

Practice Questions - Class: XII
Session: 2021-22
Computer Science (Code 083)
(Theory: Term-1)

1. If the value of `i` is 5, the expression `i != 6`
 - a. has the value `False`
 - b. has the value `True`
 - c. sets the value of `i` to 6
 - d. sets the value of `i` to -5

2. The main difference between the modes `'w'` and `'a'` when opening a file in Python is that
 - a. `'w'` is used for writing a file and `'a'` for reading a file.
 - b. `'w'` over-writes an existing file while `'a'` writes to the end of the file.
 - c. `'w'` is used with text files while `'a'` is used with binary files.
 - d. `'w'` gives an error if the file does not exist while `'a'` creates it with no error.

3. Sushma gets the current date and time as a string `x`. Its value is `"2021-10-30 12:49:44.216062"`. Sushma prints the value of `x[11:16]` and gets `"12:49"`. Which of these will contain the date in `yyyy-mm-dd` format?
 - a. `x[0:9]`
 - b. `x[0:10]`
 - c. `x[1:10]`
 - d. `x[1:11]`

4. Python's `Pickle` module is used for serializing and de-serializing any Python object structure and dumping / loading it to or from a binary file. Which of these is a case where it can be useful?
 - a. graphically representing the contents of any Python object on the screen
 - b. sorting a large list of numbers in ascending or descending order quickly
 - c. storing the data in any Python object for later reconstruction or use
 - d. compressing a large dataset so that it can be saved in less than a tenth of the space

5. Which of these Python data structures cannot have duplicate items and does not support ordering?

- a. list
- b. tuple
- c. dictionary
- d. set

6. Which of these Python data structures would be most suited to store the list of Indian states and their corresponding capitals?

- a. list
- b. tuple
- c. dictionary
- d. set

7. The statement `p -= 5` has the same effect as which of these statements?

- a. `p = 5`
- b. `p = -5`
- c. `p = p - 5`
- d. `p = 5 - p`

8. Which output lines of the following program will print the same results?

```
tup1 = (10, 20, 30, 40, 50, 60, 70, 80, 90)
print(tup1[5:-1])           # 1
print(tup1[5])             # 2
print(tup1[5:])            # 3
print(tup1[-4:8])          # 4
```

- a. (1) and (2)
- b. (1) and (4)
- c. (2) and (3)
- d. (1), (3) and (4)

9. Every time Raj's python program accesses the internet, it records the time and website accessed in a log file 'internet_access.log'. This is one of the sample lines in the log file:

```
2021-09-01 10:03:00, www.google.com
```

Which of these lines would be used by the program to open the file?

- a. `logfile = open('internet_access.log', 'rb')`
- b. `logfile = open('internet_access.log', 'w')`
- c. `logfile = open('internet_access.log', 'a+')`
- d. `logfile = open('internet_access.log', 'ab')`

10. Which of these functions can be used to set a file's current position?
- a. `seek()`
 - b. `set()`
 - c. `tell()`
 - d. `open()`
11. When setting the current position of a file, the position CANNOT be set with reference to which of these?
- a. the beginning of the file
 - b. the current file position
 - c. the middle of the file
 - d. the end of the file
12. If a function is defined by the line `"def calculate(p, q=100, r=10):"`, which of the following is true?
- a. `p` is an optional parameter
 - b. `q` and `r` are optional parameters
 - c. `q` will always have value 100 in the function
 - d. the above line will cause a syntax error
13. Which of these points about the return statement is FALSE?
- a. A return statement can only be used inside a function
 - b. A return statement can be used without any expression
 - c. When encountered, a return statement terminates a function
 - d. A function cannot have more than one return statements
14. A CSV file
- a. is a text file
 - b. can store images
 - c. is a type of python program
 - d. is a Computer Software Validation file
15. Python's `abs()` function returns the absolute value of number passed to it. For example `abs(5)` is equal to 5 and `abs(-3.1) = 3.1`. What will be the value of
- `abs(3 - abs(-10))`
- a. 13
 - b. -13
 - c. -7
 - d. 7

16. Which of these statements about text and binary files is true?

- a. A text file has the same number of characters in each line unlike a binary file.
- b. A text file has a special End Of File character unlike a binary file.
- c. An HTML file is an example of a text file while a CSV file is an example of a binary file.
- d. Every character in a text file can occur in a binary file but the reverse is not true.

Read the below and answer questions 17 and 18:

The exponentiation operator in Python (`**`) has higher precedence than the division (`/`) and multiplication (`*`) operators, meaning that `**` will be evaluated before `/` and `*` in an expression. Operators `/` and `*` have the same precedence.

Further, `**` evaluates from *right to left*, meaning that if an expression has multiple operators of the same precedence of `**`, the operator on the right will be evaluated *before* the operator on the left. On the other hand, `/` and `*` evaluate from *left to right*.

17. Which operator will be evaluated first in this expression?

`6 * 3 ** 2 ** 2 / 2`

- a. `*`
- b. the first `**` from the left
- c. the second `**` from the left
- d. `/`

18. What will be the value of this expression:

`4 / 2 ** 3 * 2`

- a. 16.0
- b. 1.0
- c. 1/4
- d. 1/16

19. Which of these statements about `for` and `while` loops in Python is TRUE?

- a. A `for` loop usually run a given number of times; a `while` loop runs while a condition is met.
- b. Statements in a `for` loop are always run at least once; those in a `while` loop may never be run.
- c. A `for` loop cannot contain another `for` loop; a `while` loop can contain another `while` loop.
- d. A `for` loop always has to have a loop counter; a `while` loop never uses a loop counter.

20. How does a Python program know where a `FOR` block ENDS?

- a. when it finds a closing bracket (`}`) character
- b. when it finds the keyword `ENDFOR`
- c. when it finds a line with matching indentation
- d. when it finds a colon (`:`) character

21. Sonal wrote the following program `print_students.py` to print the number of students in her class.

```
class = 5
section = "A"
students = 30
print ("There are", students, "students in class", class, section)
```

However, when she ran the program, she got the following output:

```
File ".\print_students.py", line 1
    class = 5
      ^
SyntaxError: invalid syntax
```

Which of these changes will make the program run without error?

- writing `'=='` instead of `'='` (correct assignment operator)
- writing `"5"` instead of `5` (variable should be a string)
- changing the variable name (`'class'` is a reserved word)
- adding a colon (`':'`) at the end of the statement (begin indented block)

Read the following and answer questions 22 and 23:

A log file records the time, userid, record number and number of bytes read from a certain database. Each of the fields uses a fixed number of bytes. The last 3 lines of the file were as follows at some time:

```
2021-08-09 10:21:20::0014::06733628::00001024
2021-08-09 10:22:03::0443::06384626::00001024
2021-08-09 10:22:52::0014::00549374::00001024
```

22. What is the inter-field delimiter used by the file?

- Comma (,)
- Colon (:)
- Double-colon (::)
- Hyphen (-)

23. Which of these lines will return the latest entry from the file? (Assume the file handler is `file` and `SEEK_START` and `SEEK_END` represent the offsets from the beginning and end of the file respectively)

- `file.seek(-45, SEEK_END)`
- `file.seek(45, SEEK_END)`
- `file.seek(135, SEEK_START)`
- `file.seek(-135, SEEK_START)`

24. The advantage of opening a file using the `with` clause instead of the `open()` function is that:

- the access mode does not have to be specified
- the file does not have to explicitly be closed
- the filename does not have to be specified
- the file gets opened for reading and writing

25. What should appear in the place of the '?' symbol in the table below?

```
mystring = "I love Python"
```

Expression	Value
mystring[-1]	n
mystring[-3:]	hon
mystring[5:-4]	?

- e. e Py
- f. ve
- g. evol
- h. ython

26. Identify the error in the program below:

```
import pickle
print("The data that were stored in file are: ")
fileobject=open("mydata.dat","r")
objectvar=pickle.load(fileobject)
fileobject.close()
print(objectvar)
```

- a. The 3rd line should be fileobject=open("mydata.dat","rb")
- b. The 4th line should be objectvar=pickle.dump(fileobject)
- c. The fileobject.close() statement should come AFTER the print(objectvar) statement
- d. The last line should be print(fileobject)

27. What will be the output of this program?

```
p = None
q = 0
r = ""
s = "None"
if (p == q):
    print ("None is the same as 0")
elif (p == r):
    print ("None is the same as empty string")
elif (p == s):
    print ("None is the same as the string 'None'")
else:
    print ("None of the above")
```

- a. None is the same as 0
- b. None is the same as empty string
- c. None is the same as the string 'None'
- d. None of the above

In Python, lists are mutable and tuples immutable. See the program and answer questions 28 and 29:

```
list_items = ["Sachin", "Dravid", "Kapil", "Dhoni", "Sourav"]
tuple_items = ("Sunday", "Monday", "Tuesday", "Wednesday", "Thursday")
list_items[4] = "Harbhajan"
tuple_items[4] = "Friday"
print(list_items[4], tuple_items[4])
```

28. In python, the term mutable means:

- a. memory-efficient
- b. fixed
- c. changeable
- d. sequential

29. What will be the output of this program?

- a. Sourav Thursday
- b. Harbhajan Friday
- c. An error will be reported on line 3
- d. An error will be reported on line 4

30. What will be the output of this program? (All quotes shown are double quotes)

```
message = "My favourite movie is "3 Idiots""
print(message[23:])
```

- a. 3 Idiots
- b. 3 Idiots""
- c. Syntax error on line 1
- d. Syntax error on line 2

31. What will be the output of this program?

```
question = "How are you, Ravi?"
x = txt.find(",")
y = txt.find("?")
print(txt[x+2:y])
```

- a. How are you Ravi
- b. How are you
- c. Ravi
- d. Ravi?

32. What will be the output of this program?

```
m = 1
n = "1"
print (str(m) + n)
```

- a. 1
- b. 2
- c. 11
- d. Syntax Error

33. What will be the output of this Python line?

```
print("This is Delhi. # Delhi is the capital of India.") # This is a comment.
```

- a. This is Delhi.
- b. This is Delhi. # Delhi is the capital of India. # This is a comment.
- c. This is Delhi. # Delhi is the capital of India.
- d. This is Delhi. This is a comment.

34. What will be the output of this program?

```
p = "12"  
q = "5"  
r = 10  
s = 8  
print(p+q, r+s)
```

- a. 17 18
- b. 125 108
- c. 17 108
- d. 125 18

Study the following program which has an unintended error and answer questions 35 and 36. [Recall that range (m, n) is all integers from m to n-1]

```
i = 1  
while (i <= 10):  
    sum = 0  
    for x in range(1,i+1):  
        sum += x  
    print(i, sum)
```

For every number i from 1 to 10
Set sum to 0
Add every number from 1 to i
print the result

35. What is the programmer trying to do in the program?

- a. Print all the odd numbers from 1 to 10
- b. Print the total of all numbers from 1 to 10
- c. For each number till 10, print the sum of numbers between 1 and the number.
- d. For each number till 10, print the sum of the number and its previous number

36. Identify the error in the program

- a. sum = 0 should be BEFORE the while statement
 - b. The range should be from 0 (not 1) to i + 1
 - c. i = i + 1 should be added after the print statement
 - d. There is no error in the program
-

37. What will this program output? [Recall that $5 \% 3 = 2$, $10 \% 2 = 0$ and $7 \% 3 = 1$]

```
for i in range(0, 100):
    if (i % 3 == 0) or (i % 4 == 0):
        continue
    print(i)
```

- All numbers less than 100 that are multiples of 12
- All numbers less than 100 that are NOT multiples of 12
- All numbers less than 100 that are multiples of 3 or 4
- All numbers less than 100 that are NOT multiples of 3 or 4

38. See the following program snippet which lists out the names of all students:

```
student_list = ["Ravi", "Sunita", "Gopal", "Salma", "Lily"]
number_of_students = len(student_list)

i = 0
while i <= number_of_students:
    print(student_list[i])
    i += 1
```

When it was run, it gave the following error on the last line

IndexError: list index out of range

Which of these will correct the error?

- Replacing `i = 0` with `i = 1`
- Replacing `i <= number_of_students` with `i < number_of_students`
- Replacing `student_list[i]` with `student_list[i-1]`
- Replacing `i += 1` with `i = i + 1`

39. See the code below using Python's pickle module to STORE data into file 'Latlong data':

```
import pickle

data = ['New Delhi', '28.6139° N', '77.2090° E']

file = open('Latlong data', ____ (1) ____ )
pickle.__(2)__(data, file)
file.close()
```

What, respectively, should appear in blanks (1) and (2)?

- 'rb' and dump
- 'wb' and dump
- 'rb' and load
- 'wb' and load

40. What will be the value of p and r at the end of this program?

```
p = 40
r = 50
p = p + r
r = p - r
p = p - r
print (p, r)
```

- a. p = 40, r = 40
- b. p = 50, r = 50
- c. p = 50, r = 40
- d. p = 40, r = 50

Read the following and answer questions 41 and 42.

File 'RoadNotTaken.txt' has these lines:

```
Two roads diverged in a wood, and I-
I took the one less traveled by,
And that has made all the difference.
```

The following code opens this file:

```
fp = open("RoadNotTaken.txt", 'r')
poem = fp.readlines()
print (len(poem))
fp.close()
```

41. What is the data type of the variable poem?

- a. string
- b. list
- c. tuple
- d. dictionary

42. What will be the output of the above program?

- a. 2
- b. 3
- c. 8
- d. 22

43. The score of a student in a test is stored as a Python tuple. The test had 3 questions, with some questions having subparts whose scores are recorded separately.

```
score = (6, (5, (2, 1), 8), (4, 3, (1, 3, 2)))
print (score[2][2])
```

What will be the output of this program snippet?

- a. (1, 3, 2)
- b. (2, 1)
- c. 3
- d. 8

44. What will be the output of the program snippet below?

```
def phone_with_country_code (phone_number, country="India"):
    country_codes = {"India": "+91", "Singapore": "+65", "United States": "+1"}
    if country not in country_codes:
        return("Country is not supported")
    return (country_codes[country] + " " + phone_number)

print(phone_with_country_code("9876500001"), "|", phone_with_country_code("203-607-1232", "United States"))
```

- a. India 9876500001 | United States 203-607-1232
- b. +91 9876500001 | +1 203-607-1232
- c. 9876500001 | +1 203-607-1232
- d. 9876500001 | United States 203-607-1232

45. The choice() method of Python's random module returns a random element from a list. See the program below.

```
import random

suits = ("Hearts", "Clubs", "Diamonds", "Spades")
cards = ("Ace", "2", "3", "4", "5", "6", "7", "8", "9", "Jack", "Queen", "King")

card_picked = random.choice(cards) + " of " + random.choice(suits)
print(card_picked)
```

Which of these COULD be an output of this program?

- a. Hearts Ace
- b. Diamonds of Queen
- c. 7 of King
- d. Jack of Clubs

46. Study the manual entry for the split() method given below.

split (*sep=None, maxsplit=- 1*)

Return a list of the words in the string, using *sep* as the delimiter string. If *maxsplit* is given, at most *maxsplit* splits are done (thus, the list will have at most *maxsplit+1* elements). If *maxsplit* is not specified or `-1`, all possible splits are made.

What will be the output of the program given below?

```
string = "2021-08-09 10:22:03::0443::06384626::00001024"

parts = string.split("::", 2)
print(parts)
```

- a. ['2021-08-09 10:22:03', '0443::06384626::00001024']
- b. ['2021-08-09 10', '22', '03::0443::06384626::00001024']
- c. ['2021-08-09 10:22:03', '0443', '06384626::00001024']
- d. ['2021-08-09 10:22:03', '0443', '06384626', '00001024']

47. What will be the output of this program?

```
p = 1
q = 6

def change_values():
    global p
    q = 5
    p = p + q
    return (p)

change_values()
print(p, q)
```

- a. 6 5
- b. 1 5
- c. 6 6
- d. 1 6

Read the information below and answer questions 48 and 49

In Python and other languages, a 'regular expression' is a pattern of characters in which some characters have a special meaning. Specifically:

- 1. Any characters enclosed within square brackets ([]) represent any one of those characters
- 2. A * following a character represents zero or more of those characters.
- 3. All letters and digits represent themselves

Thus:

ab* could represent 'a', 'ab', 'abb', 'abbb' and so on but NOT 'bbb' or 'aba'. (Rules 2 and 3)

star[ekt] could represent 'stare', 'stark' or 'start' but NOT 'star' or 'are' (Rules 1 and 3)

a[bcd]* could represent 'a', 'ab', 'abc', 'acdd' and so on but not 'aba' or 'aa' (Rules 1-3)

48. Which of these would NOT be represented by [ab]c*?

- a. ac
- b. abc
- c. bc
- d. bccc

49. A factory codes its products using a series of letters and numbers. Each code starts with 10, 11 or 12 (representing different production locations), followed by an S, M or L (for Small, Medium or Large), followed by a 4 digit number. Which of the following would represent this?

- a. [101112][SML]1234
- b. 1[012]SML[123456789]
- c. 1[012][SML][0123456789][0123456789][0123456789][0123456789]
- d. [012][012][SML][0123456789][0123456789][0123456789][0123456789]

Nagesh and Simran have written this Python program. It asks for a student's name and roll no. If both match the records in a CSV file, it displays the student's English, Maths and Computer Science marks.

The marks data is stored in a file student_marks.csv whose first 3 rows are as shown below:

```
Name, Roll No, Comments, English, Maths, Computer Science
Nagesh Rao, 12342, , 85, 92, 96
Simran Shah, 14324, Absent for English test, A, 87, 99
Ravi Gulati, 43234, , 76, 97, 81
```

Study the program and answer the questions that follow:

```
import csv

print("Enter your name and roll number to see your subject marks...\n")
name = input("Enter Name exactly as in Hall Ticket: ")
rollno = input("Enter Roll No.: ")

with open('student_marks.csv' _____ (1) _____) as csv_file:
    csv_reader = csv.reader(csv_file, delimiter=',')
    line_count = 0
    match_found = False
    for row in csv_reader:
        line_count += 1
        if line_count == 1:
            _____ (2) _____
        else:
            if row[0].lower() == name.lower() and row[1] == rollno:
                match_found = True
                eng_marks = row[3]
                maths_marks = row[4]
                cs_marks = row[5]
                print("\n"+row[0]+"s marks are:\nEnglish:", eng_marks)
                print("Maths:", maths_marks, "\nComp Sc:", cs_marks, "\n\nThank you!")
                _____ (3) _____
    if match_found == False:
        print ("\nNo matching name and roll number found. Please check and re-enter")
```

50. What mode of opening should come in blank 1?

- a. w
- b. a
- c. wb
- d. <nothing is needed - r is default>

51. What statements, respectively, should come in blanks 2 and 3? Choose the BEST answer.

- a. continue and continue
- b. break and break
- c. break and continue
- d. continue and break

52. What is the data type of the variable `match_found`?

- a. bytes
- b. str
- c. int
- d. bool

53. The file `student_marks.csv` contains a comment field in every row. Which of these comments may cause the program to fail to read that row properly?

- a. New student who joined school in Dec
- b. School Topper in English!
- c. Absent for English, Maths papers
- d. `<empty string>`

54. Which of these is an error in the program?

- a. `line_count` should be initialised to 1 (not 0) in line 9.
- b. The last 2 lines should have one less indentation.
- c. The file opened for reading is not closed using `close()`.
- d. None of the above.

55. For the names shown in the sample data, assuming the roll number is entered correctly, which of these will NOT find a match?

- a. Nagesh Rao
- b. Simram
- c. Ravi Gulati
- d. Simran shah