

KENDRIYA VIDYALAYA SANGATHAN
BENGALURU REGION
FIRST PRE-BOARD EXAM (SESSION 2022-23)

CLASS: XII
SUBJECT: COMPUTER SCIENCE

MAX MARKS:70
TIME: 3 HOURS

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only

SECTION A		
1.	State True or False "Python has a set of keywords that can also be used to declare variables"	1
2.	Which of the following is not a valid python operator? a) % b) in c) # d) **	1
3.	What will be the output of the following python dictionary operation? data = {'A':2000, 'B':2500, 'C':3000, 'A':4000} print(data) a) {'A':2000, 'B':2500, 'C':3000, 'A':4000} b) {'A':2000, 'B':2500, 'C':3000} c) {'A':4000, 'B':2500, 'C':3000} d) It will generate an error.	1
4.	print(True or not True and False) Choose one option from the following that will be the correct output after executing the above python expression. a) False b) True c) or d) not	1
5.	Select the correct output of the following python code: str="My program is program for you" t = str.partition("program") print(t) a) ('My ', 'program', ' is ', 'program', ' for you') b) ('My ', 'program', ' is program for you') c) ('My ', ' is program for you')	1

	d) ('My ', ' is ', ' for you')	
6.	Which of the file opening mode will open the file for reading and writing in binary mode. a) rb b) rb+ c) wb d) a+	1
7.	Which of the following statements is True? a) There can be only one Foreign Key in a table. b) There can be only one Unique key is a table c) There can be only one Primary Key in a Table d) A table must have a Primary Key.	1
8.	Which of the following is not part of a DDL query? a) DROP b) MODIFY c) DISTINCT d) ADD	1
9.	Which of the following operations on a string will generate an error? a) "PYTHON"*2 b) "PYTHON" + "10" c) "PYTHON" + 10 d) "PYTHON" + "PYTHON"	1
10	_____ Keyword is used to obtain unique values in a SELECT query a) UNIQUE b) DISTINCT c) SET d) HAVING	1
11	Which of the following python statement will bring the read pointer to 10 th character from the end of a file containing 100 characters, opened for reading in binary mode. a) File.seek(10,0) b) File.seek(-10,2) c) File.seek(-10,1) d) File.seek(10,2)	1
12	Which statement in MySql will display all the tables in a database? a) SELECT * FROM TABLES; b) USE TABLES; c) DESCRIBE TABLES; d) SHOW TABLES;	1
13	Which of the following is used to receive emails over Internet? a) SMTP b) POP c) PPP d) VoIP	1

14	What will be the output of the following python expression? print(2**3**2) a) 64 b) 256 c) 512 d) 32	1
15	Which of the following is a valid sql statement? a) ALTER TABLE student SET rollno INT(5); b) UPDATE TABLE student MODIFY age = age + 10; c) DROP FROM TABLE student; d) DELETE FROM student;	1
16	Which of the following is not valid cursor function while performing database operations using python. Here Mycur is the cursor object? a) Mycur.fetch() b) Mycur.fetchone() c) Mycur.fetchmany(n) d) Mycur.fetchall()	1
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True		
17	Assertion (A): A variable declared as global inside a function is visible with changes made to it outside the function. Reasoning (A): All variables declared outside are not visible inside a function till they are redeclared with global keyword.	1
18	Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module. Reasoning (A): A binary files are just like normal text files and can be read using a text editor like notepad.	1
SECTION B		
19	Sameer has written a python function to compute the reverse of a number. He has however committed a few errors in his code. Rewrite the code after removing errors also underline the corrections made. define reverse(num): rev = 0 While num > 0: rem == num %10 rev = rev*10 + rem num = num//10 return rev print(reverse(1234))	2

20	<p>Mention two differences between a Hub and a switch in networking.</p> <p style="text-align: center;">OR</p> <p>Mention one advantage and one disadvantage of Star Topology.</p>	2
21	<p>a) What will be the output of the following string operation.</p> <pre>str="PYTHON@LANGUAGE" print(str[2:12:2])</pre> <p>b) Write the output of the following code.</p> <pre>data = [1,2,4,5] for x in data: x = x + 10 print(data)</pre>	1 1
22	<p>Mention two differences between a PRIMARY KEY and a UNIQUE KEY.</p>	2
23	<p>a) Expand the following abbreviations:</p> <p style="padding-left: 40px;">i) URL ii) TCP</p> <p>b) What is the use of VoIP?</p>	1 1
24	<p>Predict the output of the following python code:</p> <pre>def foo(s1,s2): l1=[] l2=[] for x in s1: l1.append(x) for x in s2: l2.append(x) return l1,l2 a,b=foo("FUN",'DAY') print(a,b)</pre> <p style="text-align: center;">OR</p> <p>Predict the output of the following python code:</p> <pre>data = [2,4,2,1,2,1,3,3,4,4] d = {} for x in data: if x in d: d[x]=d[x]+1 else: d[x]=1 print(d)</pre>	2

25	<p>A MySQL table, sales have 10 rows. The following queries were executed on the sales table.</p> <p>SELECT COUNT(*) FROM sales;</p> <table border="1" style="margin-left: 20px;"> <tr><td>COUNT(*)</td></tr> <tr><td style="text-align: center;">10</td></tr> </table> <p>SELECT COUNT(discount) FROM sales;</p> <table border="1" style="margin-left: 20px;"> <tr><td>COUNT(discount)</td></tr> <tr><td style="text-align: center;">6</td></tr> </table> <p>Write a statement to explain as to why there is a difference in both the counts.</p> <p style="text-align: center;">OR</p> <p>What is the difference between a Candidate Key and an Alternate Key</p>	COUNT(*)	10	COUNT(discount)	6	2
COUNT(*)						
10						
COUNT(discount)						
6						

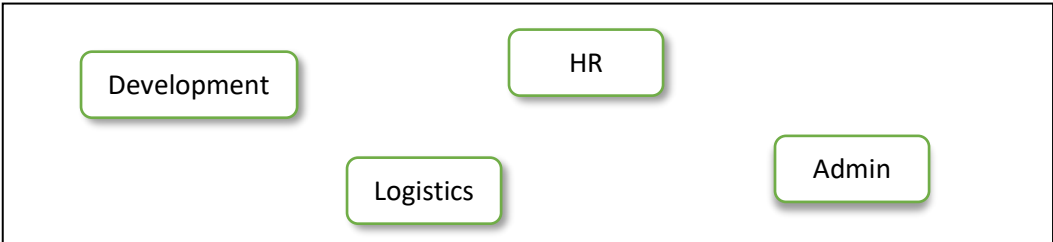
SECTION C

26	<p>a) Consider the following tables Emp and Dept:</p> <p>Relation: Emp</p> <table border="1" style="margin-left: 20px;"> <thead> <tr><th>empcode</th><th>ename</th><th>deptid</th><th>Salary</th></tr> </thead> <tbody> <tr><td>1001</td><td>TOM</td><td>10</td><td>10000</td></tr> <tr><td>1002</td><td>BOB</td><td>11</td><td>8000</td></tr> <tr><td>1003</td><td>SID</td><td>10</td><td>9000</td></tr> <tr><td>1004</td><td>JAY</td><td>12</td><td>9000</td></tr> <tr><td>1005</td><td>JIM</td><td>11</td><td>10000</td></tr> </tbody> </table> <p style="margin-left: 200px;">Relation: Dept</p> <table border="1" style="margin-left: 200px;"> <thead> <tr><th>deptid</th><th>dname</th></tr> </thead> <tbody> <tr><td>10</td><td>Physics</td></tr> <tr><td>11</td><td>Chemistry</td></tr> <tr><td>12</td><td>Biology</td></tr> </tbody> </table> <p>What will be the output of the following statement? SELECT * FROM Emp NATURAL JOIN Dept WHERE dname='Physics';</p> <p>b) Write output of the queries (i) to (iv) based on the table Sportsclub Table Name: Sportsclub</p> <table border="1" style="margin-left: 20px;"> <thead> <tr><th>playerid</th><th>pname</th><th>sports</th><th>country</th><th>rating</th><th>salary</th></tr> </thead> <tbody> <tr><td>10001</td><td>PELE</td><td>SOCCER</td><td>BRAZIL</td><td>A</td><td>50000</td></tr> <tr><td>10002</td><td>FEDERER</td><td>TENNIS</td><td>SWEDEN</td><td>A</td><td>20000</td></tr> <tr><td>10003</td><td>VIRAT</td><td>CRICKET</td><td>INDIA</td><td>A</td><td>15000</td></tr> <tr><td>10004</td><td>SANIA</td><td>TENNIS</td><td>INDIA</td><td>B</td><td>5000</td></tr> <tr><td>10005</td><td>NEERAJ</td><td>ATHLETICS</td><td>INDIA</td><td>A</td><td>12000</td></tr> <tr><td>10006</td><td>BOLT</td><td>ATHLETICS</td><td>JAMAICA</td><td>A</td><td>8000</td></tr> </tbody> </table>	empcode	ename	deptid	Salary	1001	TOM	10	10000	1002	BOB	11	8000	1003	SID	10	9000	1004	JAY	12	9000	1005	JIM	11	10000	deptid	dname	10	Physics	11	Chemistry	12	Biology	playerid	pname	sports	country	rating	salary	10001	PELE	SOCCER	BRAZIL	A	50000	10002	FEDERER	TENNIS	SWEDEN	A	20000	10003	VIRAT	CRICKET	INDIA	A	15000	10004	SANIA	TENNIS	INDIA	B	5000	10005	NEERAJ	ATHLETICS	INDIA	A	12000	10006	BOLT	ATHLETICS	JAMAICA	A	8000	1+2
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	(i) SELECT DISTINCT sports FROM Sportsclub; (ii) SELECT sports, MAX(salary) FROM Sportsclub GROUP BY sports HAVING sports<>'SNOOKER'; (iii) SELECT pname, sports, salary FROM Sportsclub WHERE country='INDIA' ORDER BY salary DESC; (iv) SELECT SUM(salary) FROM Sportsclub WHERE rating='B';																																																													
27	<p>A pre-existing text file data.txt has some words written in it. Write a python function displaywords() that will print all the words that are having length greater than 3.</p> <p>Example: For the file content: A man always wants to strive higher in his life He wants to be perfect.</p> <p>The output after executing displayword() will be: Always wants strive higher life wants perfect</p> <p style="text-align: center;">OR</p> <p>A pre-existing text file info.txt has some text written in it. Write a python function countvowel() that reads the contents of the file and counts the occurrence of vowels(A,E,I,O,U) in the file.</p>							3																																																						
28	<p>Based on the given set of tables write answers to the following questions.</p> <p>Table: flights</p> <table border="1"> <thead> <tr> <th>flightid</th> <th>model</th> <th>company</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>747</td> <td>Boeing</td> </tr> <tr> <td>12</td> <td>320</td> <td>Airbus</td> </tr> <tr> <td>15</td> <td>767</td> <td>Boeing</td> </tr> </tbody> </table> <p>Table: Booking</p> <table border="1"> <thead> <tr> <th>ticketno</th> <th>passenger</th> <th>source</th> <th>destination</th> <th>quantity</th> <th>price</th> <th>Flightid</th> </tr> </thead> <tbody> <tr> <td>10001</td> <td>ARUN</td> <td>BAN</td> <td>DEL</td> <td>2</td> <td>7000</td> <td>10</td> </tr> <tr> <td>10002</td> <td>ORAM</td> <td>BAN</td> <td>KOL</td> <td>3</td> <td>7500</td> <td>12</td> </tr> <tr> <td>10003</td> <td>SUMITA</td> <td>DEL</td> <td>MUM</td> <td>1</td> <td>6000</td> <td>15</td> </tr> <tr> <td>10004</td> <td>ALI</td> <td>MUM</td> <td>KOL</td> <td>2</td> <td>5600</td> <td>12</td> </tr> <tr> <td>10005</td> <td>GAGAN</td> <td>MUM</td> <td>DEL</td> <td>4</td> <td>5000</td> <td>10</td> </tr> </tbody> </table> <p>a) Write a query to display the passenger, source, model and price for all bookings whose destination is KOL.</p> <p>b) Identify the column acting as foreign key and the table name where it is present in the given example.</p>							flightid	model	company	10	747	Boeing	12	320	Airbus	15	767	Boeing	ticketno	passenger	source	destination	quantity	price	Flightid	10001	ARUN	BAN	DEL	2	7000	10	10002	ORAM	BAN	KOL	3	7500	12	10003	SUMITA	DEL	MUM	1	6000	15	10004	ALI	MUM	KOL	2	5600	12	10005	GAGAN	MUM	DEL	4	5000	10	3
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29	<p>Write a function modilst(L) that accepts a list of numbers as argument and increases the value of the elements by 10 if the elements are divisible by 5. Also write a proper call statement for the function.</p> <p>For example: If list L contains [3,5,10,12,15] Then the modilst() should make the list L as [3,15,20,12,25]</p>	3
30	<p>A dictionary contains the names of some cities and their population in crore. Write a python function push(stack, data), that accepts an empty list, which is the stack and data, which is the dictionary and pushes the names of those countries onto the stack whose population is greater than 25 crores.</p> <p>For example : The data is having the contents {'India':140, 'USA':50, 'Russia':25, 'Japan':10} then the execution of the function push() should push India and USA on the stack.</p> <p style="text-align: center;">OR</p> <p>A list of numbers is used to populate the contents of a stack using a function push(stack, data) where stack is an empty list and data is the list of numbers. The function should push all the numbers that are even to the stack. Also write the function pop() that removes the top element of the stack on its each call.</p>	3

SECTION D

31	<p>Magnolia Infotech wants to set up their computer network in the Bangalore based campus having four buildings. Each block has a number of computers that are required to be connected for ease of communication, resource sharing and data security. You are required to suggest the best answers to the questions i) to v) keeping in mind the building layout on the campus.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;">  <p>The diagram shows four buildings represented as rounded rectangles with green borders. 'Development' is on the left, 'HR' is at the top center, 'Logistics' is at the bottom center, and 'Admin' is on the right.</p> </div> <p>Number of Computers.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Block</th> <th style="text-align: left;">Number of computers</th> </tr> </thead> <tbody> <tr> <td>Development</td> <td>100</td> </tr> <tr> <td>HR</td> <td>120</td> </tr> <tr> <td>Admin</td> <td>200</td> </tr> <tr> <td>Logistics</td> <td>110</td> </tr> </tbody> </table>	Block	Number of computers	Development	100	HR	120	Admin	200	Logistics	110	5
Block	Number of computers											
Development	100											
HR	120											
Admin	200											
Logistics	110											

Distance Between the various blocks

Block	Distance
Development to HR	50m
Development to Admin	75m
Development to Logistics	120m
HR to Admin	110m
HR to Logistics	50m
Admin to Logistics	140m

- i) Suggest the most appropriate block to host the Server. Also justify your choice.
- ii) Suggest the device that should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services.
- iii) Suggest the wired medium and draw the cable block to block layout to economically connect the various blocks.
- iv) Suggest the placement of Switches and Repeaters in the network with justification.
- v) Suggest the high-speed wired communication medium between Bangalore Campus and Mysore campus to establish a data network.

32 a) Write the output of the following code:

```
def change(m, n=10):
    global x
    x+=m
    n+=x
    m=n+x
    print(m,n,x)
x=20
change(10)
change(20)
```

OR (only in a part)

What will be the output of the following python program?

```
str = ""
name = "9@Days"
for x in name:
    if x in "aeiou":
        str+=x.upper()
    elif not x.isalnum():
```

2+3


```

str+="**"
elif x.isdigit():
    pass
else:
    str+=x.lower()
print(str)

```

b) Sumitra wants to write a program to connect to MySQL database using python and increase the age of all the students who are studying in class 11 by 2 years. Since she had little understanding of the coding, she left a few blank spaces in her code. Now help her to complete the code by suggesting correct coding for statements 1, 2 and 3.

```

import _____ as myc    # Statement 1

con = myc.connect(host="localhost", user="root", passwd="",
database="mydb")
mycursor = _____    #Statement 2
sql = "UPDATE student SET age=age+2 WHERE class='XI'"
mycursor.execute(sql)
sql = "SELECT * FROM student"
mycursor=con.execute(sql)
result = _____    #Statement 3
for row in result:
    print(row)

```

Statement 1 : The required module to be imported
Statement 2: To initialize the cursor object.
Statement 3: To read all the rows from the cursor object

33 . A binary file data.dat needs to be created with following data written it in the form of Dictionaries. 2+3

Rollno	Name	Age
1001	TOM	17
1002	BOB	16
1003	KAY	16

Write the following functions in python accommodate the data and manipulate it.

- A function insert() that creates the data.dat file in your system and writes the three dictionaries.
- A function() read() that reads the data from the binary file and displays the dictionaries whose age is 16.

34	<p>Tarun created the following table in MySQL to maintain stock for the items he has.</p> <p>Table : Inventory</p> <table border="1" data-bbox="183 280 1380 716"> <thead> <tr> <th>Productid</th> <th>pname</th> <th>company</th> <th>stock</th> <th>price</th> <th>rating</th> </tr> </thead> <tbody> <tr> <td>10001</td> <td>Biscuit</td> <td>Parley</td> <td>1000</td> <td>15</td> <td>C</td> </tr> <tr> <td>10002</td> <td>Toffee</td> <td>Parley</td> <td>500</td> <td>5</td> <td>B</td> </tr> <tr> <td>10003</td> <td>Eclairs</td> <td>Cadbury</td> <td>800</td> <td>10</td> <td>A</td> </tr> <tr> <td>10004</td> <td>Cold Drink</td> <td>Coca Cola</td> <td>500</td> <td>25</td> <td>NULL</td> </tr> <tr> <td>1005</td> <td>Biscuit</td> <td>Britania</td> <td>500</td> <td>30</td> <td>NULL</td> </tr> <tr> <td>1006</td> <td>Chocolate</td> <td>Cadbury</td> <td>700</td> <td>50</td> <td>C</td> </tr> </tbody> </table> <p>Based on the above table answer the following questions.</p> <p>a) Identify the primary key in the table with valid justification. b) What is the degree and cardinality of the given table. c) Write a query to increase the stock for all products whose company is Parley.</p> <p style="text-align: center;">OR (only for part c)</p> <p>Write a query to delete all the rows from the table which are not having any rating.</p>	Productid	pname	company	stock	price	rating	10001	Biscuit	Parley	1000	15	C	10002	Toffee	Parley	500	5	B	10003	Eclairs	Cadbury	800	10	A	10004	Cold Drink	Coca Cola	500	25	NULL	1005	Biscuit	Britania	500	30	NULL	1006	Chocolate	Cadbury	700	50	C	1+1+2
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1006	Chocolate	Cadbury	700	50	C																																							
35	<p>Sudheer has written a program to read and write using a csv file. He has written the following code but failed to write completely, leaving some blanks. Help him to complete the program by writing the missing lines by following the questions a) to d)</p> <pre> _____ #Statement 1 headings = ['Country','Capital','Population'] data = [['India', 'Delhi',130],['USA','Washington DC',50],['Japan,Tokyo,2]] f = open('country.csv','w', newline='') csvwriter = csv.writer(f) csvwriter.writerow(headings) _____ #Statement 2 f.close() f = open('country.csv','r') csvreader = csv.reader(f) head = _____ print(head) for x in _____: if int(x[2])>50: print(x) </pre> <p style="text-align: right;">#Statement 3</p> <p style="text-align: right;">#Statement 4</p>																																											

- | | | |
|--|---|--|
| | <ul style="list-style-type: none">a) Statement 1 – Write the python statement that will allow Sudheer work with csv files.b) Statement 2 – Write a python statement that will write the list containing the data available as a nested list in the csv filec) Statement 3 – Write a python statement to read the header row in to the head object.d) Statement 4 – Write the object that contains the data that has been read from the file. | |
|--|---|--|

****End****