cast a video from his mobile to his new Smart TV. Identify the type of network he is using and explain it.

## ANSWER KEYS

1. Guided media- Twisted pair, Coaxial Cable, Optical Fiber (any one)  
Unguided media- Radio waves, Satellite, Micro Waves (any one)
2. FTP
3. Microwave
4. Telephone line, Twisted Pair Cable, Coaxial Cable, Fiber Optics.
5. (c) Trojan Horse
6. Bluetooth, infra-red
7. FTP or HTTP
8. SMTP
9. POP
10. Microwave / Radio wave.
11. OFC (Optical Fiber Cable)
12. Sunil is using PAN-Personal Area Network. It is a private network which is setup by an individual to transfer data among his personal devices of home.

## Short Answer Type Questions (2 marks)

1. Expand the following terms:  

|      |       |      |       |
|------|-------|------|-------|
| PAN  | LAN   | MAN  | WAN   |
| IPR  | SIM   | IMAP | HTTP  |
| URL  | POP3  | SMTP | V0IP  |
| TCP  | Wi-Fi | GPRS | IRC   |
| CDMA | TDMA  | VPN  | FLOSS |
| XML  | SMS   | GSM  | PHP   |
| FTP  | DHCP  | WWW  | WLL   |
| HTML |       |      |       |
2. What is difference between star topology and bus topology of network?
3. Write two advantages of using an optical fibre cable over an ethernet cable to connect two service stations, which are 190 m away from each other.
4. Differentiate between packet switching and message switching technique in network communication.
5. Which type of network (out of LAN, PAN and MAN) is formed, when you connect two mobiles using Bluetooth to transfer a picture file?
6. What is the difference between HTTP and FTP?
7. What is the advantage of using SWITCH over HUB?
8. What is difference between star topology and bus topology of network?
9. Define the term firewall.
10. What is the importance of URL in networking?

## ANSWER KEYS

- |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. PAN - Personal Area Network<br/> LAN - Local Area Network<br/> MAN - Metropolitan Area Network<br/> WAN - Wide Area Network<br/> IPR - Intellectual Property Rights<br/> SIM - Subscriber's Identity Module<br/> IMAP - Internet Message Access Protocol<br/> HTTP - Hypertext Transfer Protocol<br/> URL - Uniform Resource Locator<br/> POP3 - Post office protocol ver. III</li> </ol> | <p>SMTP - Simple Mail Transfer Protocol<br/> V0IP - Voice over Internet Protocol<br/> TCP - Transmission Control Protocol<br/> Wi-Fi - Wireless Fidelity<br/> GPRS - General Packet Radio Service<br/> IRC - Internet Relay Chat<br/> CDMA- Code Division Multiple Access<br/> TDMA- Time Division Multiple Access<br/> VPN - Virtual Private Network<br/> FLOSS - Free Libre Open Source Software</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

XML - eXtensible Markup Language

SMS - Short Messaging Service

GSM - Global system for mobile communication

PHP - Hypertext Preprocessor

FTP - File Transfer Protocol

DHCP - Dynamic Host Configuration Protocol

WWW - World Wide Web

WLL - Wireless Local Loop

HTML - Hyper Text Markup Language

2. In star topology, nodes are connected to server individually whereas in bus topology all nodes are connected to server along a single length of cable.
3. Low power because signals in optical fibers degrade less, lower power transmitters can be used. Higher data rate due to higher bandwidth, data rate of optical fiber is more than the data rate of ethernet cable (upto 1 Gbps).
4. Message Switching In message switching data is stored in buffer form. The message is, sent to the nearest directly connected switching node. This process continues until data is delivered to the destination computer. Packet Switching In this form of switching data is transferring into packet form. A fixed size of packet that can be transmitted across the network is specified. All the packets are stored in the main memory instead of disk.
5. When two mobiles are connected using bluetooth to transfer a picture file, a PAN (Personal Area Network) is created.
6. FTP is a protocol used to upload files from a workstation to a FTP server or download files from a FTP server to a workstation. HTTP is a protocol used to transfer files from a web server onto a browser in order to view a web page that is on the Internet.
7. Switch provides a dedicated line at full bandwidth between two devices but hub doesn't provide a dedicated line. Hub shares the bandwidth.
8. In star topology, nodes are connected to server individually whereas in bus topology all nodes are connected to server along a single length of cable.
9. Firewall is a feature used for Network Security. In a Network there is always danger of information leaking out or leaking in. Firewall is a feature which forces all information entering or leaving the network to pass through a check to make sure that there is no unauthorized usage of the network.
10. URL stands for Uniform Resource Locator. Each page that is created for Web browsing is assigned a URL that effectively serves as the page's worldwide name or address. URL's have three parts: the protocol, the DNS name of the machine on which the page is located and a local name uniquely indicating the specific page (generally the filename)

## Long Answer Type Questions

1. What is Computer Network? Discuss various types of computer networks with its advantages and disadvantages.
2. What is a network? What are its goals and applications?
3. Explain various wired and wireless technologies used in communication networks. Also highlight their merits and demerits.
4. What is a network topology? Explain the working of different topologies highlighting their merits and demerits.
5. Write the name of three network topologies. Describe them with their advantages and disadvantages.
6. Discuss and compare various types of networks.
7. What are hubs? What are its types?
8. What is the role of a switch in a network?
9. Briefly discuss the role of following devices in the context of networking.  
(i) Router            (ii) bridge            (iii) gateway
10. When would you prefer  
(i) bridges over hubs  
(ii) switch over other network devices?
11. Discuss IP Address in brief.
12. When would you opt for a router in a network?
13. What are hubs? How are active hubs different from passive hubs?
14. What are the facilities provided by the SERVER in a Network environment?
15. Compare circuit switching and packet switching.
16. Write Notes on:  
(i) HTTP            (ii) FTP            (iii) WWW            (iv) PPP



# UNIT - III

## Database Management

### SET - I

1. **What is the full form of SQL?**  
(a) Structured Query Language  
(b) Structured Query List  
(c) Simple Query Language  
(d) Data Derivation Language
2. **What does DML stand for?**  
(a) Different Mode Level  
(b) Data Model Language  
(c) Data Mode Lane  
(d) Data Manipulation Language
3. **The \_\_\_\_\_ clause of SELECT query allows us to select only those rows in the results that satisfy a specified condition.**  
(a) where (b) from  
(c) having (d) like
4. **Which of the following function is used to FIND the largest value from the given data in MYSQL?**  
(a) MAX () (b) MAXIMUM ()  
(c) LARGEST () (d) BIG ()
5. **The data types CHAR (n) and VARCHAR (n) are used to create \_\_\_\_\_ and \_\_\_\_\_types of string/text fields in a database.**  
(a) Fixed, equal (b) Equal, variable  
(c) Fixed, variable (d) Variable, equal
6. **The term \_\_\_\_\_ is use to refer to a record in a table.**  
(a) Attribute (b) Tuple  
(c) Row (d) Instance
7. **Which command is used for cleaning up the environment (sql with Python)?**  
(a) my.close (b) is.close  
(c) con.close (d) mycon.close
8. **A relational database consists of a collection of**  
(a) Tables (b) Fields  
(c) Records (d) Keys
9. **What is the full form of DDL?**  
(a) Dynamic Data Language  
(b) Detailed Data Language  
(c) Data Definition Language  
(d) Data Derivation Language
10. **A(n) in a table represents a logical relationship among a set of values.**  
(a) Attribute (b) Key  
(c) Tuple (d) Entry
11. **Name the method which is used for displaying only one resultset.**  
(a) fetchmany (b) fetchno  
(c) fetchall (d) fetchone

12. Name the host name used for signing in the database.

- (a) localhost
- (b) localpost
- (c) localcost
- (d) none of the above

13. A relational database consists of a collection of

- (a) Tuples                      (b) Attributes
- (c) Relations                (d) Keys

14. Which is the subset of SQL commands used to manipulate database structure including tables?

- (a) Data Definition Language (DDL)
- (b) Data Manipulation Language (DML)
- (c) Both (a) and (b)
- (d) None

15. The term \_\_\_\_\_ is used to refer to a field in a table.

- (a) Attribute                (b) Tuple
- (c) Row                      (d) Instance

16. Consider the following table namely employee:

| Employee_id | Name  | Salary |
|-------------|-------|--------|
| 5001        | Amit  | 60000  |
| 5009        | Sumit | 45000  |
| 5020        | Arpit | 70000  |

Which of the names will not be displayed by the below given query? `SELECT name FROM employee WHERE employee_id>5009;`

- (a) Amit, Sumit            (b) Sumit, Arpit
- (c) Arpit                    (d) Amit, Arpit

17. Consider the following query

```
SELECT name FROM stu
WHERE subject LIKE '_____ Computer
Science';
```

Which one of the following has to be added into the blank space to select the subject which has Computer Science as its ending string?

- (a) \$                              (b) \_
- (c) ||                             (d) %

18. Consider following SQL statement. What type of statement is this?

```
SELECT * FROM employee
```

- (a) DML
- (b) DDL
- (c) DCL
- (d) Integrity constraint

19. Which of the following function is not an aggregate function?

- (a) Round ()                (b) Sum()
- (c) Count ()                (d) Avg ()

20. Pick the correct username used for logging in database (sql with Python).

- (a) root                      (b) local
- (c) directory                (d) host

21. Aggregate functions can be used in the select list or the \_\_\_\_\_ clause of a select statement.

They cannot be used in a \_\_\_\_\_ clause.

- (a) Where, having
- (b) Having, where
- (c) Group by, having
- (d) Group by, where

22. **Select correct SQL query from below to find the temperature in increasing order of all cities.**
- (a) `SELECT city FROM weather ORDER BY temperature;`
  - (b) `SELECT city, temperature FROM weather;`
  - (c) `SELECT city, temperature FROM weather ORDER BY temperature;`
  - (d) `SELECT city, temperature FROM weather ORDER BY city;`
23. **In SQL, which command is used to SELECT only one copy of each set of duplicable rows**
- (a) `SELECT DISTINCT`
  - (b) `SELECT UNIQUE`
  - (c) `SELECT DIFFERENT`
  - (d) All of the above
24. **Which of the following is a SQL aggregate function?**
- (a) `LEFT`                      (b) `AVG`
  - (c) `JOIN`                      (d) `LEN`
25. **The command used for modifying the records is:**
- (a) `update`
  - (b) `add`
  - (c) `updateall`
  - (d) none of the above
26. **An attribute in a relation is foreign key if it is the \_\_\_\_ key in any other relation.**
- (a) Candidate                      (b) Primary
  - (c) Super                          (d) Sub
27. **Which of the following sublanguages of SQL is used to query information from the data base and to insert tuples into, delete tuples from, and modify tuples in the database?**
- (a) DML (Data Manipulation Language)
  - (b) DDL (Data Definition Language)
  - (c) Query
  - (d) Relational Schema
28. **Which operator performs pattern matching?**
- (a) `BETWEEN` operator
  - (b) `LIKE` operator
  - (c) `EXISTS` operator
  - (d) None of these
29. **Which of the following is not a legal method for fetching records from database from within Python?**
- (a) `fetchone()`
  - (b) `fetchtwo()`
  - (c) `fetchall()`
  - (d) `fetchmany()`
30. **By default, ORDER BY clause lists the results in \_\_\_\_\_ order.**
- (a) Descending                      (b) Any
  - (c) Same                              (d) Ascending
31. **Which of the following attributes can be considered as a choice for primary key?**
- (a) Name                              (b) Street
  - (c) Roll No.                          (d) Subject

**32. In the given query which keyword has to be inserted?**

INSERT INTO employee\_\_\_\_\_ (1002, "Kausar", 2000);

- (a) Table                      (b) Values
- (c) Relation                (d) Field

**33. What SQL statement do we use to display the record of all students whose last name contains 5 letters ending with "A"?**

- (a) SELECT \* FROM STUDENTS WHERE LNAME LIKE '\_\_\_\_\_A';
- (b) SELECT \* FROM STUDENTS WHERE LNAME LIKE '\_\_\_\_\_';
- (c) SELECT \* FROM STUDENTS WHERE LNAME LIKE '????A';
- (d) SELECT \* FROM STUDENTS WHERE LNAME LIKE '\*A';

**34. Consider the table with structure as: Student (ID, name, dept name, tot\_cred) In the above table, which attribute will form the primary key?**

- (a) Name                      (b) Dept
- (c) total\_credits          (d) ID

**35. Which of the following will you use in the following query to display the unique values of the column**

dept\_name?

SELECT \_\_ dept\_name FROM Company;

- (a) All                        (b) From
- (c) Distinct                (d) Name

**36. Consider the following query:**

SELECT name, instructor name, course \_\_\_\_\_ id FROM instructor;

To display the field heading course with a different heading as id, which keyword must be used here to rename the field name?

- (a) From                      (b) Rename
- (c) As                        (d) Join

**37. With SQL, how do you select all the records from a table named "Students" where the value of the column "FirstName" ends with an "a"?**

- (a) SELECT \* FROM Students WHERE FirstName = 'a'
- (b) SELECT \* FROM Students WHERE FirstName LIKE 'a%'
- (c) SELECT \* FROM Students WHERE FirstName LIKE '%a'
- (d) SELECT \* FROM Students WHERE FirstName = '%a%'

**38. The HAVING clause does which of the following?**

- (a) Acts EXACTLY like WHERE clause
- (b) Acts like a WHERE clause but is used for columns rather than groups
- (c) Acts like a WHERE clause but is used for groups rather than rows
- (d) Acts like a WHERE clause but is used for rows rather than columns.

**39. Which clause is used with "aggregate functions"?**

- (a) GROUP BY                (b) SELECT
- (c) WHERE                    (d) Both (a) and (b)

40. To open a connector to MySql database, which statement is used to connect with mysql?
- (a) Connector      (b) Connect  
(c) password      (d) username
41. If column "Marks" contains the data set {25, 35, 25, 35, 38},  
What will be the output after the execution of the given query?  
**SELECT MARKS (DISTINCT) FROM STUDENTS;**
- (a) 25. 35. 25. 35. 38  
(b) 25, 25, 35, 35  
(c) 25, 35, 38  
(d) 25, 25, 35, 35
42. Which connector is used for linking the database with Python code?
- (a) MySQL-connector  
(b) YesSQL: connector  
(c) PostSQL: connector  
(d) None of the above
43. If column "Salary" contains the data set {1000, 15000, 25000, 10000, 15000},  
What will be the output after the execution of the given query?  
**SELECT SUM (DISTINCT SALARY) FROM EMPLOYEE;**
- (a) 75000      (b) 25000  
(c) 10000      (d) 50000
44. SQL applies conditions on the groups through \_\_\_\_\_ clause after groups have been formed,
- (a) Group by      (b) With  
(c) Where      (d) Having
45. To execute all the rows from the result set, which method is used?
- (a) fetchall      (b) fetchone  
(c) fetchmany      (d) none of the above
46. What is the meaning of "HAVING" clause is SELECT query?
- (a) To filter out the summary groups  
(b) To filter out the column groups  
(c) To filter out the row and column values  
(d) None of the mentioned
47. Which of the following queries contains an error?
- (a) Select \* from emp where empid = 10003;  
(b) Select empid from emp where empid = 10006;  
(c) Select empid from emp;  
(d) Select empid where empid=1009 and lastname='GUPTA';
48. Which operator tests column for the absence of data (i.e., NULL value) ?
- (a) EXISTS operator  
(b) NOT operator  
(c) IS operator  
(d) None of these

- 49. Consider the following query:**  
 SELECT name FROM class WHERE  
 subject\_\_\_\_\_NULL;  
 Which comparison operator may be used  
 to fill the blank space in above query?
- (a) = (b) LIKE  
 (c) IS/IS Not (d) if
- 50. Which SQL function is used to count the number of rows in a SQL query?**
- (a) COUNT () (b) NUMBER ()  
 (c) SUM () (d) COUNT (\*)
- 51. With SQL, how can you return the number of not null record in the Project field of "Students" table?**
- (a) SELECT COUNT (Project) FROM Students  
 (b) SELECT COLUMNS (Project) FROM Students  
 (c) SELECT COLUMNS (\*) FROM Students  
 (d) SELECT COUNT (\*) FROM Students
- 52. Which of the following is not an aggregate function?**
- (a) Avg (b) Sum  
 (c) With (d) Min
- 53. All aggregate functions except \_\_\_\_\_ ignore null values in their input collection.**
- (a) Count (attribute) (b) Count (\*)  
 (c) Avg (d) Sum
- 54. Which of the following group functions ignore NULL values?**
- (a) MAX (b) COUNT  
 (c) SUM (d) All of the above
- 55. What will be the order of the data being sorted after the execution of given query SELECT \* FROM STUDENT ORDER BY ROLL\_NO;**
- (a) Custom Sort  
 (b) Descending  
 (c) Ascending  
 (d) None of the above
- 56. Where and Having clauses can be used interchangeably in SELECT queries?**
- (a) True (b) False  
 (c) Only in views (d) With order by
- 57. A \_\_\_\_\_ is property of the entire relation, which ensures through its value that each tuple is unique in a relation.**
- (a) Rows (b) Key  
 (c) Attribute (d) fields
- 58. The operation whose result contains all pairs of tuples from the two relations, regardless of whether their attribute values match.**
- (a) Join  
 (b) Cartesian product  
 (c) Intersection  
 (d) Set difference

59. Consider following SQL statement.  
What type of statement is this?  
**CREATE TABLE** employee (name  
**VARCHAR**, id **INTEGER**)

- (a) DML
- (b) DDL
- (c) DCL
- (d) Integrity constraint

60. The pattern '\_\_\_\_' matches any string  
of \_\_\_\_ three character. '\_\_\_\_%'  
matches any string of \_\_\_\_ three  
characters.

- (a) Atleast, Exactly
- (b) Exactly, Atleast
- (c) Atleast, All
- (d) All, Exactly

## ANSWER KEYS

- |        |        |        |
|--------|--------|--------|
| 1 (a)  | 21 (b) | 41 (c) |
| 2 (d)  | 22 (d) | 42 (a) |
| 3 (a)  | 23 (a) | 43 (d) |
| 4 (a)  | 24 (b) | 44 (d) |
| 5 (c)  | 25 (a) | 45 (a) |
| 6 (b)  | 26 (b) | 46 (a) |
| 7 (d)  | 27 (a) | 47 (d) |
| 8 (a)  | 28 (b) | 48 (c) |
| 9 (c)  | 29 (b) | 49 (c) |
| 10 (c) | 30 (d) | 50 (d) |
| 11 (d) | 31 (c) | 51 (a) |
| 12 (a) | 32 (b) | 52 (c) |
| 13 (c) | 33 (a) | 53 (b) |
| 14 (b) | 34 (d) | 54 (d) |
| 15 (a) | 35 (c) | 55 (c) |
| 16 (a) | 36 (c) | 56 (b) |
| 17 (d) | 37 (c) | 57 (b) |
| 18 (a) | 38 (c) | 58 (b) |
| 19 (a) | 39 (a) | 59 (b) |
| 20 (a) | 40 (b) | 60 (b) |

## SET - II

1. **The degree of a relation is the number of \_\_\_\_\_ it contains.**  
(a) Records                      (b) Keys  
(c) Attributes                  (d) Relations
2. **In database system \_\_\_\_\_ key is used to identify tuples uniquely in a relation.**  
(a) Primary key              (b) Secondary key  
(c) Internal key              (d) Foreign key
3. **The Cardinality of a relation is the number of \_\_\_\_\_ it contains.**  
(a) Records                  (b) Keys  
(c) Attributes                  (d) Relations
4. **A \_\_\_\_\_ is the reference key between two tables.**  
(a) Primary key              (b) Candidate key  
(c) Foreign key              (d) Super key
5. **COMMIT & ROLLBACK are \_\_\_\_\_ statements.**  
(a) DDL                      (b) DML  
(c) DCL                      (d) TCL
6. **GRANT and REVOKE are \_\_\_\_\_ statements.**  
(a) DDL                      (b) DML  
(c) DCL                      (d) TCL
7. **The SYSDATE () function returns the current date and time in the format \_\_\_\_\_.**  
(a) YY-MM-DD HH:MM:SS  
(b) DD-MM-YYYY HH:MM:SS  
(c) YYYY-MM-DD HH:MM:SS  
(d) None of these
8. **Types of SQL Commands are -**  
(a) DDL                      (b) DML  
(c) DCL                      (d) All of the above
9. **Full form of DDL is -**  
(a) Data Describe Language  
(b) Definition Data Language  
(c) Data Definition Language  
(d) Data Distinct Language
10. **Commands that comes under DDL is/are -**  
(a) CREATE                  (b) DROP  
(c) TRUNCATE              (d) All of the above
11. **Full form of DML is -**  
(a) Data Multiplication Language  
(b) Data Manipulation Language  
(c ) Data Modify Language  
(d) Data Mapping Language
12. **Which of the following is/are TRUE about DDL command?**  
(a) Our data is stored in a table that is described by the schema, thus DDL commands deal with the schema.  
(b) With the DDL commands, any structural changes can be made to the table, including creation, deletion, and alteration.  
(c) Both (a) and (b)  
(d) None of the above



**13. Command that comes under DML is/ are -**

- (a) ROLLBACK      (b) GRANT
- (c) UPDATE          (d) All of the above

**14. Select the correct statement.**

- (a) With the DDL commands, any structural changes can be made to the table, including creation, deletion and alteration.
- (b) With the DML commands, any structural changes can be made to the table, including creation, deletion, and alteration.
- (c) With the DCL commands, any structural changes can be made to the table, including creation, deletion, and alteration.
- (d) With the TCL commands, any structural changes can be made to the table, including creation, deletion, and alteration.

**15. Full form of DCL is -**

- (a) Data Control Language
- (b) Data Commit Language
- (c) Data Common Language
- (d) Data Concatenate Language

**16. Command that comes under DCL is/are -**

- (a) GRANT
- (b) REVOKE
- (c) Both (a) and (b)
- (d) None of the above

**17. Full form of TCL is -**

- (a) Transaction Common Language
- (b) Transaction Commit Language
- (c) Transaction Concatenate Language
- (d) Transaction Control Language

**18. Commands that come under TCL is/are -**

- (a) COMMIT
- (b) ROLLBACK
- (c) SAVEPOINT
- (d) All of the above

**19. What is TRUE about SAVEPOINT?**

- (a) Following the completion of a transaction, it must be executed to save all the operations performed in the transaction.
- (b) A transaction can be rolled back to its last saved state.
- (c) A specific part of a transaction can be given a name.
- (d) None of the above

**20. Following the completion of a transaction, it must be executed to save all the operations performed in the transaction. Here we are talking about which command?**

- (a) REVOKE
- (b) COMMIT
- (c) ROLLBACK
- (d) SAVE

**21. Difference between GRANT & REVOKE command is/are?**

- (a) The GRANT command can be used to grant a user access to databases and tables whereas the REVOKE command can be used to revoke all access privileges already assigned to the user.
- (b) The REVOKE command can be used to grant a user access to databases and tables whereas The GRANT command can be used to revoke all access privileges already assigned to the user.
- (c) A transaction can be rolled back to its last saved state.
- (d) None of the above

**22. Which of the following statement(s) is/are TRUE about DCL?**

- (a) The DCL commands in SQL allow us to control which users have access to the data stored in SQL tables.
- (b) There will be certain privileges that each user has; consequently, the data can be accessed by them.
- (c) The DCL commands in SQL allow us to grant privileges to a user on the SQL database and its table(s), or revoke privileges that have already been granted.
- (d) All of the above

**23. The table records can be retrieved using which command?**

- (a) RETRIEVE      (b) SELECT
- (c) CREATE        (d) ALTER

**24. Which command use to delete data from a table?**

- (a) REMOVE        (b) DELETE
- (c) DROP           (d) None of these

**25. Which command is use to delete a table?**

- (a) REMOVE        (b) DELETE
- (c) DROP           (d) None of these

**26. Which of the following is TRUE about TCL?**

- (a) Transactions can be saved to the database and rolled back with the help of TCL commands in SQL.
- (b) There will be certain privileges that each user has; consequently, the data can be accessed by them using TCL.
- (c) Our data is stored in a table that is described by the schema, thus TCL commands deal with the schema.
- (d) SQL TCL commands can be used to perform any kind of retrieval or manipulation of the data present in SQL tables.

**27. Which is/are the OPTIONAL Clause in SELECT statement?**

- (a) WHERE        (b) ORDER BY
- (c) HAVING        (d) All of these

**28. Which statement is TRUE about the WHERE Clause?**

- (a) In order to retrieve rows, WHERE Clause is used.
- (b) In order to group the rows, WHERE Clause is used.

- (c) In order to select the defined groups, WHERE Clause is used.
- (d) In order to return the rows, WHERE Clause is used.
- 29. Which statement is TRUE about the GROUP BY Clause?**
- (a) In order to retrieve rows, GROUP BY Clause is used.
- (b) In order to group the rows that share the same property, GROUP BY Clause is used.
- (c) In order to select the defined groups, GROUP BY Clause is used.
- (d) In order to return the rows, GROUP BY Clause is used.
- 30. Which statement is TRUE about the HAVING Clause?**
- (a) In order to group the rows, HAVING Clause is used.
- (b) In order to return the rows, HAVING Clause is used.
- (c) In order to select the defined groups by the GROUP BY Clause, HAVING Clause is used.
- (d) None of the above
- 31. Which statement is TRUE about the ORDER BY Clause?**
- (a) In order to return the rows in a specific order, ORDER BY Clause is used.
- (b) In order to group the rows, ORDER BY Clause is used.
- (c) In order to select the defined groups, ORDER BY Clause is used.
- (d) None of the above
- 32. Which of the following clause cannot be optional in SQL SELECT Statement?**
- (a) WHERE (b) GROUP BY
- (c) ORDER BY (d) None of the above
- 33. Which of the following clause is optional in SQL SELECT Statement?**
- (a) SELECT (b) FROM
- (c) HAVING (d) None of the above
- 34. Which clause is used to retrieve a unique element from the table?**
- (a) SELECT UNIQUE
- (b) SELECT DISTINCT
- (c) Both (a) and (b)
- (d) None of the above
- 35. What is the functionality of SQL COUNT?**
- (a) It returns the number of record of table
- (b) It returns the number of record of database
- (c) It returns the no of record of row
- (d) It returns the no of record of column
- 36. In SQL SELECT COUNT, one needs to specify the -**
- (a) Column Name
- (b) Row Name
- (c) Table Name
- (d) None of the above
- 37. Using the SQL first() function, one can return the \_\_\_\_ value of the selected column.**
- (a) First (b) Second
- (c) Third (d) Last

- 38. Which function combines the two different columns?**  
 (a) ADD (b) MERGE  
 (c) CONCAT (d) None of the above
- 39. What is the difference between HAVING and WHERE clause?**  
 (a) HAVING clause is used in column operation whereas WHERE clause is used in row operation.  
 (b) HAVING clause is post-filter whereas WHERE clause is pre-filter.  
 (c) HAVING clause filters the groups whereas WHERE clauses filter the single record of the table.  
 (d) All of the above
- 40. What is the difference between MIN and MAX function?**  
 (a) MIN function is used to show the minimum data and MAX function is used to show the maximum data.  
 (b) MIN function is used to show the maximum data and MAX function is used to show the minimum data.  
 (c) Both of the above  
 (d) None of the above
- 41. In order to sort the records according to the columns, which clause is used?**  
 (a) HAVING (b) GROUP BY  
 (c) ORDER BY (d) None of the above
- 42. By default, sorting by ORDER BY clause is done in which order?**  
 (a) Ascending (b) Descending  
 (c) Both (a) and (b) (d) None of these
- 43. What is the keyword of the Ascending and Descending?**  
 (a) ASCE, DESC (b) ASC, DES  
 (c) ASCE, DES (d) ASC, DESC
- 44. SQL INSERT is used to insert a -**  
 (a) Single or Multiple records  
 (b) Single or Multiple databases  
 (c) Single or Multiple tables  
 (d) None of the above
- 45. In order to insert a row directly in the table, which command is used?**  
 (a) INSERT IN  
 (b) INSERT INSIDE  
 (c) INSERT UNDER  
 (d) INSERT INTO
- 46. What is the clause to delete all rows from the table?**  
 (a) SQL DELETE ALL ROWS Table\_Name;  
 (b) SQL DELETE ROWS Table\_Name;  
 (c) DELETE FROM ALL ROWS Table\_Name;  
 (d) DELETE FROM Table\_Name;
- 47. In order to delete duplicate rows from the table, which keyword is used?**  
 (a) DELETE (b) DISTINCT  
 (c) FROM (d) WHERE
- 48. In order to delete the database, which keyword is used?**  
 (a) DROP (b) DELETE  
 (c) ALTER (d) None of the above

49. Which SQL function is used to count the number of rows in a SQL query?
- (a) COUNT ()      (b) NUMBER ()  
(c) SUM ()      (d) COUNT (\*)
50. Which SQL keyword is used to retrieve a maximum value?
- (a) MOST      (b) TOP  
(c) MAX      (d) UPPER
51. \_\_\_\_ is not a category of SQL command.
- (a) TCL      (b) SCL  
(c) DCL      (d) DDL
52. If you don't specify ASC or DESC after a SQL ORDER BY clause, the following is used by default \_\_\_\_
- (a) ASC      (b) DESC  
(c) There is no default value  
(d) None of the mentioned
53. Which of the following statement is true?
- (a) DELETE does not free the space containing the table and TRUNCATE free the space containing the table  
(b) Both DELETE and TRUNCATE free the space containing the table  
(c) Both DELETE and TRUNCATE does not free the space containing the table  
(d) DELETE free the space containing the table and TRUNCATE does not free the space containing the table
54. What is the purpose of the SQL AS clause?
- (a) The AS SQL clause is used to change the name of a column in the result set or to assign a name to a derived column  
(b) The AS clause is used with the JOIN clause only  
(c) The AS clause defines a search condition  
(d) All of the mentioned
55. Which of the following is a legal expression in SQL?
- (a) SELECT NULL FROM SALES;  
(b) SELECT NAME FROM SALES;  
(c) SELECT \* FROM SALES WHEN PRICE = NULL;  
(d) SELECT # FROM SALES;
56. DCL provides commands to perform actions like
- (a) Change the structure of Tables  
(b) Insert, Update or Delete Records and Values  
(c) Authorizing Access and other control over Database  
(d) None of Above
57. Which of the following command makes the updates performed by the transaction permanent in the database?
- (a) ROLLBACK      (b) COMMIT  
(c) TRUNCATE      (d) DELETE

## ANSWER KEYS

- |         |         |         |         |
|---------|---------|---------|---------|
| 1. (c)  | 16. (c) | 31. (a) | 46. (d) |
| 2. (a)  | 17. (d) | 32. (d) | 47. (b) |
| 3. (a)  | 18. (d) | 33. (c) | 48. (a) |
| 4. (c)  | 19. (c) | 34. (c) | 49. (d) |
| 5. (d)  | 20. (b) | 35. (a) | 50. (c) |
| 6. (c)  | 21. (a) | 36. (a) | 51. (b) |
| 7. (c)  | 22. (d) | 37. (a) | 52. (a) |
| 8. (d)  | 23. (b) | 38. (c) | 53. (a) |
| 9. (c)  | 24. (b) | 39. (d) | 54. (a) |
| 10. (d) | 25. (c) | 40. (a) | 55. (b) |
| 11. (b) | 26. (a) | 41. (c) | 56. (c) |
| 12. (c) | 27. (d) | 42. (a) | 57. (b) |
| 13. (c) | 28. (a) | 43. (d) |         |
| 14. (a) | 29. (b) | 44. (a) |         |
| 15. (a) | 30. (c) | 45. (d) |         |

## Fill in the Blanks

1. SQL stands for \_\_\_\_\_ Query Language.
2. A connectivity package such as \_\_\_\_\_ must be imported before writing database connectivity Python code.
3. The SQL keyword \_\_\_\_\_ is used to specify the table(s) that contains the data to be retrieved.
4. To remove duplicate rows from the result of a query, specify the SQL qualifier \_\_\_\_\_ in select list.
5. To obtain all columns, use a(n) \_\_\_\_\_ instead of listing all the column names in the select list.
6. The SQL \_\_\_\_\_ clause contains the condition that specifies which rows are to be selected.
7. To sort the rows of the result table, the \_\_\_\_\_ clause is specified.
8. Columns can be sorted in descending sequence by using the SQL keyword \_\_\_\_\_
9. When two conditions must both be true for the rows to be selected, the conditions are separated by the SQL keyword \_\_\_\_\_
10. To refer to a set of values needed for a condition, we can use the SQL operation \_\_\_\_\_
11. To exclude one or more values (a list of values) using a condition, the SQL keyword \_\_\_\_\_ should be used.
12. The SQL keyword \_\_\_\_\_ is used in SQL expressions to select based on patterns.
13. The SQL built-in function \_\_\_\_\_ totals values in numeric columns.
14. The SQL built-in function \_\_\_\_\_ obtains the largest value in a numeric column.
15. The SQL built-in function \_\_\_\_\_ obtains the smallest value in a numeric column.
16. The SQL built-in function \_\_\_\_\_ computes the number of rows in a table.
17. The SELECT clause \_\_\_\_\_ is used to collect those rows that have the same value in a specified column.
18. \_\_\_\_\_ method returns the result set in the form of tuples containing the records or rows returned by the sql table.
19. A session between the application program and the database is called \_\_\_\_\_
20. A \_\_\_\_\_ query is used to check if data has been added to the table or not.
21. The \_\_\_\_\_ function works with data of multiple rows at a time and returns aggregated value.
22. The \_\_\_\_\_ clause lets you arrange the result set in the order of single column, multiple column and custom sort order too.
23. To specify filtering condition for groups, the \_\_\_\_\_ clause is used in MYSQL.
24. By default, the ORDER BY clauses sorts the result set in the \_\_\_\_\_ order.
25. To sort the result set in descending order, \_\_\_\_\_ keyword is used with ORDER BY.

## ANSWER KEYS

- |                    |                                     |
|--------------------|-------------------------------------|
| 1. Structured      | 14. MAX                             |
| 2. Mysql.connector | 15. MIN                             |
| 3. FROM            | 16. COUNT                           |
| 4. DISTINCT        | 17. GROUP BY                        |
| 5. Asterisk (*)    | 18. Fetchall()                      |
| 6. WHERE           | 19. Connection                      |
| 7. ORDER BY        | 20. Select                          |
| 8. DESC            | 21. Group/row/ aggregation function |
| 9. AND             | 22. ORDER BY                        |
| 10. IN             | 23. Having                          |
| 11. NOT IN         | 24. Ascending                       |
| 12. LIKE           | 25. DESC                            |
| 13. SUM            |                                     |



## True/False Questions

1. The condition in a WHERE clause in a SELECT query can refer to only one value
2. SQL provides the AS keyword, which can be used to assign meaningful column names to the results of queries using the SQL built-in functions.
3. The rows of the result relation produced by a SELECT statement can be sorted but only by one column.
4. SQL is a programming language.
5. SELECT DISTINCT is used if a user wishes to see duplicate columns in a query.
6. The HAVING clause acts like a WHERE clause, but it identifies groups that meet a criterion, rather than rows.
7. The qualifier DISTINCT must be used in an SQL statement when we want to Eliminate duplicate rows.
8. DISTINCT and its counterpart, ALL, can be used more than once in a SELECT statement.
9. DISTINCT and its counterpart, ALL, can be used together on single field in a SELECT statement.
10. SUM, AVG, MIN and MAX can only be used with numeric columns
11. The SQL statement: SELECT salary + Comm AS Total FROM Emp; adds two fields salary and comm from each row together and lists the results in a column named Total.
12. ORDER BY can be combined with the SELECT statement.
13. Data manipulation language (DML) commands are used to define a database, including creating, altering, and dropping tables and establishing constraints.
14. The keyword LIKE can be used in a WHERE clause to refer to a range of values.
15. The SQL keyword GROUP BY instructs the DBMS to group together those rows that have the same value in a column.
16. The keyword BETWEEN can be used in a WHERE clause to refer to a range of values.
17. Read operation on any table means to fetch some useful information from the table.
18. Use fetchall() method to retrieve only one value from a database table.
19. Row count is a read-only attribute.
20. To disconnect database connection, use connect () method.
21. Update statement is used to insert data into the table.
22. The ORDER BY clause combines all those records that have identical values in a particular field or a group of fields.

23. The WHERE clause is used to specify filtering conditions for groups.
24. DISTINCT option causes a group function to consider only the unique values of the argument expression.
25. By default, ORDER BY clause sorts the result set in descending order.
26. COUNT () function ignores duplicate and null values while counting the records.
27. The return value of MAX () function is a numeric value.
28. Multiple row function is also known as scalar function
29. SUM () function is used to count the total number of records in a table.
30. Argument type of AVG () function can be numeric or string data type.

## ANSWER KEYS

- |           |           |
|-----------|-----------|
| 1. False  | 16. True  |
| 2. True   | 17. True  |
| 3. False  | 18. False |
| 4. False  | 19. True  |
| 5. False  | 20. False |
| 6. True   | 21. False |
| 7. True   | 22. False |
| 8. False  | 23. False |
| 9. False  | 24. True  |
| 10. True  | 25. False |
| 11. True  | 26. True  |
| 12. True  | 27. True  |
| 13. False | 28. False |
| 14. False | 29. False |
| 15. True  | 30. False |

## Very Short Answer Type Questions (1 mark)

1. Name the command/clause which is used to display the records in ascending or descending order.
2. Give example of any two DML commands.
3. What is the purpose of SQL?
4. What is primary key?
5. Which command is used to display a list of already existing tables?
6. Which command is used to change the structure of table?
7. Which command is used to change the data of the table?
8. Which command is used to delete data of the table?
9. Which command delete the structure of table?
10. Identify the DDL and DML commands from the following: Create, Delete
11. Which clause is used with aggregate functions? (Group by/ Where)
12. What do you mean by candidate key?
13. Correct the error in the following query.  
Select \* from RECORD where Rname = %math%;
14. What is max () function in SQL?
15. What do you mean by degree and cardinality of table?
16. Expand DDL and DML
17. Which command is used to increase the salary of workers in table salary? (Update /Alter)
18. Name the command used to see the structure of table.
19. Which aggregate function is used to find sum of column in a table?
20. What is the difference between having and where clause?
21. Name an aggregate function in SQL which return the average of numeric values.
22. What is the use of "like" in SQL?
23. Correct the following statement: Delete table data;
24. What do you mean by aggregate function?
25. Write two wild card characters which are used with like operator?
26. Duplication of record is called \_\_\_\_\_
27. What is the difference between char and varchar?

## ANSWER KEYS

1. order by clause
2. Insert, Delete
3. SQL is structured query language. It is a standard language of all the RDBMS
4. A field which is unique for each and every record in table is called primary key.
5. show tables;
6. Alter
7. Update
8. Delete
9. Drop
10. Create -DDL and Delete --DML
11. Group by
12. Those fields which can act as primary key is called candidate key
13. Select \* from RECORD where Rname like %math%;
14. It returns the largest value from a particular column.
15. Number of columns in table is called degree. Number of rows in a table is called cardinality.
16. DDL - Data Definition Language, DML - Data Manipulation Language.
17. Update
18. Desc
19. sum()
20. Having clause can be used with group by clause while where clause can be used without group by clause.
21. avg()
22. "Like" operator is used to match a particular pattern in a particular column in SQL.
23. Delete from data
24. A function which perform calculation on multiple values and return single value
25. % and underscore( \_ )
26. Redundancy
27. Char is fixed length data type and varchar is variable length data type

## Short Answer Type Questions (2 marks)

1. What is the difference between cardinality and degree?
2. Differentiate between WHERE and HAVING clause.
3. Define Primary Key of a relation in SQL. Give an Example using a dummy table.
4. Consider the following Python code is written to access the record of CODE passed to function: Complete the missing statements:  

```
def Search(eno):

#Assume basic setup import, connection
and cursor is created

query="select * from emp where
empno=_____".format(eno)

mycursor.execute(query)

results = mycursor._____

print(results)
```
5. Differentiate between DDL and DML with one Example each.
6. Answer the following:
  - i) Name the package for connecting Python with MySQL database.
  - ii) What is the purpose of cursor object?
7. What do you mean by domain of an attribute in DBMS? Explain with an example.
8. Differentiate between fetchone() and fetchmany() methods with suitable examples.
9. What is Constraint? Give example of any two constraints.
10. Write the steps to perform an Insert query in database connectivity application.  
Table 'student' values are rollno, name, age  
(10,'Ashok',26)
11. Define Candidate Key and Alternate Key with suitable examples from a table containing some meaningful data.
12. Define RDBMS. Name any two RDBMS software.
13. What is the purpose of the following clauses in a select statement?  
i) ORDER BY ii) HAVING
14. Write SQL queries for the following:
  - i. Create the table Product with appropriate data types and constraints.
  - ii. Identify the primary key in Product.
15. Write any two differences between Single\_row functions and Aggregate functions.

## ANSWER KEYS

1. **Degree** - The number of attributes or columns in a relation is called the Degree of the relation.  
  
**Cardinality** - The number of tuples/ rows in a relation is called the Cardinality of the relation.
2. WHERE clause is used to select particular rows that satisfy a condition whereas HAVING clause is used in connection with the aggregate function, GROUP BY clause.  
For ex. -  
select \* from student where marks > 75;  
  
This statement shall display the records for all the students who have scored more than 75 marks. On the contrary, the statement -  
select \* from student group by stream having marks > 75; shall display the records of all the students grouped together on the basis of stream but only for those students who have scored marks more than 75.
3. Primary Key- one or more attribute of a relation used to uniquely identify each and every tuple in the relation. For Example : In the below Table Student, RollNo can be the Primary Key  

| RollNo | Name | Marks |
|--------|------|-------|
| 01     | Aru  | 95    |
| 02     | Rubi | 85    |
4. {} and fetchone()
5. DDL- Data definition language. Consists of commands used to modify the metadata of a table. For Example- create table, alter table, drop table DML-Data manipulation language. Consist of commands used to modify the data of a table. For Example- insert, delete, update
6. i) import mysql.connector  
ii) It is the object that helps to execute the SQL queries and facilitate row by row processing of records in the resultset.
7. Domain of an attribute is the set of values from which a value may come in a column. E.g. Domain of section field may be (A,B,C,D).
8. fetchone() is used to retrieve one record at a time but fetchmany(n) will fetch n records at a time from the table in the form of a tuple.
9. Constraints are the checking condition which we apply on table to ensure the correctness of data . Example primary key, not null, default, unique etc
10. 

```
import mysql.connector as mydb
conn=mydb.connect(host="localhost",
user="root", passwd="1234")
cur=conn.cursor()
cur.execute("INSERT INTO student
values(10,'Ashok',26);")
cur.commit()
```

11. A table may have more than one such attribute/group of attributes that identifies a tuple uniquely, all such attribute(s) are known as Candidate Keys. All the candidate key except primary key are called Alternate key.

Table: Employee (empno, aadhar\_no, voter\_id, ename, deptno, sal, city)

In the above table Employee: empno, aadhar\_no, voter\_id all are candidate key. If we define empno as primary key then remaining candidate keys will be alternate key.

12. RDBMS stands for Relational Database Management System. It is a program that offers commands to create, update, and manage the data with multiple tables.

Examples of RDBMS are 1. MySQL  
2. Oracle 3. Microsoft SQL Server.

13. i) Order By : This clause is used to arrange the records in ascending or descending order.

Example: Select \* from book order by price;

- ii) Having : HAVING Clause in SQL is used to specify conditions on the rows with GROUP BY clause.

Example: Select sum(price) from book group by (subject) having price > 100;

14. i) Create table product (Pcode varchar(3) not null Primary key, PName Varchar(20), UPrice int(4), Manufacture Varchar(20));

- ii) Pcode is primary key.

15.

| Single row Functions                                                 | Multiple row functions/ Aggregate Functions                                             |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| It operates on a single row at a time                                | It operates on multiple rows.                                                           |
| It returns one result per row                                        | It returns one result for multiple rows                                                 |
| It can be used in Select, Where, and Order by clause.                | It can be used in the select clause only.                                               |
| Math, String and Date functions are examples of single row functions | Max(), Min(), Avg(), Sum(), Count() and Count(*) are examples of multiple row functions |

## Long Type Questions

1. What is database? What are the advantages and disadvantages of using database?
2. What is Key? Explain primary key, candidate key, alternate key and foreign key with example.
3. What is SQL? What are different categories of commands available in SQL?
4. What is SQL? Discuss DCL and DML commands with examples
5. Differentiate between DDL and DML commands.
6. Differentiate between CHAR and VARCHAR data types.
7. (a) Which key word is used to sort the records of a table in descending order?  
(b) Which command is used to modify the records of the table?  
(c) Which clause is used to remove the duplicate rows of the table?  
(d) Differentiate between Primary key and Candidate key,  
(e) Differentiate between Degree and Cardinality key.
8. Explain Aggregate functions of SQL with examples.
9. Discuss connecting SQL with Python.
10. (a) Write two examples of DBMS software.  
(b) What is meant by NULL value in MySQL?  
(c) Table 'Club' has 4 rows and 3 columns. Table 'Member' has 2 rows and 5 columns. What will be the cardinality of the Cartesian product of them?
11. The SQL SELECT provides clauses for sorting data and for summarizing results. Write the names of clauses for these.
12. What are aggregate functions? What is their use? Give some examples.
13. What are different types of SQL functions?
14. What is the significance of GROUP BY clause in a SQL query?
15. What type of functions can you use with GROUP BY and HAVING clauses?
16. What is the difference between a WHERE clause and a HAVING clause of SQL SELECT statement?



# PRACTICE SET

## PART - A

Select the most appropriate option out of the options given for each question.

1. **If a user tries to remove an element from empty Stack, it is called**
  - (a) Empty Collection
  - (b) Overflow
  - (c) Underflow
  - (d) Garbage Collection
2. **Which of the following is application of Stack?**
  - (a) One Way Traffic
  - (b) A line of ticket seeking people
  - (c) Reversing the order of items
  - (d) Printer shared among four computers
3. **Consider the following operation performed on a stack of size 5.**  
Push(1); Pop();Push(2);Push(3); Pop();  
Push(4);Pop();Pop();Push(5);  
After the completion of all operation, the numbers of elements present in stack are:
  - (a) 1
  - (b) 2
  - (c) 3
  - (d) 4
4. **Network in which every computer is capable of playing the role of a client, or a server or both at same time is called**
  - (a) local area network
  - (b) peer-to-peer network
  - (c) dedicated server network
  - (d) wide area network
5. **In computer, converting a digital signal in to an analog signal is called**
  - (a) modulation
  - (b) demodulation
  - (c) conversion
  - (d) transformation
6. **Which of the following keywords will you use in the following query to display the unique values of the column dept\_name?**
  - (a) all
  - (b) from
  - (c) distinct
  - (d) unique
7. **The pattern '\_\_\_\_' matches any string of \_\_\_\_\_ three characters. '\_\_\_\_%' matches and string of \_\_\_\_\_ three characters.**
  - (a) Atleast, Exactly
  - (b) Exactly, Atleast
  - (c) Atleast, All
  - (d) All, Exactly
8. **All aggregate functions except \_\_\_\_\_ ignore null values in their input collection.**
  - (a) count(attribute)
  - (b) count(\*)
  - (c) avg
  - (d) none of these

## PART - B

### SECTION - 1

9. Expand the following-
- i. SMTP                      ii. DHCP
  - iii. HTTP                    iv. TCP
10. Define Web-Hosting?
- OR
- Give difference between Video Conferencing and Chat.
11. Give difference between CHAR and VARCHAR. Give Example.
12. What do you understand by the terms Candidate Key? What is Cardinality?
13. The SQL SELECT provides clauses for sorting data and for grouping results. Write the names of clauses for these.

### SECTION - 2

14. Each node of a Stack contains the following information: PINCODE and NAME of city. Write a PUSH CITY() function to implement push on stack like operation to add a node to Stack.
- OR
- Write a POP CITY() function to implement pop from stack like operation to remove a node (same as above) from Stack.
15. A department is considering maintaining their worker data using SQL to store the data. As a Database Administrator, Karan has decided that: Name of the database - Department Name of the table - Worker The attributes of Worker are as follows:
- WORKER\_ID - CHARACTER OF SIZE 3  
FIRST\_NAME - CHARACTER OF SIZE 10  
LAST\_NAME - CHARACTER OF SIZE 10  
SALARY - NUMERIC  
JOINING\_DATE - DATE
- (i) Karan wants to remove all the data from table WORKER from the database department. Which command will he use from the following?
- a) DELETE FROM WORKER;
  - b) DROP TABLE WORKER;
  - c) DROP DATABASE Department;
  - d) DELETE \* FROM WORKER;
- (ii) Identify the attribute best suitable to be declared as a primary key.
- (iii) Karan wants to increase the size of the FIRST\_NAME column from 10 to 20 characters. Write an appropriate query to change the size.
- (iv) Write a query to display the structure of the table Worker, i.e. name of the attribute and their respective data types.

## ANSWER KEYS

### Part-A

1. c) UNDERFLOW
2. c) Reversing the order of items 1
3. a) 1
4. b) peer-to-peer network
5. a) modulation
6. c) distinct
7. b) Exactly, Atleast
8. a) count(attribute)

### Part - B

9. Expand the following-
  - i. SIMPLE MAIL TRANSFER PROTOCOL
  - ii. DYNAMIC HOST CONFIGURATION PROTOCOL
  - iii. HYPERTEXT TRANSFER PROTOCOL
  - iv. TRANSMISSION CONTROL PROTOCOL
10. When a hosting provider allocates space on a web server for a website to store its files, they are hosting a website. OR  
Video Conferencing Chat Audio as well Visuals are shared only text communicated. High Bandwidth required Works with low bandwidth also.
11. CHAR is used to occupy fixed memory irrespective of the actual values but VARCHAR uses only that much memory which is used actually for the entered values. E.g. CHAR(10) will occupy always 10 bytes in memory no matter how many characters are used in values. But VARCHAR will uses only that much bytes of memory whose values are passed.

12. CANDIDATE KEY A Candidate key is the one that is capable of becoming primary key. CARDINALITY OF A RELATION  
Cardinality of a relation represents number of rows in the relation.

13. ORDER BY for sorting GROUP BY for grouping data

14. city=[]  
def PUSHCITY(cityname,pincode):  
city.insert(0,[cityname,pincode])

OR

```
city=[]
def POPCITY():
if len(city)==0:
print("Underflow")
return None
return city.pop()
```

15. (i) d) DELETE \* FROM WORKER;  
(ii) WORKER\_ID  
(iii) ALTER TABLE WORKER MODIFY FIRST\_NAME VARCHAR(20)  
(iv) DESC WORKER/DESCRIBE WORKER



