SHARJAH INDIAN SCHOOL,JUWAIZA

Computer Science Winter Holiday Worksheet Practice

Questions Grade XI C,D

Objective: To revise the portions covered and prepare students for the Annual Exam.


Note: Worksheets are basically for reinforcement with sample questions on the topics covered. Revise all the questions that we discussed in the class.

Unit 1-Computer System Organization

1. Explain the basic architecture of a computer?

2. What is the function of memory in computer?

3. What is the role of input unit and output unit in a computer?

4. Distinguish between CPU and ALU?

5. Differentiate RAM and ROM.

6. What is a language processor? Differentiate between Interpreter and Compiler

7. What is system software? What role does it play in the functioning of the computer ?

8. What is the role of utility software in the context of computer performance?

9. Explain cache memory.

10. What is the use of registers in a computer?

11. Learn about input unit and output unit.

12. Examples for printers.

13. Learn about secondary memory with examples.

14. What are device drivers?

15. What is an operating system and how it is important for any computer?

16. Differentiate compiler and interpreter.

17. Define the following gates and draw logic circuit diagram

    (a) OR Gate (b) AND Gate

    (c) NOT Gate (d) NAND Gate   (e) NOR Gate

18. What is truth table?

19. Obtain logic expression for logic diagram
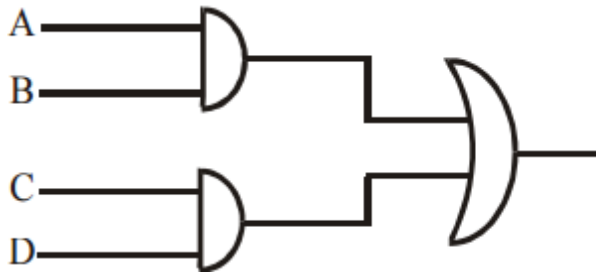
20.   Obtain logic expression for logic diagram
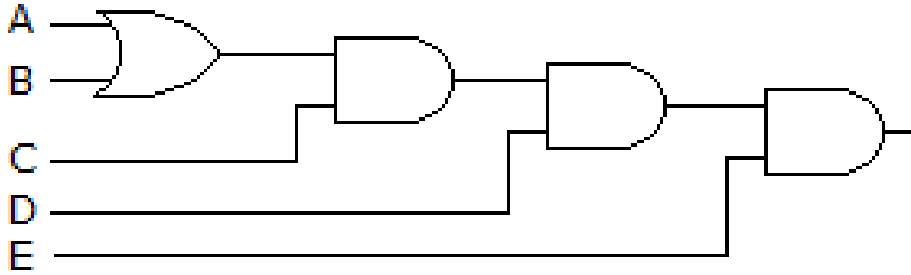
21.   Design a logic circuit to realize the Boolean function $f(x,y) = x.y + x'.y'$
        State De Morgan's laws and prove it with a truth table.

22. What is Boolean algebra?

23. Define Logic Gates.

24. Convert the following-

        (i) $(97)_{10}$ to binary

        (ii) $(63.25)_{10}$ to binary

        (iii) $(110.01)_2$ to decimal

Python programming fundamentals

25.   Explain the difference between interactive mode and script mode?

26. Is python cross platform language, how?

27. What is the role of indention in Python?

28. What are variables?

29. Differentiate keyword and identifier.

30. What are tokens in Python? Learn all the tokens given in the textbook.

31. What will be the output of following?

        a=20

        b=a+1

        a=33

print(a+b)

32. What is wrong with following code fragment?

a=20

print(a)

b=33

print(b)

33. How comments are given in Python program?

34. Python Program to find Area of a Rectangle and Perimeter of a Rectangle

35. Define flowchart.

36. What is the use of range() function in python?

37. What is an empty statement?

38. What are jump statements in python? Explain each with examples.

39.   Write following expressions in Python.

a)

$$a^n \times a^m = a^{n+m}$$

b)

$$\frac{1}{3}b^2h$$

Conditional Statements

40. What are loops in Python? How many types of loop are there in Python?

41. Rewrite the following code fragment using for loop.

```
i=100
while(i>0):
    print(i)
    i-=3
```

42. What is the error in following code. Rewrite the correct code.

```
weather='raining'
if weather='sunny':
    print('wear sunblock')
elif weather='snow':
    print('Going skiing')
else:
    print("None of the above")
```

43. What is the output of the following code?

```
if None:
    print("Hello")
```

44. What is the output of the following code?

```
i = sum = 0

while i <= 4:
    sum += i
    i = i+1

print(sum)
```

45. WAP to compute the result when two numbers and one operator is given by user.

46. What is the difference between the following operators?
   (a) * and **
   (b) = and ==
   (c) Logical error and runtime error
   (d) / and //

47. WAP to print the following pattern using nested loops

```
*
* *
* * *
* * * *
* * * * *
```

Strings in Python

48. What would following expression return?

(a) "Hello World".upper().lower()   (b) "Hello World".lower().upper()
(c) "Hello World".find("Wor",1,6)   (d) "Hello World".find("Wor")
(e) "Hello World".find("wor")   (f) "Hello World".isalpha()
(g) "Hello World".isalnum()   (h) "Hello World".isdigit()
(i) "123FGH".isdigit()

49. What is a string slice? How is it useful?

50. WAP to check the given string is palindrome or not.

51. Write a Python program to perform the following task according to user's choice using menu:
   - Accept a string and count the number of vowels and consonants in the string.
   - Accept a string and remove vowels from the string.
   - Accept a string or sentence and count all the words that are used to form that string.

52. Write a Python program to perform the following task according to user's choice using menu:
   - Accept a string print it in lowercase
   - Accept a string print it in uppercase
   - Accept a string and count the number of alphabets, digits and special characters in a string.

53. What is the output of the following Python program section?

```
Msg="CompuTer"
Msg1=''
for i in range(0, len(Msg)):
        if Msg[i].isupper():
                Msg1=Msg1+Msg[i].lower()
        elif i%2==0:
                Msg1=Msg1+'*'
        else:
                Msg1=Msg1+Msg[i].upper()
print(Msg1)
```

54. What would be printed from the following Python program section?

```
txt='computer science and informatics practices'

words=txt.split(' ')

I=len(words)

print(I)
```

55. What would be printed from the following Python program section?

```
st=['C','o','m','p','u','t','e','r']

print(st[1:-2])
```

56. What will be the output of the below code.

```
word = 'aeioubcd'

print (word [:3] + word [3:])
```

Lists in Python

59. What are list slices?

60. How are lists different from strings ?

61. Start with the list [8,9,20].

   Do the following using list functions.

   (a) Set the second entry (index 1) to 17
   (b) Add 4, 5 and 6 to the end of the list.
   (c) Remove the first entry from the list.
   (d) Sort the list.
   (e) Double the list.
   (f) Insert 25 at index 3

62. Predict the output:

```
List1=[13,18,11,16,13,18,13]
print(List1.index(18))
print(List1.count(18))
List1.append(List1.count(13))
print(List1)
```

63. WAP to find the minimum element from the list along with its index.

64. WAP to calculate the mean of a given list of numbers.

65. WAP to search for an element in a given list of numbers(linear search)

66. WAP to generate a list of elements of Fibonacci series.

67. Write a Python program to perform the following task according to user's   choice using menu:
   - Accept a list of numbers from the user and calculate the sum of it.
   - Accept a list of numbers from the user and display even and odd elements in two different lists
   - Accept a list from the user and find the largest and smallest number in a list

68. What is the output when following code is executed ?

   List = [1, 8, 5, 15, 5, 1]

   max = List[0]

```
indexOfMax = 0

for i in range(1, len(List)): if

    List[i] > max:

        max = List[i]

        indexOfMax = i

        print(indexOfMax)
```

Tuples in Python

69. What are the differences between list and tuples?

70. Predict the output.

(a) plane = ("Passengers", "Luggage")
    plane [1] = "Snakes"

(b) (a, b, c) = (1,2,3)

(c) (a, b, c, d) = (1,2,3)

(d) a, b, c, d = (1,2,3)

(e) a, b, c, d, e = (p, q, r, s, t) = t1

71. Predict the output.

```
t=(1,)*3
t[0]=2
print(t)
```

72. WAP to calculate the mean of numbers of the tuple.

73. Write a Python program that interactively creates a nested tuple to store the marks in three subjects for five students and also add a function that computes total marks and average marks obtain by each student.

Dictionaries in Python

74. Is dictionary Mutable? Why?

75. How are dictionaries different from Lists?

76. What type of objects can be used as keys in dictionary?

77. How is clear() function different from del <dict> Statement?

78. What is the output produced by the following code -

```
d1={5:[6,7,8],"a":(1,2,3)}
print(d1.keys())
print(d1.values())
```

79. What will be the output?

dict = {1:'X', 2:'Y', 3:'Z'}

del dict[1] dict[1]='D'

del dict[2]
print(len(dict))

80. Write a Python program to input names of 'n' employees and their salary details like basic salary, house rent and conveyance allowance. Calculate total salary of each employees and display.

81. Write a Python program to store student's information like admission number, roll number, name and marks in a dictionary and display information on the basis of admission number.

82. Write a Python program to input names of 'n' countries and their capital and currency, store it in a dictionary and display in tabular form. Also search and display for a particular country.

Python Modules

83. Observe the following program and answer the following questions

```
import random
P=5
R=random.randint(1,P)
for k in range(R):
   print(k,'*',k-1)
```

1. What is the minimum and maximum number of times the loop will be executed?

2. Find out, which option of outputs given below will not be expected from the program.

    (i)   0*1
    (ii)   4*3
    (iii) 0*-1
    (iv)   2*1

84. What possible outputs are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variable number

```python
import random as r
STRING="CBSEONLINE"
number=r.randint(0,3)
N=9
while STRING[N]!='L':
    print(STRING[N]+STRING[number]+'#',end="")
    number=number+1
    N-=1
```

(i)   ES#NE#IO#
(ii)   LE#NO#ON#
(iii) NS#IE#LO#
(iv)   EC#NB#IS#