DAV PUBLIC SCHOOLS,JH-ZONE-H
PRE-BOARD EXAMINATION-2020-21
Class: XII
Computer Science (083)
(Theory)

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 sub-parts. 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 one question has internal option.
6. All programming questions are to be answered using Python Language only

Question No.	Part-A	Marks allocated
	Section-I **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	
1)	Which of the following is an invalid variable? a) my_day_2 b) 2nd_day c) day_two d) _2	1
2)	What is the value of bin(0b1010) ? a)17 b) 14 c) 15 d) 23	1
3)	The function pow(x,y,z) is evaluated as: a) (x**y)**z b) (x**y) / z c) (x**y) % z d) (x**y)*z	1

4)	What will be the output of the following Python function?
	`sum(2,4,6)`
	`sum([1,2,3])`
	a) Error, 6
		1

	b) 12, Error c) 12, 6 d) Error, Error	

5)	What will be the output of the following Python functions?
	`chr('97')`
	`chr(97)`
	a)
	a
	Error
	b)
	'a'
	a
	c)
	Error
	a
	d)
	Error
	Error
		1

6)	What will be the output of the following Python function? `len(["hello",2, 4, 6])` a) 4 b) 3 c) Error d) 6	1

7)	What will be the output of the following Python code?
	`1.def func(a, b=5, c=10):`
	`2.  print('a is', a, 'and b is', b, 'and c is', c)`
	`3.`
	`4.func(3, 7)`
	`5.func(25, c = 24)`
	`6.func(c = 50, a = 100)`
	a)
	a is 7 and b is 3 and c is 10
	a is 25 and b is 5 and c is 24
	a is 5 and b is 100 and c is 50
	b)
	a is 3 and b is 7 and c is 10
	a is 5 and b is 25 and c is 24
	a is 50 and b is 100 and c is 5
	c)
	a is 3 and b is 7 and c is 10
	a is 25 and b is 5 and c is 24
	a is 100 and b is 5 and c is 50
	d) None of the mentioned
		1

8)	What will be the output of the following Python code?
	`def f1():`
	`  x=15`
	`  print(x)`
	`x=12`
	`f1()`
	a) Error
	b) 12
	c) 15
	d) 1512
		1

9)	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	1
10)	What is the use of tell() method in python? a) tells you the current position within the file b) tells you the end position within the file c) tells you the file is opened or not d) none of the mentioned	1
11)	Which of the following are the modes of both writing and reading in binary format in file? a) wb+ b) w c) wb d) w+	1
12)	Which of the following attributes can not be considered as a choice for primary key? a) ID b) License number c) Dept_id d) Street	1
13)	Which operator performs pattern matching in MYSQL? a) BETWEEN b) LIKE c) EXIST d) None of the mentioned	1
14)	Which of the following is not an aggregate function ? a) Avg b) Sum c) With d) Min	1
15)	To fetch the multiple records from the result set you may use <cursor>.----------method in SQL? a) fetch() b) fetchmany() c) fetchmultiple() d) None of the mentioned	1
16)	Which command is used to add a new record in a table? a) ADD b) INSERT c) APPEND d) None of the mentioned	1
17)	To run an SQL query from within python you may use <cursor>.---------method()? a) query() b) execute() c) run() d) All of these	1
18)	Which of the following is not an example of e-wallet? a) PayTM b) Google Pay c) PhonePe d) PayPal	1
19)	A Hub is ----------.. a) Broadcast Device b) Unicast Device c) Multicast Device d) None of the above	1
20)	Wi-Fi is an example of _____ a) personal area network	1

b) local area network
c) virtual private network
d) wide area network

21) A system design to protect unauthorized to access to or from a private network is called----------. 1
a) Password
b) Firewall
c) Access wall
d) Network Security

Section-II

Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark

22) Write SQL queries for (i) to (iv) which are based on the following tables:

Table: SENDER

SENDERID	SENDERNAME	SENDER ADDRESS	SENDER CITY		
ND01	R Jain	2,ABC Appts	New Delhi		
MU02	H Sinha	12,Newtown	Mumbai		
MU15	S Jha	27/A,Park Street	Mumbai		
ND50	T Prasad	122-K,SDA	New Delhi		

Table: RECIPIENT

RECID	SENDERID	RECNAME	REC ADDRESS	REC CITY		
KO05	ND01	R Bajpayee	5,Central Avenue	Kolkata		
ND08	MU02	S Mahajan	116,A Vihar	New delhi		
MU19	ND01	H Singh	2A,Andheri East	Mumbai		
MU32	MU15	P K Swamy	B5,C S SDA	Mumbai		
ND48	ND50	S Tripathi	12B,SKD	New Delhi		

I) To display the names of all senders from Mumbai. 1

ii) To display the RECID, SENDERNAME, SENDERADDRESS, RECNAME, RECADDRESS for every Recipients. 1

III) To display Recipient details in ascending order of RECNAME. 1

IV) To display number of Recipients from each city. 1

V) Insert a new column as "MOBILE" in RECIPIENT Table. 1

23) Sanjay Verma has been asked by his senior to complete the following code. The code uses a text file namely message.txt, which stores the following text.

The stimulus would focus on job manufacturing and a further extension of the Cabinet's decision to give a push to growth with production linked incentive schemes.

The incomplete code is follows:

```
def count_words(filename)                    # Reference A
    bigwords=0                               # To store the count of big words
```

```
    with open(filename,"r") as f:
     ----------------------------------        # Fill_Line2
     ----------------------------------        # Fill_Line3
     for w in words:
          -------------------------------:     # Fill_Line4A
          -------------------------------      # Fill_Line4B
 return bigwords,len(words)                    #Reference B
#__main__
------------------------------                 # Fill_Line1
Print("total number of words:",count)          # Reference C
Print("No. of big words:",big)                 # Reference D
```

	i)	Complete **Fill_Line1** so that function **count_words()** is called. Refer to reference lines (reference A,B,C,d) before completing this line.	1
	ii)	Complete **Fill_Line2** so that all the contents of the open file are read into variable **data**	1
	iii)	Complete **Fill_Line3** so that individual words are extracted from the read data and stored in a list namely **words**.	1
	iv)	Complete **Fill_Line4A,Fill_Line4B** so that count of words having length more than eight characters is calculated in the variable **bigwords**.	1
	v)	After completing the code, What will be the output produced?	1
		Part-B	
		Section-I	
24)		**a) Define remove() and insert() function with an example.** **b) 50 and 10 or not 11>33**	2
25)		a) What is the difference between packet and message switching? or b) How trojan horses are different from worms? Mention any one difference.	2
26)		Expand the following: a) WLL b)URL c) GSM d)VOIP	2

27)		Find and write the output of the following python code:
		`def fun(s):`
		`  k=len(s)`
		`  m=" "`
		`  for i in range(0,k):`
		`  if(s[i].isupper()):`
		`  m=m+s[i].lower()`
		`  elif s[i].isalpha():`
		`  m=m+s[i].upper()`
		`  else: m=m+'bb'`
		`  print(m)`
		`fun('school2@com')`
		or
		b) Explain the use of local and global variable in function with an example?
			2

28)		What possible outputs(s) 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 variables FROM and TO.
		`import random`
		`AR=[20,30,40,50,60,70];`
		`FROM=random.randint(1,3)`
		`TO=random.randint(2,4)`
		`for K in range(FROM,TO+1):`
			2

	print (AR[K],end="#") (i) 10#40#70# (ii) 30#40#50# (iii)50#60#70# (iv) 40#50#70#	
29)	Write the output of the following code: List1=["English","Physics",Chemistry","Maths"] print(List1[::-2]) print(List1[-2]) print(List1[4:2:-1]) print(List1[3:])	2
30)	Define Primary key, check, default, unique constraints in SQL.	2
31)	Differentiate between degree and cardinality.	2
32)	Explain about TCL and DML and name its some commands.	2
33)	Write the output of the following python code: i=5 j=7 x=0 i=i+(j-i) x=j+i print x,":",i j=j**2 x=j+i i=i+1 print i,":",j	2
	Section-II	
34)	Consider the following code : f = open ("mytry", "w+") f.write ("0123456789abcdef") f.seek (-3,2) #--------------1 printf.read(2)#--------------2 Explain statement 1 and give output of 2	3
35)	Write a python function printcaps() that prints all the upper-case alphabets from a prewritten text file alpha.txt. Eg: for the datafile containing the following text: "India is My Country" The output should be: I M C **Or** Write a python function printed() that prints all the words ending with 'ed' from a pre-written text file data.txt. Eg: For the datafile containing the following text: "My schooling days ended long back. I supported my family thereafter." The output should be: ended supported	3

36) Write the outputs for SQL queries (i) to (iii), which are based on the tables. 3

Table: TRAINER

TID	TNAME	CITY	HIREDATE	SALARY	
101	SUNAINA	MUMBAI	1998-10-15	90000	
102	ANMIKA	DELHI	1994-12-24	80000	
103	DEEPTI	CHANDIGARH	2001-11-21	82000	
104	MEENAKSHI	DELHI	2002-12-25	78000	
105	RICHA	MUMBAI	1996-01-12	95000	
106	MANIPRABHA	CHENNAI	2001-12-12	69000	

Table: COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C204	DHN	20000	2018-08-01	101
C205	O LEVEL	18000	2018-07-25	105

i) SELECT TID, TNAME, FROM TRAINER WHERE CITY NOT IN('DELHI', 'MUMBAI');
ii) SELECT DISTINCT TID FROM COURSE;
iii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;

37) Write a program that depending upon user's choice, either pushes or pops an element in stack. 3

OR

Write **Insert(teamQ)** and **Delete(teamQ)** functions in python to add a team name and remove a team name considering **teamQ** to act as Insert and Delete operations of the data structure Queue.

Section-III

38) Ravya Industries has set up its new center at Kaka Nagar for its office and web based activities. The company compound has 4 buildings as shown in the diagram below: 5

Center to center distances between various buildings is as follows:

Center to center distances between various buildings is as follows:
Harsh Building to Raj Building :50 m
Raz Building to Fazz Building :60 m
Fazz Building to Jazz Building :25 m
Jazz Building to Harsh Building :170 m
Harsh Building to Fazz Building :125 m
Raj Building to Jazz Building 90 m
Number of Computers in each of the buildings is follows:
Harsh Building : 15
Raj Building : 150

	Fazz Building : 15 Jazz Bulding : 25 e1) Suggest a cable layout of connections between the buildings. e2) Suggest the most suitable place (i.e. building) to house the server of this organization with a suitable reason. e3) Suggest the placement of the following devices with justification: (i) Internet Connecting Device/Modem (ii) Switch e4) The organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.	
39)	a) What is the difference between DML and DDL in SQL? [2] b) What is the difference a ORDER BY clause and a GROUP BY clause of SQL SELECT statement? [2] c) What is the difference between DROP and DELETE commands? [1]	5
40)	Consider a binary file Employee.dat containing details such as empno: ename: salary (separator ' :'). Write a python function to display details of those employees who are earning between 20000 and 40000.(both values inclusive)	5
	Or	
	Write a function in python to search and display details of all those students, whose stream is "HUMANITIES" from pickled file "Student.dat". Assuming the pickled file is containing the objects of the following class:	

```
class STUDENT:
    def __init__(self):
        self.RNO = 0
        self.NAME = " "
        self.STREAM = " "
        self.PERCENT = 0.0
    def ACCEPT(self):
        self.RNO = input("Enter Roll no")
        self.NAME = raw_input("Enter Name")
        self.STREAM = raw_input("Enter Stream")
        self.PERCENT = input("Enter percentage")
    def DISPLAY(self):
        print self.RNO,self.NAME,self.STREAM,self.PERCENT
    def RET_STREAM(self):
        return(self.STREAM)
```