



M.G.M HIGHER SECONDARY SCHOOL

Sector-4F, Bokaro Steel City, Jharkhand

Sample Question Paper

COMPUTER SCIENCE-083

Set-3 (Theory)

Class-XII

Total Marks- 70

Total Time- 3 Hours

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. **Part-A** has two 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.
3. **Part - B** is Descriptive Paper.
4. **Part- B** has three sections:
 - a. **Section-I** is short answer questions of 2 marks each.
 - b. **Section-II** is long answer questions of 3 marks each.
 - c. **Section-III** is very long answer questions of 5 marks each.
5. All programming questions are to be answered using Python Language only.

PART A**Section-I- Short Answer Type Questions****Attempt any 15 questions from question no 1 to 21.**

QUESTION NO.	QUESTION	MARKS ALLOCATED
1	Give example to support in python programming language multiple assignment can be done.	1
2	What will be the result after the execution of the following Python code? <pre>>>> list1=[3,2,5,7,3,6] >>> list1.pop(3) >>> print(list1)</pre> <p>a) [3,2,5,3,6] b) [2,5,7,3,6] c) [2,5,7,6] d) [3,2,5,7,3,6]</p>	1
3	Write down the difference between read() and readline() function.	1
4	Write the use of string.islower() function.	1
5	What will be the output of the following Python code? <pre>>>> t1 = (1,2,4,3) >>> t2 = (1,2,3,4) >>> t1 < t2</pre> <p>a) True b) False c) Error d) None</p>	
6	Which of the following Python codes will give same output if (i) dict.pop("book") (ii) del dict["book"] (iii) dict.update({"diary":1,"novel":5}) dict={"diary":1,"book":3,"novel":5} a) i, ii, iii	1

	b) i, ii c) i, iii d) ii, iii	
7	A Python tuple can also be created without using parentheses a) False b) True	1
8	Expand IMAP.	1
9	Using the _____ clause retains only one copy of such identical tuples. a) Null b) Unique c) Not null d) Distinct	1
10	Which of the following methods is used to broadcast two packets on the medium at a time? a) Collision b) Synchronous c) Asynchronous d) None of the above	1
11	How do we use the DISTINCT statement?	1
12	Name the built-in mathematical function / method that is used to returns the smallest integer not less than a number.	1
13	In specific, if the systems use separate protocols, which one of the following devices is used to link two systems? a) Repeater b) Gateway c) Bridge d) Hub	1
14	What is the difference between list and dictionary?	1
15	The primary key must be a) Unique b) Not null c) Both Unique and Not null d) Either Unique or Not null	1

<p>16</p>	<p>The term WAN stands for?</p> <p>a) Wide Area Net b) Wide Access Network c) Wide Area Network d) Wide Access Net</p>	<p>1</p>
<p>17</p>	<p>Aggregate functions are functions that take a _____ as input and return a single value.</p> <p>a) Collection of values b) Single value c) Aggregate value d) Both Collection of values & Single value</p>	<p>1</p>
<p>18</p>	<p>What will be the output of below Python code?</p> <pre>>>> str1="Information" >>> print(str1[2:8])</pre> <p>a) format b) formation c) orma d) ormat</p>	<p>1</p>
<p>19</p>	<p>Which one of the following is not a network topology?</p> <p>a) Star b) Ring c) Bus d) Peer to Peer</p>	<p>1</p>
<p>20</p>	<p>SELECT _____ FROM instructor WHERE dept name= 'Comp. Sci.';</p> <p>Which of the following should be used to find the mean of the salary?</p> <p>a) Mean(salary) b) Avg(salary) c) Sum(salary) d) Count(salary)</p>	<p>1</p>
<p>21</p>	<p>The term FTP stands for?</p> <p>a) File transfer program</p>	<p>1</p>

- b) File transmission protocol
- c) File transfer protocol
- d) File transfer protection

Section-II Case Studies Questions

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

QUESTION NO.	QUESTION	MARKS ALLOCATED																																																
22	<p>MGM group of institutions is considering to maintain the records of their teachers using SQL to store the data. As a database administrator, Abhishek has decided that :</p> <ul style="list-style-type: none"> • Name of the database – Worker_details • Name of the table - SCHOOL <p style="text-align: center;">Table : SCHOOL</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px auto;"> <thead> <tr> <th>Code</th> <th>TeacherName</th> <th>Subject</th> <th>DOJ</th> <th>Periods</th> <th>Experience</th> </tr> </thead> <tbody> <tr><td>1001</td><td>Ravi Shanker</td><td>English</td><td>12/03/2000</td><td>24</td><td>10</td></tr> <tr><td>1009</td><td>Priya Rai</td><td>Physics</td><td>03/09/1998</td><td>26</td><td>12</td></tr> <tr><td>1203</td><td>Lisa Anand</td><td>English</td><td>09/04/2000</td><td>27</td><td>5</td></tr> <tr><td>1045</td><td>Yashraj</td><td>Maths</td><td>24/08/2000</td><td>24</td><td>15</td></tr> <tr><td>1123</td><td>Ganan</td><td>Physics</td><td>16/07/1999</td><td>28</td><td>3</td></tr> <tr><td>1167</td><td>Harish B</td><td>Chemistry</td><td>19/10/1999</td><td>27</td><td>5</td></tr> <tr><td>1215</td><td>Umesh</td><td>Physics</td><td>11/05/1998</td><td>22</td><td>16</td></tr> </tbody> </table>	Code	TeacherName	Subject	DOJ	Periods	Experience	1001	Ravi Shanker	English	12/03/2000	24	10	1009	Priya Rai	Physics	03/09/1998	26	12	1203	Lisa Anand	English	09/04/2000	27	5	1045	Yashraj	Maths	24/08/2000	24	15	1123	Ganan	Physics	16/07/1999	28	3	1167	Harish B	Chemistry	19/10/1999	27	5	1215	Umesh	Physics	11/05/1998	22	16	
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	(a) Identify the attribute best suitable to be declared as a primary key as well as foreign key.	1																																																
	(b) Write the degree and cardinality of the table SCHOOL.	1																																																
	(c) How Abhishek will get the total number of teacher working in this institutions?	1																																																
	(d) Abhishek wants to get the information of the teachers who are teaching PHYSICS. Write down the command for it.	1																																																
	(e) Now Abhishek wants to extract the name and code of those teachers who has joined after 1999. Write down the command for it.	1																																																
23	<p>Rajeev sir class teacher of class XI has created a binary file “Binaryfile.dat”. He inserted values such as roll no., name of student, total marks obtained and overall grade by the students of his class. He wants to search and update the</p>																																																	

marks of few students for this he has written the following code. As a programmer, help him to successfully execute the given task.

```
import pickle
def read():
    f=open("Binaryfile.dat",'____') # Line 1
    s=pickle.load(f)
    for i in s:
        r=i[0]
        n=i[1]
        m=i[2]
        g=i[3]
        print(r,n,m,g)
    f.close()
def search():
    f=open("Binaryfile.dat",'rb')
    s=pickle.____(f) # Line 2
    found=0
    r_no=int(input("Enter roll number to be searched: "))
    for i in s:
        if i[0]==r_no:
            print("RECORD FOUND")
            print(i[0],i[1],i[2],i[3])
            found=1
        if found____0: # Line 3
            print("RECORD NOT FOUND")
def update():
    f=open("Binaryfile.dat",'rb+')
    s=pickle.load(f)
    found=0
    rno=int(input("ENTER ROLL NO. WHOSE VALUE YOU WANT TO
UPDATE: "))
    for i in s:
        if rno==i[0]:
            print("CURRENT VALUE: ", i[1])
            i[1]=input("ENTER NEW NAME:")
            found=1
            _____ # Line 4
    if found= =0:
        print("RECORD NOT FOUND")
    else:
        f.seek(0)
        pickle.dump(s,f)
    f.close()

search()
read()
_____ # Line 5
read()
```

a) Write down the mode of opening of file at line 1.

1

	b) Write the method through which Abhishek sir will be able to get the data from the binary file at line 2.	1
	c) Suggest a proper operator at line 3.	1
	d) If Abhishek get the value to be updated which statement he will write to stop the search and update at line 4.	1
	e) In order to call the function update what will be the syntax for it at line 5.	1

PART B

Section-I- Short Answer Type Questions

QUESTION NO.	QUESTION	MARKS ALLOCATED
24	What is entry controlled loop? Which loop is entry controlled loop in Python?	2
25	What is network congestion? What are its symptoms?	2
26	Write down the command to extract some data from the table Members present in the database 'Society' using Python and MYSQL interface.	2
27	Differentiate between DELETE and DROP table commands with example.	2
28	Account on the following situations: a) Deepika wants to remove all rows from the table BANK. But he needs to maintain the structure of the table. Which command is used to implement the same? b) While creating table 'customer', Rahul forgot to add column 'price'. Which command is used to add new column in the table. Write the command to implement the same.	2
29	Name the network tools used in the given situations: (i) To troubleshoot internet connection problems (ii) To see the IP address associated with a domain name (iii) To look up registration record associated with a domain name. (iv) To test the speed of internet connection	2
30	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. <code>STRING=""HAPPY NEW YEAR"</code>	2

	<pre>for S in range[0,8]: print STRING(S) print S+STRING</pre>	
31	<p>Find and write the output of the following python code:</p> <pre>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)</pre>	2
32	<p>Study the following program and select the possible output(s) from the options (i) to (iv) following it. Also, write the maximum and the minimum values that can be assigned to the variable Y.</p> <pre>import random X= random.random() Y= random.randint(0,4) print(int(X),":",Y+int(X))</pre> <p>(i) 0 : 0 (ii) 1 : 6 (iii) 2 : 4 (iv) 0 : 3</p>	2
33	<p>Trace the following code and predict output produced by it.</p> <ol style="list-style-type: none"> 1. def power(b,p): 2. y=b**p 3. return y 4. 5. def calcSquare(x): 6. a=power(x,2) 7. return a 8. 9. n=5 	2

	10. result=calcSquare(n) + power(3,3) 11. print(result)	
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Section-II-Long Answer Questions

QUESTION NO.	QUESTION	MARKS ALLOCATED																																																															
34	<p>Consider the tables STAFF and SALARY given below: -</p> <p style="text-align: center;">STAFF</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>StaffID</th> <th>Name</th> <th>Department</th> <th>Gender</th> <th>Experience</th> </tr> </thead> <tbody> <tr> <td>1125</td> <td>Nihara</td> <td>Sales</td> <td>F</td> <td>12</td> </tr> <tr> <td>1263</td> <td>Kartik</td> <td>Finance</td> <td>M</td> <td>6</td> </tr> <tr> <td>1452</td> <td>Payal</td> <td>Research</td> <td>F</td> <td>3</td> </tr> <tr> <td>236</td> <td>Aryan</td> <td>Sales</td> <td>M</td> <td>8</td> </tr> <tr> <td>366</td> <td>Laxman</td> <td>Finance</td> <td>M</td> <td>10</td> </tr> <tr> <td>321</td> <td>Krishna</td> <td>Sales</td> <td>M</td> <td>7</td> </tr> </tbody> </table> <p style="text-align: center;">SALARY</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>StaffID</th> <th>Basic</th> <th>Allowance</th> <th>Comm</th> </tr> </thead> <tbody> <tr> <td>1452</td> <td>12000</td> <td>1000</td> <td>200</td> </tr> <tr> <td>321</td> <td>23000</td> <td>2300</td> <td>900</td> </tr> <tr> <td>1125</td> <td>32000</td> <td>4000</td> <td>100</td> </tr> <tr> <td>236</td> <td>12000</td> <td>52000</td> <td>800</td> </tr> <tr> <td>336</td> <td>42000</td> <td>1700</td> <td>700</td> </tr> <tr> <td>1263</td> <td>18900</td> <td>1690</td> <td>150</td> </tr> </tbody> </table> <p>Give Output of the following:</p> <p>(1) SELECT NAME FROM STAFF ST, SALARY SA WHERE COMM <=700 AND ST.STAFFID = SA.STAFFID;</p> <p>(2) SELECT NAME, BASIC FROM STAFF, SALARY WHERE DEPT="SALES" AND STAFF.STAFFID= SALARY.STAFFID;</p> <p>(3) SELECT COUNT(DEPARTMENT),DEPARTMENT FROM STAFF GROUP BY DEPARTMENT;</p>	StaffID	Name	Department	Gender	Experience	1125	Nihara	Sales	F	12	1263	Kartik	Finance	M	6	1452	Payal	Research	F	3	236	Aryan	Sales	M	8	366	Laxman	Finance	M	10	321	Krishna	Sales	M	7	StaffID	Basic	Allowance	Comm	1452	12000	1000	200	321	23000	2300	900	1125	32000	4000	100	236	12000	52000	800	336	42000	1700	700	1263	18900	1690	150	3
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35	Write PUSH(book_name) and POP(book_name) methods in python to add book name and remove book name considering them to act as PUSH and POP operations in Stack.	3																																																															
36	Write a program to read data from text file in read mode and count the particular word occurrences in the given file, number of times in Python. for example : file contents are <i>An old man lived in the village.</i> <i>He was one of the most unfortunate people in the world.</i> <i>The whole village was tired of him; he was always gloomy,</i>	3																																																															

	<p><i>he constantly complained and was always in a bad mood.</i></p> <p>Program output</p> <p>Enter search string : was</p> <p>'was' occurred 4 times</p>	
37	<p>Find and write the output of the following python code:</p> <pre>def Alter(x,y=20): x=x*y y=x%y print (x,'*',y) return (x) a=200 b=30 a=Alter(a,b) print (a,'\$',b) b=Alter(b) print (a,'\$', b) a=Alter(a) print (a,'\$',b)</pre>	3

Section-III-Very Long Answer Type Questions

QUESTION NO.	QUESTION	MARKS ALLOCATED																					
38	<p>Consider the following tables TRANSPORT and TRIE :</p> <p align="center">TABLE: TRANSPORT</p> <table border="1"> <thead> <tr> <th>TCODE</th> <th>TTYPE</th> <th>PERKM</th> </tr> </thead> <tbody> <tr> <td>103</td> <td>ORDINARY BUS</td> <td>90</td> </tr> <tr> <td>105</td> <td>SUV</td> <td>40</td> </tr> <tr> <td>104</td> <td>CAR</td> <td>20</td> </tr> <tr> <td>103</td> <td>ORDINARY BUS</td> <td>90</td> </tr> <tr> <td>101</td> <td>VOLVO BUS</td> <td>160</td> </tr> <tr> <td>102</td> <td>AC DELUXE BUS</td> <td>140</td> </tr> </tbody> </table> <p>Note:</p> <ul style="list-style-type: none"> • PERKS is Freight Charges per kilometre • TTYPE is Transport Vehicle Type 	TCODE	TTYPE	PERKM	103	ORDINARY BUS	90	105	SUV	40	104	CAR	20	103	ORDINARY BUS	90	101	VOLVO BUS	160	102	AC DELUXE BUS	140	5
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TABLE: TRIP

NO	NAME	TDATE	KM	TCODE	NOP
11	Tanish Khan	2015-12-13	200	101	32
13	Danish Sahai	2016-06-21	100	103	45
15	Ram Kumar	2016-02-23	350	102	42
12	Fen Shen	2016-01-13	90	102	40
17	Aan Kumar	2015-02-10	75	104	2
14	Veena	2016-06-28	80	105	4
16	Rajpal Kirti	2016-06-06	200	101	25

Note:

- NO is Driver Number
- KM is Kilometre travelled
- NOP is number of travellers travelled in vehicle
- TDATE is Trip Date

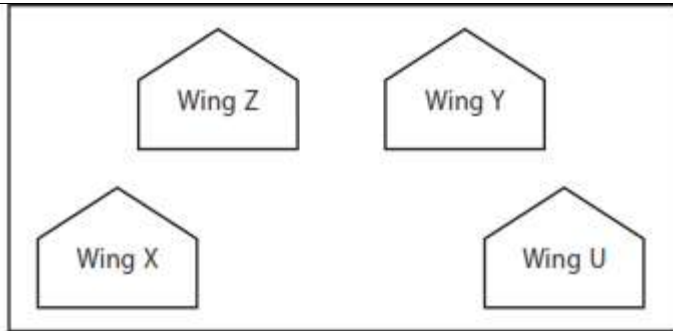
Write down the SQL commands for the following:

- To display NO, NAME, TDATE from the table TRIP in descending order of NO.
- To display the NAME of the drivers from the table TRIP who are traveling by transport vehicle with code 101 or 103.
- To display the NO and NAME of those drivers from the table TRIP who travelled between '2015-02-10' and '2015-04-01'.
- To display all the details from table TRIP in which the distance travelled is more than 100 KM in ascending order of NOP
- To count the total number of driver available from trip table.

39

ABC Pvt Ltd has set up its new Branch at Jammu for its office and web-based activities. It has 4 Wings of buildings as shown in the diagram:

5



Center to center distance between various blocks:

Wing X to Wing Z	50 m
Wing Z to Wing Y	70 m
Wing & to Wing X	125 m
Wing & to Wing U	80 m
Wing X to Wing U	175 m
Wing Z to Wing U	90 m

Number of computers:

Wing X	50
Wing Z	30
Wing Y	150
Wing U	15

- (i) Suggest the most suitable connection between the Wings and topology.
- (ii) Suggest the most suitable place (*i.e.*, Wing) to house the server of this organization with a suitable reason, with justification.
- (iii) Suggest the placement of the following devices with justification:
 - (a) Repeater
 - (b) Hub/Switch
- (iv) The organization is planning to link its head office situated in Delhi with the offices at Jammu. Suggest an economic way to connect it; the company is ready to compromise on the speed of connectivity. Justify your answer.

40

A binary file “SalesRec.dat” has structure [Items_id, Item_Name, Total_Quantity, Overall_Sales].

- i. Write a user defined function *Insertrec()* to input data for a record and add to SalesRec.dat (suppose the file already consists of some data).
- ii. Write a function *CountRec(Items_id)* in Python which accepts the Items_id as parameter and that can display the overall sales of the particular item and return the name of those items which are less in quantity say below 25 units.

5