

Class: XII Session: 2020-21  
Computer Science (083)  
Practice Test II(Theory)

Maximum Marks: 70

Time Allowed: 3hours

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

Q. No.	Part- A	Marks
	<b>Section-I</b> <b>Select the most appropriate option out of the options given for each question.</b> <b>Attempt any 15 questions from question no 1 to 21.</b>	
1	Identify the valid literals from the following: i) "100"      ii) _init      iii) 3,      iv) 100days	1
2	Given the dictionary d={"A":100,"B":200,"A":300} What will be the output of the statement print(d)?	1
3	The python function that places the read pointer to a given location in a binary file is called.....	1
4	Which one of the following is not a valid operator in python? I) #      ii) **      iii) and      iv) is	1
5	Which of the following options uses the correct way to copy one list into another: i) newlist =copy(oldlist)      ii) newlist =oldlist.copy() iii) newlist =list(oldlist)      iv) newlist.copy(oldlist)	1
6	For the given dictionary d={"Product":"Pencil","stock":100,"Price":30} the correct option for the value of x: x= d.popitem() print(x) (i) ["Price",30]      (ii) 30      (iii) "Price"      (iv) ("Price",30)	1
7	For the given tuple x =(10,20,30,40), what will be the value of x[::-2]	1
8	Which of the following function is not a part of string library? i) Partition()      ii) isupper() iii) update()      iv) endswith()	1
9	Name one of the Mobile Communication protocols.	1
10	Your friend has used a poetry written by you and posted online claiming her own. Which Act violation has been committed by her?	1

11	In SQL which clause is used to provide condition in a GROUP BY clause?	1																																																									
12	How many Foreign Keys a relation can have in MySQL database Table? i) One or more ii) Zero or more iii) Only one iv) None	1																																																									
13	Which command in SQL is used to display structure of a table?	1																																																									
14	Re-write the following DML query after removing the error: UPDATE student MODIFY age = age+1 WHERE class=12;	1																																																									
15	I help transmit packets to their destinations by charting a path through the sea of interconnected networking devices using different network topologies. Who am I?	1																																																									
16	State the following python expression as True or False { "key1":1, "key2":2 } == { "key2":2, "key1":1 }	1																																																									
17	What will be the output of the following python program? st = "PYTHON" l = st.split("T") print(l)	1																																																									
18	“PRIMARY key column can have NULL values” . State the given statement as True or False.	1																																																									
19	Expand the term GPRS.	1																																																									
20	Which of the Joins exclude one of the matching columns from the SQL query based on related tables?	1																																																									
21	What does the b stand for in the data transfer rates like Kbps, Mbps, etc?	1																																																									
	<b>Section-II</b> <b>Both the Case-study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark</b>																																																										
22	Anu has created the following relations in database <b>Travels</b> by providing Primary Key – Foreign Key relationship. Table: booking <table><tr><th>ticketno</th><th>pname</th><th>source</th><th>destination</th><th>quantity</th><th>price</th><th>fid</th></tr><tr><td>50001</td><td>TOM</td><td>BAN</td><td>DEL</td><td>2</td><td>7000</td><td>1001</td></tr><tr><td>50002</td><td>BOB</td><td>BAN</td><td>KOL</td><td>3</td><td>7500</td><td>1001</td></tr><tr><td>50003</td><td>SID</td><td>DEL</td><td>MUM</td><td>1</td><td>6000</td><td>1002</td></tr><tr><td>50004</td><td>ROY</td><td>DEL</td><td>MUM</td><td>2</td><td>6000</td><td>1003</td></tr><tr><td>50005</td><td>KAY</td><td>MUM</td><td>DEL</td><td>1</td><td>6000</td><td>1002</td></tr></table> Table: Flights <table><tr><th>flightid</th><th>model</th><th>company</th></tr><tr><td>1001</td><td>747</td><td>BOEING</td></tr><tr><td>1002</td><td>320</td><td>AIRBUS</td></tr><tr><td>1003</td><td>767</td><td>BOEING</td></tr><tr><td>1004</td><td>365</td><td>AIRBUS</td></tr></table>	ticketno	pname	source	destination	quantity	price	fid	50001	TOM	BAN	DEL	2	7000	1001	50002	BOB	BAN	KOL	3	7500	1001	50003	SID	DEL	MUM	1	6000	1002	50004	ROY	DEL	MUM	2	6000	1003	50005	KAY	MUM	DEL	1	6000	1002	flightid	model	company	1001	747	BOEING	1002	320	AIRBUS	1003	767	BOEING	1004	365	AIRBUS	
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1003	767	BOEING																																																									
1004	365	AIRBUS																																																									
	a) Which attribute is the Foreign Key in the given tables?	1																																																									
	b) What is the degree of booking table and cardinality of Flights table?	1																																																									
	c) Write a SQL query to delete the row from booking whose pname is “KAY”.	1																																																									
	d) Anu wants to display the unique destinations from the booking table. Which keyword need to be used by her in SELECT query: i) UNIQUE ii)DISTINCT iii) HAVING iv)SET	1																																																									
	e) Write a command to display the cardinality of the booking table?	1																																																									

		1
23	<p>Shyam of class 12 is writing a program to create a CSVfile “country.csv”which will contain Country, Capital and Game for that Country. He has written the following code. As a programmer, help him to successfully execute the given task.</p> <pre> headings = ['Country','Capital','Game'] data = [['India', 'Delhi','Hockey'],         ['USA','Washington DC','Ice Hockey'],         ['Newzeland','Wellington','Rugby']] f = open('country.csv','w', newline=") csvwriter = csv.writer(f)  # Statement1 # Statement2  f.close()  f=open('country.csv','r') csvreader =csv.reader(f) data=[] for x in csvreader:     # Statement 3  print(data[1]) </pre> <p>a) His code is not executing. Write the statement that he has missed.</p> <p>b) Fill in the blanks so that the header row can be written using statement1</p> <p>c) Fill in the blanks so that all the data is written using statement 2.</p> <p>d) Fill in the blanks so that elements are added to the empty list data in statement 3.</p> <p>e) What will be the output of the print(data[1])</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
	<b>Part B</b>	
	<b>Section - 1</b>	
24	<p>What will be the output of the following python expression:?</p> <p>a) <math>5 + 2*2**3//2-10</math></p> <p>b) True or False and not <math>10 &gt; 20</math></p>	2
25	<p>Write two points to differentiate between MAC address and IP address.</p> <p>OR</p> <p>Write two points to differentiate between HTML and XML.</p>	2
26	<p>Expand the following terms in Computer Networking:</p> <p>i) WLL    ii) PPP    iii) URL    iv) PAN</p>	2
27	<p>Explain the use of default parameters in a python user defined function using an example.</p> <p>Or</p> <p>Python functions can return more than one objects. Explain the same using an example.</p>	2
28	<p>Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.</p> <pre> sum = 0 for x in [10,20,30,40]     if x % 3==0 OR x % 4==0:         sum = sum+ x     elseif x % 6==0:         sum = sum - x </pre>	2

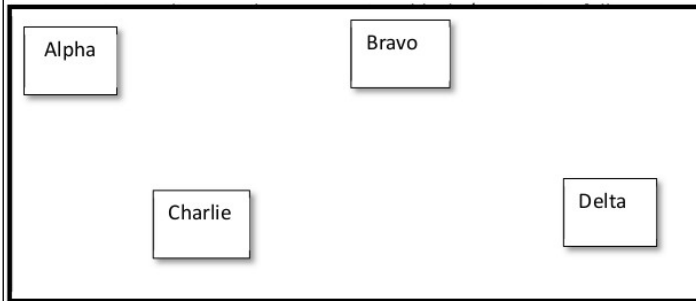
	<pre> else:     None print(sum) </pre>	
29	<p>What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables Lower and Upper.</p> <pre> import random name = ['BOB', 'SID', 'KIM', 'JIM', 'MIK'] low = random.randint(0,2) high = random.randint(2,4) for x in range(high, low-1, -1):     print(name[x], end='@') </pre> <p> i) BOB@SID@KIM@  ii) JIM@KIM@SID@BOB@  iii) MIK@KIM@SID@  iv) KIM@SID@ </p>	2
30	Write two differences between a Primary Key and a Unique Key.	2
31	<p>Observe the following python code and answer the questions:</p> <pre> import mysql.connector as c con = c.connect(host="localhost", user="root", passwd="", database="test")  mycursor=_____ #Statement 1  mycursor.execute(" CREATE TABLE studentinfo (name VARCHAR (30), age INT(3)")  sql = """"INSERT INTO studentinfo( name, age) VALUES ('Ashok',17) """" _____ Statement 2  con.commit() </pre> <p> i) Write the python statement to establish the database cursor as statement1.  ii) Write the python statement to insert the row into the table as Statement 2 by using the string 'sql' given above. </p>	2
32	What is the difference between count(*) and count(columnname) in SQL aggregate function? Give suitable examples to support your answer.	2
33	<p>Find and write the output of the following Python code:</p> <pre> def changer(str, s):     nwstr=""     for x in str:         if x.isdigit(): nwstr=nwstr + s         elif x.isalpha():             if x.isupper():                 nwstr=nwstr+x.lower()             else:                 nwstr=nwstr+x.upper()     else:         nwstr=nwstr+"*" </pre>	2

	<pre>return nwstr print(changer('Al@miGhTy2','x'))</pre>																																																
	<b>Section - II</b>																																																
34	<p>Write a python method countmax() that accepts a list as an argument and return the count of the element that has occurred maximum number of times. Eg: for the list num =[1,2,3,1,1,2,2,3,3,3,4] the call value for print(countmax(num)) should be 4.</p>	3																																															
35	<p>Write a python function printed() that prints all the words ending with ‘ed’ from a pre-written text file “data.txt:. Eg: For the data file containing the following text: “My schooling days ended long back. I supported my family there after.” The output should be: ended supported</p> <p style="text-align: center;">OR</p> <p>Write a python function print caps() that prints all the upper-case alphabets from a pre-written text file “alpha.txt.” Eg: for the data file containing the following text: “India is My Country” The output should be: I M C</p>	3																																															
36	<p>Write the outputs of the SQL queries (I) to (iii) based on the relations Emp and dept given below:</p> <p>Table: Emp</p> <table><tr><th>empno</th><th>ename</th><th>dno</th><th>salary</th><th>gender</th></tr><tr><td>1001</td><td>TOM</td><td>10</td><td>5000</td><td>M</td></tr><tr><td>1002</td><td>BOB</td><td>15</td><td>6000</td><td>M</td></tr><tr><td>1003</td><td>SID</td><td>20</td><td>5000</td><td>F</td></tr><tr><td>1004</td><td>KID</td><td>20</td><td>7000</td><td>F</td></tr><tr><td>1005</td><td>PAT</td><td>10</td><td>6000</td><td>M</td></tr><tr><td>1006</td><td>JOE</td><td>15</td><td>5000</td><td>F</td></tr></table> <p>Table:Dept</p> <table><tr><th>deptno</th><th>dname</th><th>location</th></tr><tr><td>10</td><td>HR</td><td>B1</td></tr><tr><td>15</td><td>FIN</td><td>B1</td></tr><tr><td>20</td><td>ENGG</td><td>B2</td></tr></table> <p>i) SELECT dno, MAX(salary) FROM emp GROUP BY dno; ii) SELECT COUNT(DISTINCT gender) from emp; iii) SELECT ename,dname,salary FROM emp,dept WHERE emp.dno = dept.deptno AND location='B1';</p>	empno	ename	dno	salary	gender	1001	TOM	10	5000	M	1002	BOB	15	6000	M	1003	SID	20	5000	F	1004	KID	20	7000	F	1005	PAT	10	6000	M	1006	JOE	15	5000	F	deptno	dname	location	10	HR	B1	15	FIN	B1	20	ENGG	B2	3
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10	HR	B1																																															
15	FIN	B1																																															
20	ENGG	B2																																															
37	<p>Write a python function push(stack,lst), that accepts a stack and a list of names. It pushes into the stack names from the list(lst) that have lengths of exactly three characters. The function also prints the stack.</p> <p style="text-align: center;">OR</p>	3																																															

Write a function pop(stack) that pops out the elements of the stack implemented using a list of numbers. The function should display a warning message if there is an underflow in the stack.

### Section-III

- 38 Expertia Professional Global (EPG) is an online corporate training provider company for IT related courses. The company is setting up their new campus in Mumbai. You as a network expert must study the physical locations of various buildings and the number of computers to be installed. In the planning phase, provide the best possible answers for the queries (i) to (v) raised by them.



Centre to Centre distances between various blocks/centre is as follows:

Alpha block to Bravo block	110m
Alpha block to Charlie block	75m
Alpha block to Delta block	50m
Bravo block to Charlie block	80m
Bravo block to Delta block	150m
Charlie block to Delta block	60m

Number of computers in each of the blocks/Centre is as follows:

Alpha block	75
Bravo block	200
Charlie block	90
Delta block	110

- Suggest the most suitable place (i.e., Block/Centre) to install the server of this University with a suitable reason.
- Suggest an ideal layout for connecting these blocks/centres for a wired connectivity.
- Suggest the placement of Switches and Modem in the blocks
- Suggest the placement of a Repeater in the network with justification.
- The company wants to provide a remote research institute 5km from the main campus. Which type of communication link will provide the fastest link from main campus to the remote campus.

39 Write SQL queries based on the relations stock and dealers.

**Table : STOCK**

Itcode	Itname	Dcode	Qty	unitpr	Stkdate
444	Drawing Copy	101	110	21	2010-07-31
445	Sharpener Camlin	102	235	3	2010-08-01
450	Eraser Natraj	101	40	2	2010-08-17
452	Gel Pen Montex	103	50	5	2009-12-30
457	Geometry Box	101	35	45	2009-11-15
467	Parker Premium	102	60	205	2009-10-27
469	Office File	103	32	25	2007-09-13

**Table : DEALERS**

Dcode	Dname
101	Vikash Stationers
102	Bharat Drawing Emporium
103	Banaras Books Corporation

- i) To display details of all items in the stock table in descending order of Stkdate.
- ii) To display the details of those items whose Dcode (Dealer Code) is 102 and Qty (Quantity) is more than 50 from the table stock.
- iii) To display the itname, Dname and unitpr for all the stocks whose quantity is more than 100.
- iv) To display the stock details in the descending order of unitpr.
- v) To display the itname, dcode and qty for all the stocks whose qty is in the range 50 to 100 (both inclusive)

5

40 Write a program and incorporate the following modules using python methods:

- i) A python method createfile() that creates a binary file "staff.dat" and adds three records in the file. Each record comprises of data (Staffid, name, designation, salary)
- ii) A python method display() that reads the binary file "staff.dat" and prints the records whose salary is greater than 5000

OR

Write a python program and incorporate the following modules:

- i) A python method addrec() that creates the binary file zoo.dat and adds three records in the file. Each record comprises of the data (animal, family, country, total)
- ii) A python method countthem() that counts the total number of animals in the zoo from the binary file and return the same.

5