

CLASS: XI
SUBJECT: COMPUTER SCIENCE (083)

MAXIMUM MARKS: 70
MAXIMUM TIME: 3 Hrs.

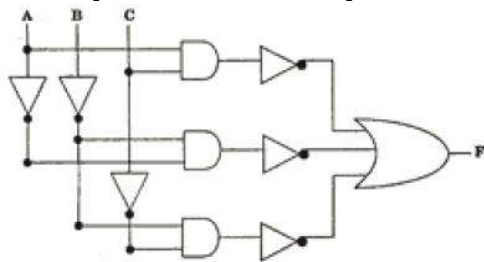
NOTE:

- (i) All the questions are compulsory
- (ii) Answer the questions after carefully reading the text.

- 1.
- (a) Ms.Aparna wants to assemble a computer by purchasing the peripherals required. She bought the following parts: Case, Motherboard, CPU, Graphics Card, RAM, 1TB HDD, Cooling (CPU, Chassis), Power Supply Unit, Monitor, Linux, Mouse and Keyboard. (3)
- (i) Classify the parts according to the computer functional units.
 - (ii) What is “Linux” in the parts mentioned above? What would happen if she does not install this component?
- (b) Define the components of Mobile processor in mobile system organization (1)
- (c) Explain the Encoding terminology with a suitable example. (4)
- (d) Add the binary numbers $(10110)_2$ and $(1101)_2$ and write the decimal equivalent of the resultant binary number obtained. (2)

2.

- (a) Write the equivalent Boolean expression for the following circuit. (1)



- (b) State the Absorption laws of Boolean algebra and verify algebraically. (2)
- (c) Write the equivalent dual and complement expression of the following Boolean expression: (1)
 $A' + A'B + B'.0 = A'$

3.

- (a) Choose the computational thinking statements from the given list of statements and state the characteristics used in the selected statements. Define any one characteristic. (3)
- (a) Thinking about how the problem could be solved by dividing into smaller parts.
 - (b) When going to meet a friend, asking a parent to plan your route for you.
 - (c) Discussing with your friends how much time and money you have before choosing from a short list of places while going to some place
 - (d) Considering the different options carefully before deciding upon the best one while going to some place with friends.
 - (e) The process of filtering out irrelevant characteristics and unnecessary detail.
 - (f) A logical way of getting from the problem to the solution. If the steps you take to solve a problem follow a pattern, then they can be reused and adapted to solve similar problems in the future.

- (b) Write a statement to print the cube of the given number in interactive mode. (1)

- (c) Find the output of the following program: (2)

```
#begins
print("***5,"FUN WITH NUMBERS", "***5)
Num1,Num2=65//10,73%10
Num3,Num4=Num1*10+Num2,Num2*10+Num1
print("The new numbers are:")
print("Number1",Num3,sep=":",end=" AND ")
print("Number2",Num4,sep=":");#program ends
```

- (d) Classify the following operators or expressions into different types. (2)
 (i) and (ii) // (iii) = (iv) not (v) == (vi) X>Y<Z (vii) % (viii) M!=100
- (e) Read the given program and answer the questions below: (2)
- ```
#Begins
X1=5
X2=X1+10
X2=X2/3
print(X1)
print(X2)
A1="ANNUAL-XI-2020"
A1[9]="@"
print(A1)
B1=[3,4,5,6]
B1[2]=B1[2]+5
print(B1)
#Ends
```
- (i) List the variables used in the above program and also mention their data-type.  
 (ii) Would the above program be executed successfully? If yes, write the output of the program, otherwise state the error and explain why the error had been occurred.
- (f) Identify the types of data from the following definition statements: (1)  
 (i) Answer=True (ii) Answer="TRUE"
- 4.
- (a) Identify the type of statements used in the program given below: (1)
- ```
#Begins
Class="XI"
If Class=="XI":
    print("You have to write Internal Exam for PCMC/PCMB subjects")
else:
    pass
print("Thank you")
```
- (b) Rewrite the following code after removing the syntactical errors (if any). Underline each correction. (2)
- ```
#Begin
X=input("Enter the number")
if x%2==0:
 for I range(2*X):
 print(I)
else
 print(X)
#ends
```
- (c) Write a Python program to find numbers between 100 and 400 (both included) where each digit of a number is an even number. The numbers obtained should be printed in a comma-separated sequence. (4)
- (d) Write the output of the following program: (1)
- ```
for x in range(6):
    if x == 3 or x==6:
        continue
    print(x,end=' ')
print("\n")
```
- (e) Write the output of the following program: (3)
- ```
#begin
S=0
D=1000111
i=0
while D!=0:
 R=D%10
 S=S+R*2**i
```

```

D=D//10
i=i+1
print("The Ascii number found is:",S)
print("The equivalent character is:",chr(S))
#ends

```

(f) Write a Python program to display all the two digit prime numbers (4)

The result is :

The prime numbers are 11 13 17 19 23 29 31 37 41 43 47 53 61 67 71 73 79 83 89 97

5.

(a) Write the output of the following python script: (2)

```

User="All India Coding"
print("possible passwords:")
print(User[:5])
print(User[3:])
print(User[2:8:2])
print(User[-4:-1]*2)
#Ends

```

(b) List down the Membership operators with strings in Python and illustrate the working these operators. (1)

(c) Find the output of the following program: (3)

```

#Begin
Str="AISSCE-xi@2020"
New_str=""
for i in range(len(Str)):
 if i%2==0:
 New_str=New_str+Str[i+1]
 elif(Str[i].isupper()):
 New_str=New_str+Str[i].lower()
 else:
 New_str=New_str+"2"
print("The given string:",Str)
print("The New string:",New_str)
#Ends

```

(d) Write a Python program to accept the password from the user and to check the validity of a Password. conditions for password validation : (4)

Allows 10 characters.

The alphabets must be between [a-z]

At least one alphabet should be of Upper Case [A-Z]

At least 1 number or digit between [0-9].

At least 1 character from [\_ or \$ ].

Example: If the input is R@m@\_f0rt , then the result is "Valid Password"

If the input is Rama\_fort\$, then the result is "Invalid Password"

6.

(a) What do you mean by syntax error? Give an example. (1)

(b) Identify the error(s) present in the following program and define the errors: (2)

```

#Begin
X=45;Y=56;Z=77
X+Y+Z=Total
Average=X+Y+Z/3
print("Total=",Total)
print("Average=",Average)
#ends

```

- (c) Write the possible "Exception" that would have been raised in the following program and include the "Exception" handling code in the program to handle the "Exception". (2)

```
String="Hi User"
for i in range(10):
 print(String[i])
```

- (d) Write the output of the following code: (1)

```
L1=[1,2,4]
L2=["Hello","User",56]
L3=L1
L3.append("Well")
print(L3)
L1.extend(L2)
print(L1)
```

- (e) Find the output of the following program: (3)

```
lis = [2, 1, 3, 5, 4, 3, 8]
del lis[2 : 5]
print ("List elements after deleting are : ")
for i in range(0, len(lis)):
 print(lis[i])
 lis[i]=lis[i]+2
lis.pop(2)
lis.insert(1,11)
lis.insert(6,12)
print ("List elements after manipulation are : ")
for i in range(0, len(lis)):
 print(lis[i])
```

7.

- (a) Write a Python program to accept a list of integers from the user and display the sum of squares of even numbers present in the list and also display the number of odd numbers present in the list. (4)

- (b) Rishika defined a list to store her marks in five subjects. She writes a Python code to display the number of centum marks she scored and also the sorted mark-list. But she did not get the desired result. You explain the error she had made and help her to debug the program and get the appropriate output. (2)

```
#Begin
Marks=[98,100,99,100,100]
Marks.count(100)
print(Marks)
print(Marks.sort())
#End
```

- (c) Define RDBMS and give examples (1)

- (d) What do you mean by the term "Relation" in RDBMS? Create a Relation named "Cricket" with 4 tuples with the following player details: (2)

Name of the player, Country of the player, Runs scored, Wickets taken and the Run-rate of the player.

- (e) From the given table, Answer the following questions: (2)

TableName-House

| House_Name | House_Captain | House_Points |
|------------|---------------|--------------|
| Red Rose   | Yathin        | 243          |
| Lotus      | Hari Narayan  | 298          |
| Blue Bells | Anil Sharma   | 220          |
| Sun Flower | Felicita      | 260          |

- (i) What is meant by degree and cardinality of a table in RDBMS? Write the degree and cardinality of the above table.
- (ii) Write the domain of House\_Captain attribute.

