

# HALF YEARLY EXAMINATION 2022-23

## Computer Science (083)

**CLASS: XII**

**Maximum Marks: 70**

**Time Allowed: 3 hours**

### General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
  - a. Section – I is short answer questions, to be answered in one word or one line.
  - b. Section – II has two case studies questions. Each case study has 4 case-based subparts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
  - a. Section-I is short answer questions of 2 marks each in which two question have internal options.
  - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
  - c. Section-III is very long answer questions of 5 marks each in which two questions has internal option.
6. All programming questions are to be answered using Python Language only

PART-A		
Section-I		
Attempt any 15 questions from question no. 1 to 21		
1.	Which of the following is/are not a valid identifier? a) WHILE b) total mark c) num_1 d) and	1
2.	What will be the output of the following code? D={1:'A', 2:'B', 3:'C'} D[2]='D' print(D)	1
3.	Identify the keywords a)range b)def c)try d)For	1
4.	Identify the valid logical operator from the following in b) not in c) is d) not	1
5.	Given a string S = "CoMpUterSciEnce", write the output of print(S[1:8:2])	1
6.	>>'ac' in 'abc' returns _____	1

7.	Write a statement in python to declare a dictionary <b>MONTH</b> whose keys are M1,M2,M3 and values are JAN,FEB,MAR	1
8.	What is the output of the following string operation? S="Periodic Test-2" print(S.isalnum())	1
9.	What will be the output of the following code: L=[4,5,[6,7],8,9] print(len(L))	1
10	Which function removes the last element of a stack list? .	1
11	Name the protocol used for remote login .	1
12	How can he create an empty dictionary marklist ? . a) marklist= {} b) marklist =dict() c) Both a & b d) None of the above .	1
13	Amal wants to open his text file myfile.txt for both reading and writing. If no such file exists in his folder, which opening mode he must use: a) 'w+' b) 'r+' c) 'ab' d) 'wb'	1
14	Which of the following function header is wrong? . a) def findsum(a,b=5,c=10): b) def findsum(a=3,b=5,c=10): c) def findsum(a=3,b=5,c): d) def findsum(a,b,c):	1
15	Name the transmission media best suitable for transmission in a large area i.e across the countries. .	1
16	What will be the output of following Python code? . list1=[1,2,3,4,5,6] list1.insert(4,0) print(list1)	1
17	Name the python module which need to be imported to invoke the function mean() .	1

18	<p>What is the output of following code?</p> <pre>def func(x):     x = x.append(50) N = [10, 20, 30, 40] func(N) print(len(N))</pre> <p>(a) 5      (b) 4      (c) 3      (d) Error</p>	1
19	<p>Arrange the networks in increasing order of their Distance coverage. MAN,PAN,LAN,WAN.</p>	1
20	<p>What is the full form of csv ?</p>	1
21	<p>Which one is considered as the first network?</p>	1
<p><b>Section-II</b> <b>Both the case study based questions are compulsory. Attempt any 4 subparts from each question. Each question carries 1 mark.</b></p>		
22	<p>Gopal has been assigned an incomplete search() function to search in a pickled file student.dat.</p> <ul style="list-style-type: none"> <li>✓ File contains details of students in [roll_no,name,marks] format.</li> <li>✓ 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().</li> </ul> <p>Gopal has been assigned the task to complete the code and print details of roll number 5.</p> <pre>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</pre>	
	<p>i) In which mode Gopal should open the file in Statement-1?</p> <p>ii)</p>	1
	<p>iii) Identify the suitable code to be used at blank space in line marked as Statement-2</p>	1
	<p>iv) Identify the function (with argument), to be used at blank space in line marked as Statement-3.</p>	1
	<p>v) What will be the suitable code for blank space in line marked as Statement-4.</p> <p>vi)</p>	1
	<p>vii) Which statement Gopal should use at blank space in line marked as Statement-4 to</p>	1

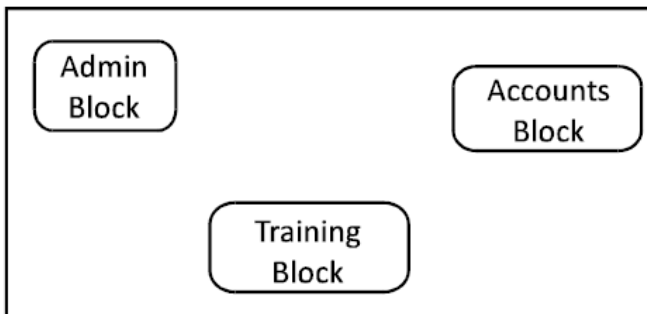
	close the file	
23	<p>Sruthy, a programmer is writing a program to create a CSV file “emp.csv” which will contain employee code and name of some employees. She has written the following code. As a programmer, help him to successfully execute the given task.</p> <pre> import _____ #Line 1 def addemp(empcode,name): #function to write     fw=open('emp.csv','a', newline='')     cwriter=csv. _____(fw) #Line 2     rec=[empcode,name]     cwriter.writerow(rec)     fw. _____ #Line 3  def reademp(): # function to read     with open('emp.csv',' _____') as fr: #Line 4         csvread=csv.reader(fr)         for row in csvread:             for data in row:                 print(data,end=' ')             print()  addemp('E001','Aromal') addemp("E002",'Suraj') addemp("E003",'Roy') reademp() #Line 5 </pre>	
	(a) Name the module she should import in Line 1.	1
	(b) Fill in the blank in Line 2 to create the writer object for writing	1
	(c) Fill in the blank in Line 3 to close the file.	1
	(d) In which mode, she should open the file to read the data from the file (Line 4).	1
	(e) Write the output he will obtain while executing Line 5.	1
	<b>PART-B</b>	
	<b>Section-I</b>	
24	<p>Evaluate the following expressions:</p> <p>a) <math>12//3**2+4\%2-1</math>  b) <math>18 &gt;= 5</math> and not <math>5 &gt; 10</math> or <math>9 &gt; 4</math></p>	2
25	<p>Expand the following terms:</p> <p>a. TCP/IP b. ARPANET c. HTTP d. SMTP</p>	2
26	<p>Differentiate between ftp and http.</p> <p style="text-align: center;">Or</p> <p>Differentiate between a hub and a switch</p>	2

27	Differentiate between keyword arguments and positional arguments. Or What is meant by scope and lifetime of variables?	2
28	Write a definition of a method COUNTNOW(PLACES) to find and display those place names, in which there are more than 5 characters.  For example : If the list PLACES contains ["DELHI", "LONDON", "PARIS", "NEW YORK", "DUBAI"] The following should get displayed : LONDON NEW YORK	2
29	What are the possible outcome(s) executed from the following code? Also specify the maximum and minimum values that can be assigned to variable COUNT. import random TEXT="CBSEONLINE" COUNT=random.randint(0,3) C=9 while TEXT[C]!='L': print(TEXT[C]+TEXT[COUNT]+'*',end='') COUNT=COUNT+1 C=C-1  (i) EC*NB*IS*   (ii) NS*IE*LO*   (iii) ES*NE*IO*   (iv) LE*NO*ON*	2
30	Define PUSH and POP operations in STACK?	2
31	Write the output given by following Python code. var=100 def modify(): global var var *= 2 print('inside:',var) modify() print('outside:',var)	2
32	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. 10=No for N in range(0,No) if N%4=0: print (N*2) else: print (n+3)	2

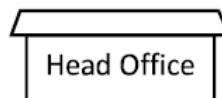
33	<p>Find and write the output of the following python code</p> <pre> Text="Exams@21-22" L=len(Text) new="" for i in range(L):     if i%2==0:         if Text[i].isalpha():             new=new+Text[i].lower()         else:             new=new+'*'     else:         if Text[i].isdigit():             new=new+'#'         else:             new=new+Text[i].upper() print(new) </pre>	2
<b>Section-II</b>		
34	<p>Write function change(P) which accepts a list P and changes the values in odd locations to twice it's value and the values in even locations thrice it's value and display the list P Eg:- if P=[4,3,5,1] o/p-&gt; [12,6,15,2]</p>	3
35	<p>Write a function EUCount ( ) , which should read each character of a text file IMP.TXT, should count and display the occurrence of alphabets E and U (including small cases e and u too). Example : If the file content is as follows: Updated information is simplified by official websites. The EUCount( ) function should display the output as E:4 U:1</p> <p style="text-align: center;"><b>OR</b></p> <p>Write a method/function AEDISP() in python to read lines from a text file WRITER.TXT, and display those lines, which are starting either with A or starting with E. For example: If the content of the file is A CLEAN ENVIRONMENT IS NECESSARY FOR OUR GOOD HEALTH. WE SHOULD TAKE CARE OF OUR ENVIRONMENT. EDUCATIONAL INSTITUTIONS SHOULD TAKE THE LEAD. The method should display A CLEAN ENVIRONMENT IS NECESSARY FOR OUR GOOD HEALTH. EDUCATIONAL INSTITUTIONS SHOULD TAKE THE LEAD.</p>	3

36	<p>Write a short note on the following</p> <ol style="list-style-type: none"> <li>Web browser</li> <li>Web server</li> <li>Web hosting</li> </ol>	3
37	<p>Write a program to</p> <ul style="list-style-type: none"> <li>Create a list Num of 5 integers using user inputted values</li> <li>Write a function PUSH(Num), where Num is a list of integer numbers. From this list push all positive even numbers into a stack EVENPOS implemented by using a list.</li> <li>Write a function POP() to pop and display the content of the stack if it has at least one element, The function should display appropriate error message when the stack is empty.</li> </ul> <p>For example:  <b>If Num is [10,-12, 8, 7, 13]</b>  The output from the program should be:  <b>8 10 empty stack</b></p> <p style="text-align: center;"><b>OR</b></p> <p>Write a program to create a dictionary PHONE containing Name and Phone number as key value pairs of 5 members and write separate user defined functions to perform the following operations:  Write a function PUSH(PHONE) to Push the values (phno) of the dictionary into a stack PHONEBOOK if the Name starts with 'A'.  Write a function POP() to pop and display the content of the stack. The function should display appropriate error message when the stack is empty.</p> <p>For example:  If the dictionary formed is  PHONE={'Arjun':949567748,'Mohan':853336799,'Anand':974355650,'Vinod':0567456754', 'Soman':9554442300}'  The output from the program should be:  974355650 949567748 empty_stack</p>	3
<b>Section-III</b>		
38	<p>Hi Standard Tech Training Ltd. is a Mumbai based organization which is expanding its office set-up to Chennai. At Chennai office compound, they are planning to have 3 different blocks for Admin, Training and Accounts related activities. Each block has a number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised by them in (i) to (v), as per the distances between various blocks/locations and other given parameters.</p>	5

### CHENNAI Office



### MUMBAI



Shortest distances between various blocks/locations :

Admin Block to Accounts Block	300 Metres
Accounts Block to Training Block	150 Metres
Admin Block to Training Block	200 Metres
MUMBAI Head Office to CHENNAI Office	1300 Km

Number of computers installed at various blocks are as follows :

Training Block	150
Accounts Block	30
Admin Block	40

- i) Suggest the most appropriate block/location to house the SERVER in the CHENNAI office (out of the 3 blocks) to get the best and effective connectivity. Justify your answer.
- ii) Suggest the best wired medium and draw the cable layout (Block to Block) to efficiently connect various blocks within the CHENNAI office compound.
- iii) Suggest the placement of a Repeater in the network with justification.
- iv) Which device will you suggest to be placed/installed in each of these blocks to efficiently connect all the computers within these blocks
- v) Which type of network out of LAN, MAN and WAN is formed when the computers of Training blocks are connected?

39 . Considering the following definition of a file object (FCTID,FCTNM,PRODUCT) write a function Fsearch() in Python to search and display the content in a pickled file FACTORY.DAT, where FCTID is matching with the value 105 or 106. Also display the total number of records.

**OR**

Given a binary file TELEPHON.DAT, containing records of the following structure

[ Name,Address,AreaCode,phone\_No]

Write a function COPYABC( ) in python that would copy all those records having AreaCode as 'ABC' from TELEPHON.DAT to TELEBACK.DAT.



40	<p>A file <code>staff.dat</code> contains some records which are defined as a list with format <code>[Scode,Name,Desig]</code>, write a function <code>staffs()</code> in python to search and display the content in a pickled file <code>staff.dat</code>, where <code>Scode</code> is matching with <code>'S0105'</code>.</p> <p style="text-align: center;">OR</p> <p>i. Write a user defined function <code>CreateFile()</code> to input data for a record and add to <code>Book.dat</code> .</p> <p>ii. Write a function <code>CountRec(Author)</code> in Python which accepts the Author name as parameter and count and return number of books by the given Author are stored in the binary file <code>"Book.dat"</code></p>	5
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