

Blue print
Computer sc. Class XII
Preboard Examination
2019-20

Serial No.	Units	Marks
1	1. Programming and Computational Thinking – 2	30
2	Computer Networks 15	15
3	Data Management – 2	15
4	Society Law and Ethics – 2	10

Marking Scheme

Serial No.	Marks	No of questions
1	1	18 x 1 = 18
2	2	14 x 2 = 28
3	3	4 x 3 = 12
4	4	3 x 4 = 12
Total Marks		70

COMPUTER SCIENCE –NEW(083)

FIRST PREBOARD QUESTION PAPER (2019-20)

CLASS- XII(SET-A)

Max. Marks:70

Time:3hrs

General Instructions:

- All questions are compulsory.
- Question paper is divided into 4 sections A,B,C and D.
 - Section A: Unit-1
 - Section B: Unit-2
 - Section C: Unit-3
 - Section D: Unit-4

SECTION-A			
Q1.	(a)	What will be the output of the following? <code>print(len(str(17/4)))</code>	1
	(b)	Evaluate the following expressions: <code>12%3**4//5+6</code>	1
	(c)	Find the output <code>p=5%2</code> <code>q=p**4</code> <code>r=p//q</code> <code>p+=p+q+r</code> <code>r+=p+q+r</code> <code>q-=p+q*r</code> <code>print (p,q,r)</code>	1
	(d)	Find errors, underline them and rewrite the same after correcting the following code: <code>x=1</code> <code>if x>3</code> <code> if x>4:</code> <code> print "a",end=""</code> <code> otherwise:</code> <code> print "b", end=""</code> <code>elseif x<2:</code> <code> if (x!=0):</code>	2

		<pre>print("c", end="") print("d")</pre>	
(e)	Find and write the output of the following python code:	<pre>str1='aabbcc' c=3 while True: if str1[0]=='a': str1=str1[2:] elif str1[-1]=='b': str1=str[2] else: c+=1 break print(str1) print(c)</pre>	2
(f)	Find and write the output of the following python code:	<pre>def addem(x,y,z): print(x+y+z) def prod(x,y,z): return x*y*z a=addem(6,16,26) b=prod(2,3,6) print(a,b)</pre>	3
(g)	What are the possible outcome(s) executed from the following code ? Also specify the maximum and minimum values that can be assigned to variable R.	<pre>import random S="CBSEONLINE" R=random.randint(0,3) N=9 while S[N]!='L': print(S[N]+S[R]+'#',end='') R=R+1 N=N-1</pre> <p>i) ES#NE#IO# ii) LE#NO#ON# iii) NS#IE#LO# iv) EC#NB#IS#</p>	2

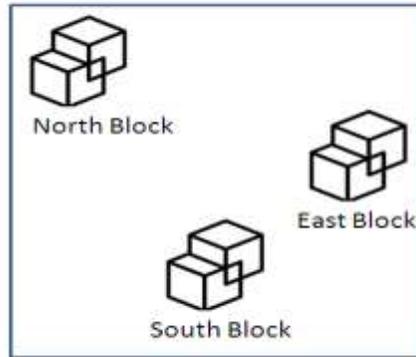
Q2.	(a)	Python package without following folder is not considered a python package:	1
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		Strengths: 235,545,258,654,754,566,545,253,345,124							
	(h)	<p>Consider the file poem.txt</p> <p>I love thee, o my India! And thy love I shall give To every brother nation that lives.</p> <p>and find the output produce by following code fragment?</p> <pre>Obj1=open("poem.txt","r") S1=obj1.readline() S2=obj1.read(19) print(s2) Obj1.close()</pre> <p style="text-align: center;">OR</p> <p>Write a program to count the number of uppercase alphabets present in a text file "abc.txt".</p>	2						
	(i)	<p>Write recursive code to compute greatest common divisor of two numbers.</p> <p style="text-align: center;">OR</p> <p>Write recursive code to calculate a^b. Value of a and b passed as argument by user.</p>	3						
	(j)	<p>Write a program to implement a Stack for these book –details(book no. , book name). that is , now each item node of the stack contains two types of information- a book no and its name . just implement PUSH and pop() operations.</p> <p style="text-align: center;">OR</p> <p>Write a program to perform insert and delete operations on a Queue containing Members' details as given in the following :</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Member no.</td> <td>integer</td> </tr> <tr> <td>Member name</td> <td>string</td> </tr> <tr> <td>Age</td> <td>integer</td> </tr> </table>	Member no.	integer	Member name	string	Age	integer	4
Member no.	integer								
Member name	string								
Age	integer								

SECTION-B

Q 3		Questions 3(a) to 3(c): Fill in the blanks	
	(a)	_____ are the clouds for use of multiple organizations (tenants) on a shared basis and hosted and managed by a third party service provider.	1
	(b)	_____ is a remote login that helps a user to log in another user's terminal	1

)	without being its original user.	
(c)	_____ is used to connect different types of networks.	1
(d)	_____wires are very good for high-speed , high – capacity data transmission due to lack of attenuation	1
(e)	Discuss following network protocols, briefly: (do any two) i) FTP ii) IMAP iii) NFC	2
(f)	What is MAC address?	2
(g)	Name the network tools used in the given situation- i) To troubleshoot internet connection problem. ii) To see the IP address associated with the domain name. iii) To lookup registration record associated with a domain name.	3
(h)	A Manglure based organization expanding its office setup to Dehradun. At Dehradun office campus, they are planning to have 3 different Blocks for HR, Accounts and Logistics related work. 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 in (i) to (vi), keeping in mind the distance between various Blocks and other given parameters.	4



Corporate Block

Shortest distances between various blocks :

Block A(HR) to Block B(Account)	700 meters
Block B(Account) to Block C(Logistics)	300 meters
Block C(Logistics) to Block A(HR)	500 meters
Corporate Block to Dehradun Block	56 Km

Number of Computers installed at various blocks are as follows:

Block A(HR) North block	10
Block B(Account) South Block	20
Block C(Logistics) East block	12
Corporate Block	78

- i) Suggest the most appropriate block to house the server in the Dehradun block(out of the 3 blocks) to get the best and most 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 Dehradun office Compound.Name the topology formed by the above cable layout.
- iii) Suggest a device /software and its placement that would provide data security for the entire network of the Dehradun office.

	iv) Which wireless channel out of the following should be chosen by the organization management to connect to their campus Dehradun from Manglure. 1. Radio wave 2. Microwave 3. Satellite	
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SECTION-C																																																			
Q 4		Questions 3(a) to 3(c): Fill in the blanks																																																	
	(a)	Which function/method do you use for executing aSQL query from python program?	1																																																
	(b)	Name the keywords that can be used together to count the number of records without taking duplicate values.	1																																																
	(c)	Which keyword is used in combination with the UPDATE command to add changed data with where clause.	1																																																
	(d)	What is meant by NULL value in MYSQL?	1																																																
	(e)	Differentiate between CHAR and VARCHAR data types. OR Differentiate between primary key and foreign key.	2																																																
	(f)	What do you understand by Django?	2																																																
	(g)	Consider the given table student and answer the questions that follow: <table border="1" data-bbox="418 1203 1404 1497"> <thead> <tr> <th>RollNo</th> <th>Name</th> <th>Gender</th> <th>Marks</th> <th>DOB</th> <th>Mobile_No</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Sanjeet</td> <td>M</td> <td>97</td> <td>17-Nov-2002</td> <td>8700xxxx8</td> </tr> <tr> <td>5</td> <td>Monalika</td> <td>F</td> <td>93</td> <td>12-Feb-2002</td> <td>8710xxxx1</td> </tr> <tr> <td>8</td> <td>Vinayank</td> <td>M</td> <td>84</td> <td>05-Aug-2003</td> <td>9812xxxx2</td> </tr> <tr> <td>7</td> <td>Rishit</td> <td>M</td> <td>34</td> <td>11-Dec-2001</td> <td>9845xxxx4</td> </tr> <tr> <td>1</td> <td>Sejal</td> <td>F</td> <td>82</td> <td>12-Jul-2003</td> <td>9532xxxx3</td> </tr> <tr> <td>9</td> <td>Tanisq</td> <td>M</td> <td>74</td> <td>28-Jan-2004</td> <td>8700xxxx6</td> </tr> <tr> <td>6</td> <td>Jhanvi</td> <td>F</td> <td>76</td> <td>08-Oct-2004</td> <td>9700xxxx4</td> </tr> </tbody> </table> i) Select stream , SUM (marks) as "Total Marks" from student group by stream Having marks>90; ii) Select MAX(marks),MIN(marks) from student where name like "%an%"; iii) Select Name,Gender,DOB from student where stream ="Science";	RollNo	Name	Gender	Marks	DOB	Mobile_No	2	Sanjeet	M	97	17-Nov-2002	8700xxxx8	5	Monalika	F	93	12-Feb-2002	8710xxxx1	8	Vinayank	M	84	05-Aug-2003	9812xxxx2	7	Rishit	M	34	11-Dec-2001	9845xxxx4	1	Sejal	F	82	12-Jul-2003	9532xxxx3	9	Tanisq	M	74	28-Jan-2004	8700xxxx6	6	Jhanvi	F	76	08-Oct-2004	9700xxxx4	3
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	(h)	Write SQL queries for (i) to (iv) , which are based on the table : STUDENT given in the question 4(g):	4																																																

	<ul style="list-style-type: none"> i) To increase marks of all the students by 5 who has scored below 80 and are not from commerce stream. ii) To display name, dob and stream of all the students in descending order of their marks. iii) Display only those students name and stream who scores the highest marks in their stream. iv) Display all the students name along with their date of birth who scored in a range of 75 to 95. 	
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SECTION-D

Q5.	(a)	How can digital properties be safe guarded?	1
	(b)	What security measures should be taken against phishing attacks?	1
	(c)	What factors contributes to low success rates among people with disabilities in various professions?	2
	(d)	<p>Your service internet provider is requesting that you fill in a form that asks for your password because the company's database was deleted and they may have to disconnect you from the internet if you don't reply. What should you do?</p> <p style="text-align: center;"> A. FILL IN THE FORM! You need the internet to survive! B. Ignore it C. Fill it out because your parents said that they needed the internet for a huge project coming up. </p>	2
	(e)	<p>Expand the following terms:</p> <ul style="list-style-type: none"> (i) OSI (ii) GNU (iii) W3C 	2
	(f)	What is GPL software license? How is it different from LGPL software license?	2

COMPUTER SCIENCE –NEW(083)

PREBOARD QUESTION PAPER (2019-20)

CLASS- XII(SET-B)

Max. Marks:70

Time:3hrs

General Instructions:

- All questions are compulsory.
- Question paper is divided into 4 sections A,B,C and D.
 - Section A: Unit-1
 - Section B: Unit-2
 - Section C: Unit-3
 - Section D: Unit-4

SECTION-A			
Q1.	(a)	In python which is the correct method to load a module math? a) Include math b) import math c)#include<math.h> d) using math.py	1
	(b)	Predict the output of the following: x,y=7,2 x,y,x=x+1,y+3,x+10 print(x,y)	1
	(c)	Find the output p=21//5 q=p%4 r=p*q p+=p+q+r r*=p-q+r q+=p+q print (p,q,r)	1
	(d)	Find errors, underline them and rewrite the same after correcting the following code: x=int("enter value for x:") for in range[0,11]: if x=y Print x+y else:	2

		print x-y	
(e)	Find and write the output of the following python code:	<pre>def char_frequency(str1): dict={} for n in str1: keys=dict.keys() if n in keys: dict[n]+=1 else: dict[n]=1 return dict print(char_frequency('myclassboard.com'))</pre>	2
(f)	Find and write the output of the following python code:	<pre>a=10 y=5 def myfunc(): a=2 y=a print("y=",y,"a=",a) print("a+y=",a+y) return a+y print("y=",y,"a=",a) print(myfunc()) print("y=", y, "a=", a)</pre>	3
(g)	What are the possible outcome(s) executed from the following code ? Also specify the maximum and minimum values that can be assigned to variable PICK. Import random	<pre>import random PICK=random.randint(0,3) CITY=["Delhi","Mumbai","Chennai","Kolkata"] for x in CITY: for y in range(1,PICK): print(x,end="") print() i) DelhiDelhi MumbaiMumbai ChennaiChennai KolkataKolkata ii) Delhi</pre>	2

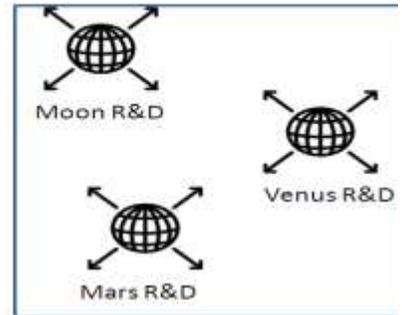
		DelhiMumbai DelhiMumbaiChennai iii) Delhi Mumbai Chennai Kolkata iv) Delhi MumbaiMumbai KolkataKolkataKolkata	
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Q2.	(a)	Which module is a collection of sub –modules like request,errors,parse etc. b) urllib b) math c)tkinter d) numpy	1
	(b)	What do you understand by term immutable?	1
	(c)	Identify the data types of the value given below: My_points={'a' : (4,5), 'b' : (1,2), 'c': (5,1)}	1
	(d)	Predict the output of the following code <pre>x=10 y=0 while x>y: x=x-4 y+=4 print(x,end="")</pre>	1
	(e)	Find and write the output of the following python code: <pre>def state1(): global tigers tigers=15 print(tigers) tigers=95 print(tigers) state1() print(tigers)</pre>	1
	(f)	State condition(s) under which binary search is applicable so that it turns out to be most efficient.	2
	(g)	Plot a line chart for depicting the population for the last 5 years as per the specifications given below:	2

	<ul style="list-style-type: none"> • Plt.title("My Title") will add a title " My Title" to your plot. • Plt.xlabel("Year") will add a label "Year" to your x-axis. • Plt.ylabel("population") will add a label "population" to your y-axis. <p style="text-align: center;">OR</p> <p>Consider the data given below . Create a sequences required from the data below.</p> <p style="text-align: center;">Rainfall in mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Zones</th> <th>N</th> <th>S</th> <th>E</th> <th>W</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>Jan</td> <td>140</td> <td>160</td> <td>140</td> <td>180</td> <td>110</td> </tr> <tr> <td>Feb</td> <td>130</td> <td>200</td> <td>180</td> <td>150</td> <td>160</td> </tr> </tbody> </table> <p style="text-align: center;">Create a pie chart to check the amount of rainfall in Jan separately.</p>	Zones	N	S	E	W	C	Jan	140	160	140	180	110	Feb	130	200	180	150	160	
Zones	N	S	E	W	C															
Jan	140	160	140	180	110															
Feb	130	200	180	150	160															
(h)	<p>Write a program that copies a text file "s.txt" onto "t.txt" barring the lines starting with a "@" sign.</p> <p style="text-align: center;">OR</p> <p>The file "New.txt" contains the following: Better than Heaven or Arcadia I love thee, o my India! And thy love I shall give To every brother nation that lives.</p> <p>and find the output produce by following code fragment?</p> <pre>f=open("new.txt","r") n1=0 for line in f: n1+=1 print (n1)</pre>	2																		
(i)	<p>Write a Recursive function Fibonacci_series(n) in python to print fibonacci series upto nth term.</p> <p style="text-align: center;">OR</p> <p>Write recursive code to compute and print sum of squares of n numbers. Value of n is passed as parameter.</p>	3																		
(j)	<p>Each node of a stack contains the following information:</p> <ol style="list-style-type: none"> Pin code of a city Name of a city <p>Write a program to implement following operation in above stack</p> <ol style="list-style-type: none"> PUSH() :to push a node in to the stack POP(): to remove a node from the stack <p style="text-align: center;">OR</p>	4																		

	Write AddClient (Client) and DeleteClient(Client) methods in python to add a new client and delete a client from a list client name considering them to act as insert and delete operations of the queue data structure.	
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SECTION-B		
Q 3	Questions 3(a) to 3(c): Fill in the blanks	
(a)	_____ is internet –based computing, whereby shared resources, software, and information are provided to computers and other devices on demand, like the electricity grid.	1
(b)	_____ protocol is often used to protect highly confidential online transaction.	1
(c)	_____ is responsible for the routing of traffic between networks.	1
(d)	_____ is used to regenerates the received signal and re-transmits it to its destination.	1
(e)	Discuss following network protocols, briefly: i) HTTP ii) SMTP iii) VoIP	2
(f)	Discuss how IPv4 is different from IPv6.	2
(g)	Name the network tools used in the given situation- iv) To track the pathway taken by a packet on an IP network from source to destination. v) Is an extensively used network troubleshooting command. vi) Is a web service that provides free analysis of internet access performance metrics, such as connection data rate and latency.	3
(h)	ISRO expanding its office setup to Delhi. At Delhi office campus, they are planning to have 3 different wings for Moon R&D , Venus R&D , and Mars R&D related work. 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 in (i) to (vi), keeping in mind the distance between various wings and other given parameters.	4



Shortest distances between various blocks :

Mars R&D block to Venus R&D block	9000 meters
Moon R&D block to Venus R&D block	7500meters
Moon R&D block to Mars R&D block	8600 meters
ISRO to Delhi	700 Km

Number of Computers installed at various blocks are as follows:

Venus R&D block	50
Moon R&D block	98
Mars R&D block	65
ISRO	3000

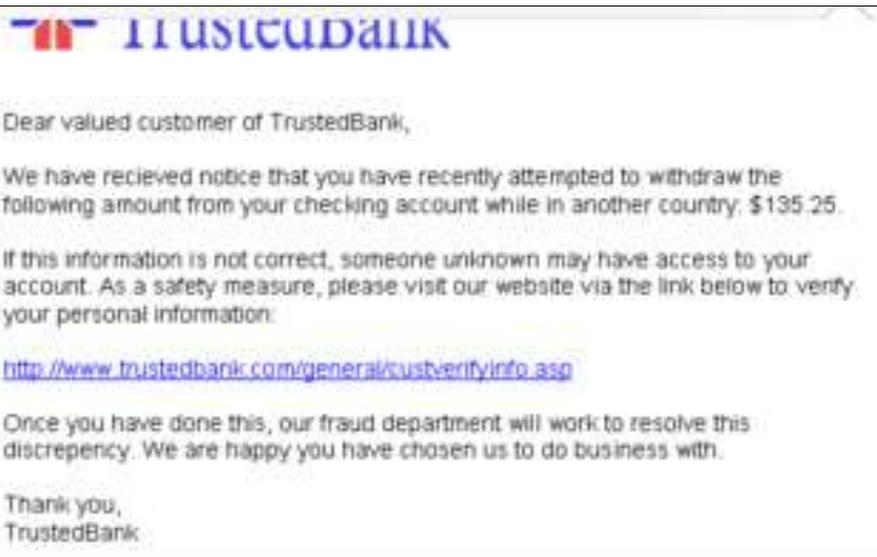
- i) Suggest the most appropriate block to house the server in the Delhi office(out of the 3 blocks) to get the best and most effective connectivity. Justify your answer.
- ii) Suggest the best wired medium and draw the cable layout (block to block) to efficiently connect various blocks with the Delhi office Compound. Name the topology formed by the above cable layout.
- iii) Suggest a device /software and its placement that would provide data security for the entire network of the Delhi office.
- iv) Which wireless channel out of the following should be chosen by the organization management to connect to their campus in Delhi .

1. Radiowave
2. Microwave
3. Satelite

SECTION-C

Q4																																																		
	(a) Which function/method do you use in python program for establishing connection to database?	1																																																
	(b) Which clause is used in combination with the group by clause to filter the records , by specifying a condition.	1																																																
	(c) Which command is used to add the data in an existing table.	1																																																
	(d) What is the purpose of drop table command in MYSQL?	1																																																
	(e) How is the cardinality different from the tuple? OR What do you understand by DDL and DML commands?	2																																																
	(f) What are the advantages of using Django for web development?	2																																																
	(g) Consider the given table Faculty and answer the questions that follow: <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th>F_ID</th> <th>F_Name</th> <th>L_Name</th> <th>department</th> <th>HireDate</th> <th>Salary</th> </tr> </thead> <tbody> <tr> <td>102</td> <td>Vishal</td> <td>Mishra</td> <td>Maths</td> <td>13-10-2014</td> <td>78000</td> </tr> <tr> <td>103</td> <td>Sagar</td> <td>Soni</td> <td>Physical Education</td> <td>27-04-2019</td> <td>64000</td> </tr> <tr> <td>104</td> <td>Vivek</td> <td>Tiwari</td> <td>Physics</td> <td>18-05-2007</td> <td>34000</td> </tr> <tr> <td>105</td> <td>Sulakshana</td> <td>Pandit</td> <td>Computer</td> <td>15-05-2017</td> <td>56000</td> </tr> <tr> <td>106</td> <td>Shailja</td> <td>Mukharjee</td> <td>Maths</td> <td>02-02-2004</td> <td>25000</td> </tr> <tr> <td>107</td> <td>Renuka</td> <td>Sahane</td> <td>Maths</td> <td>30-10-2002</td> <td>82000</td> </tr> <tr> <td>108</td> <td>Nupur</td> <td>Sharma</td> <td>Computer</td> <td>05-05-2011</td> <td>103000</td> </tr> </tbody> </table> <p style="margin-left: 40px;">i) Select * from faculty where salary between 40000 and 80000; ii) Select sum(salary) from faculty where F_name like "s%"; iii) Select department, HireDate from faculty where subject ="Maths";</p>	F_ID	F_Name	L_Name	department	HireDate	Salary	102	Vishal	Mishra	Maths	13-10-2014	78000	103	Sagar	Soni	Physical Education	27-04-2019	64000	104	Vivek	Tiwari	Physics	18-05-2007	34000	105	Sulakshana	Pandit	Computer	15-05-2017	56000	106	Shailja	Mukharjee	Maths	02-02-2004	25000	107	Renuka	Sahane	Maths	30-10-2002	82000	108	Nupur	Sharma	Computer	05-05-2011	103000	3
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	(h) Write SQL queries for (i) to (iv) , which are based on the table : FACULTY given in the question 4(g): v) To increase Salary of all the Lecturers by Rs. 8000 whose salary is below 50000. vi) To display First name, Last name and hire date of all the Lecturers in descending order of their salary. vii) Display only those Lecturers name and department whose salary is the highest in their departments.	4																																																

	viii)	Display the entire faculties name along with their date of joining who received salary in a range of 60000 to 95000.	
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SECTION-D			
Q5.	(a)	What do you understand by 'privacy of data'?	1
	(b)	What is meant by the term cyber forensics?	1
	(c)	What is identity theft? What protection measures would you take against identity theft?	2
	(d)	Expand the following terms: (iv) FLOSS (v) FSF (vi) GPL	2
	(e)	 <p>Karim received a mail from his bank informing him about an attempt of withdrawing money from his account and to stop it a link is given .on clicking the link he was taken to a web site designed to imitate to his bank looking site as TrustedBank. Unknowingly he uploaded all the asked information on it. Identify and explain the cybercrime being discussed in the above scenario.</p>	2
	(f)	What are common gender and disability issues faced while teaching/using computers in classrooms?	2

COMPUTER SCIENCE –NEW(083)

FIRST PREBOARD **ANSWER KEY** (2019-20)

CLASS- XII(SET-A)

Max. Marks:70

Time:3hrs

SECTION-A			
Q1.	(a)	4	1
	(b)	8	1
	(c)	4 -10 7	1
	(d)	Find errors, underline them and rewrite the same after correcting the following code: <pre> x=1 if x>3: if x>4: print ("a",end="") else: print ("b", end="") elif (x<2): if (x!=0): print("c", end="") print("d") </pre>	2
	(e)	bbcc 4	2
	(f)	48 None 36	3
	(g)	. ii) ES#NE#IO#	2
Q2.	(a)	c) _init_.py	1

	(b)	What will be the size of the following constants: b) 7 b)4 c)4	1
	(c)	Identify the data types of the value given below: Complex no. , List , tuple	1
	(d)	Predict the output of the following code 160	1
	(e)	Find and write the output of the following python code: 52	1
	(f)	Where the data are to be processed in the same way as it is.	2
	(g)	<p>Write a python program to create a pie chart with the title of the Stream and percentage of Students. Make multiple wedges of pie.</p> <p>Sample data: Stream: Science, Commerce, Humanities, Vocational, FMM Strength: 29%, 30%, 21%, 13%, 7%</p> <pre>import numpy as np import matplotlib.pyplot as plt plt.axis("equal") Stream=['Science', 'Commerce', 'Humanities', 'Vocational', 'FMM'] Strength=[29,30,21,13,7] expl=[0.1,0.2,0.1,0.2,0.1] plt.pie(strength,labels=stream, autopct="%6.2F%%" , explode=explode) plt.legend() plt.show()</pre> <p style="text-align: center;">OR</p> <p>Write a Python program to display a bar chart of the number of students in a class. Use different colours for each bar.</p> <p>Sample data: Class :I,II,III,IV,V,VI,VII,VIII,IX,X Strengths: 235,545,258,654,754,566,545,253,345,124</p> <pre>Import numpy as np Import matplotlib.pyplot as plt Class=[' I', 'II', 'III', 'IV', 'V', 'VI', 'VII', 'VIII', 'IX', 'X'] strength=[235,545,258,654,754,566,545,253,345,124]</pre>	2

	<pre> Plt.bar(class,strength) Plt.xlabel('classes') Plt.ylabel('strength') Plt.show() </pre>	
(h)	<p>Consider the file poem.txt</p> <p style="padding-left: 40px;">I love thee, o my India! And thy love I shall give To every brother nation that lives.</p> <p>and find the output produce by following code fragment?</p> <pre> Obj1=open("poem.txt","r") S1=obj1.readline() S2=obj1.read(19) print(s2) Obj1.close() </pre> <p style="text-align: center; color: red;">And thy love I shal</p> <p style="text-align: center;">OR</p> <p>Write a program to count the number of uppercase alphabets present in a text file "abc.txt".</p> <pre> countu=0 with open("abc.txt", 'r') as f: for line in f: words = line.split() for i in words: for letter in i: if(letter.isupper()): countu=countu+1 print ("Number of uppercase alphabets present in a text file=", countu) </pre> <p>or</p> <pre> countu=0 myfile=open("abc.txt", 'r') x=myfile.read() for i in x: </pre>	2

	<pre> if i.isupper(): countu=countu+1 print ("Number of uppercase alphabets present in a text file=", countu) </pre>	
(i)	<p>Write recursive code to compute greatest common divisor of two numbers.</p> <pre> def gcd(a,b): if(b==0): return a else: return gcd(b,a%b) d=gcd(65,26) print(d) </pre> <p style="text-align: center;">OR</p> <p>Write recursive code to calculate a^b. Value of a and b passed as argument by user.</p> <pre> def power(a,b): if b==0: return 1 else: return a*power(a,b-1) </pre>	3
(j)	<p>Write a program to implement a Stack for these book –details(book no. , book name). that is , now each item node of the stack contains two types of information- a book no and its name . just implement PUSH and pop() operations.</p> <pre> s=[] c="y" while (c=="y"): print("1.PUSH") print("2.POP") choice=int(input("ENTER YOUR CHOICE:")) if (choice==1): a=input("Enter book no.:") </pre>	4

```

b=input("Name of the book")
x=(a,b)
s.append(x)
elif(choice==2):
    if(s==[]):
        print("Stack Empty")
    else:
        a,b=s.pop()
        print("Deleted element is",a,b)

```

OR

Write a program to perform insert and delete operations on a Queue containing Members' details as given in the following:

Member no.	integer
Member name	string
Age	integer

```

s=[]
c="y"
while (c=="y"):
    print("1.ADD")
    print("2.DELETE")
    choice=int(input("ENTER YOUR CHOICE:"))
    if (choice==1):
        MemNo=int(input("Enter Member no.:"))
        MemName= input("Enter Member Name.:")
        MemAge=int(input("Enter Member age.:"))
        G=(MemNo,MemName,MemAge)
        s.append(G)
    elif(choice==2):
        if(s==[]):
            print("queue Empty")
        else:
            print("Deleted member is",s[0])
            s.pop(0)

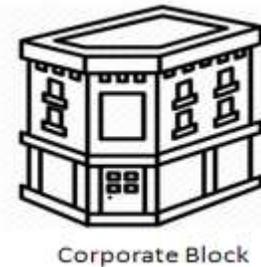
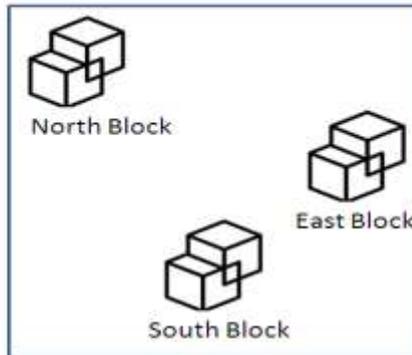
```

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SECTION-B

SECTION-B			
Q 3		Questions 3(a) to 3(c): Fill in the blanks	
	(a)	public Cloud _____ are the clouds for use of multiple organizations (tenants) on a shared basis and hosted and managed by a third party service provider.	1
	(b)	telnet _____ is a remote login that helps a user to log in another user's terminal without being its original user.	1
	(c)	Gateway _____ is used to connect different types of networks.	1
	(d)	Optical fibre _____ wires are very good for high-speed , high – capacity data transmission due to lack of attenuation	1
	(e)	<p>Discuss following network protocols, briefly:</p> <p style="margin-left: 20px;">iv) FTP File Transfer Protocol – used to upload files</p> <p style="margin-left: 20px;">v) IMAP : Internet Mail Access Protocol , message access agents</p> <p style="margin-left: 20px;">vi) NFC: Near Field communication ex wi-fi credit card</p> <p>FTP File Transfer Protocol is a standard for the exchange of files across Internet.</p> <p>IMAP Internet Message Access Protocol supports applications ,even multiple clients and multiple locations. It is more useful if any email managed by multiple users.</p> <p>NFC Near Field Communication is used to provide short range wireless connectivity between two electronic devices that within the distance of 4-5 centimeters.</p>	2
	(f)	MAC address : usually stored in ROM on the network adapter card and is unique ,it is a address of a device as it is identified at the Media Access Control.	2
	(g)	Name the network tools used in the given situation- vii) To troubleshoot internet connection problem. ping viii) To see the IP address associated with the domain name. nslookup ix) To lookup registration record associated with a domain name. whois	3
	(h)	A Manglure based organization expanding its office setup to Dehradun. At Dehradun office campus, they are planning to have 3 different Blocks for HR, Accounts and	4

Logistics related work. 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 in (i) to (vi), keeping in mind the distance between various Blocks and other given parameters.



Shortest distances between various blocks :

Block A(HR) to Block B(Account)	700 meters
Block B(Account) to Block C(Logistics)	300 meters
Block C(Logistics) to Block A(HR)	500 meters
Corporate Block to Dehradun Block	56 Km

Number of Computers installed at various blocks are as follows:

Block A(HR) North block	10
Block B(Account) South Block	20
Block C(Logistics) East block	12
Corporate Block	78

- v) Suggest the most appropriate block to house the server in the Dehradun block(out of the 3 blocks) to get the best and most effective connectivity. Justify your answer.

B block as having max mo of computer

	<p>vi) Suggest the best wired medium and draw the cable layout (block to block) to efficiently connect various blocks within the Dehradun office Compound. Name the topology formed by the above cable layout. Fiber optics – star</p> <p>vii) Suggest a device /software and its placement that would provide data security for the entire network of the Dehradun office. Fire wall</p> <p>viii) Which wireless channel out of the following should be chosen by the organization management to connect to their campus from Manglure to Dehradun.</p> <ol style="list-style-type: none"> 1. Radio wave 2. Microwave 3. Satellite 	
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SECTION-C

Q4		Questions 3(a) to 3(c): Fill in the blanks															
	(a)	Which function/method do you use for executing a SQL query in python program? <cursorobject>.execute(<sql query string>)	1														
	(b)	Name the keywords that can be used together to count the number of records without taking duplicate values. Distinct count()	1														
	(c)	Which keyword is used in combination with the UPDATE command to add changed data with where clause. SET	1														
	(d)	What is meant by NULL value in MYSQL? Empty	1														
	(e)	Differentiate between CHAR and VARCHAR data types. Varchar is variable length on the other hand char takes all the space assigned to it OR Differentiate between primary key and foreign key. Primary key are unique Foreign key is used for relationship	2														
	(f)	What do you understand by Django?	2														
	(g)	Consider the given table student and answer the questions that follow: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>RollNo</th> <th>Name</th> <th>Gender</th> <th>Marks</th> <th>DOB</th> <th>Mobile_No</th> <th>Stream</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Sanjeet</td> <td>M</td> <td>97</td> <td>17-Nov-2002</td> <td>8700xxxx89</td> <td>Science</td> </tr> </tbody> </table>	RollNo	Name	Gender	Marks	DOB	Mobile_No	Stream	2	Sanjeet	M	97	17-Nov-2002	8700xxxx89	Science	3
RollNo	Name	Gender	Marks	DOB	Mobile_No	Stream											
2	Sanjeet	M	97	17-Nov-2002	8700xxxx89	Science											

5	Monalikan	F	93	12-Feb-2002	8710xxxx13	Humanities
8	Vinayank	M	84	05-Aug-2003	9812xxxx29	Science
7	Rishit	M	34	11-Dec-2001	9845xxxx46	Science
1	Sejal	F	82	12-Jul-2003	9532xxxx33	Commerce
9	Tanisq	M	74	28-Jan-2004	8700xxxx61	Science
6	Jhanvi	F	76	08-Oct-2004	9700xxxx42	commerce

iv) Select stream , SUM (marks) as "Total Marks" from student group by stream Having marks>90;

Stream Total Marks

Science 97

Humanities 93

v) Select MAX(marks),MIN(marks) from student where name like "%an%";

97 76

vi) Select Name,Gender,DOB from student where stream ="Science";

Name Gender DOB

Sanjeet M 17-Nov-2002

Vinayank M 05-Aug-2003

Rishit M 11-Dec-2001

Tanisq M 28-Jan-2004

(h)	<p>Write SQL queries for (i) to (iv) , which are based on the table : STUDENT given in the question 4(g):</p> <p>ix) To increase marks of all the students by 5 who has scored below 80 and are not from commerce stream.</p> <p>Update student Set marks =marks+5 Where marks<80;</p> <p>x) To display name, dob and stream of all the students in descending order of their marks.</p> <p>Select name, dob, stream from student order by marks desc;</p> <p>xi) Display only those students name and stream who scores the highest marks in their stream.</p> <p>Select name,stream from student group by stream having marks=(select max(marks) from student);</p>	4
-----	---	---

		<p>xii) Display all the students name along with their date of birth who scored in a range of 75 to 95.</p> <p>Select name,dob from student where marks between 75 and 95;</p>	
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SECTION-D			
Q5.	(a)	<p>How can digital properties be safe guarded?</p> <p>Protect it with high security measures</p>	1
	(b)	<p>What security measures should be taken against phishing attacks?</p> <p>awareness</p>	1
	(c)	<p>What factors contributes to low success rates among people with disabilities in various professions?</p> <p>Unavailability of teaching material</p> <p>Lacks of special needs teachers</p> <p>Lack of supporting curriculum</p>	2
	(d)	<p>Your service internet provider is requesting that you fill in a form that asks for your password because the company's database was deleted and they may have to disconnect you from the internet if you don't reply. What should you do?</p> <p>A. FILL IN THE FORM! You need the internet to survive!</p> <p>B. Ignore it</p> <p>C. Fill it out because your parents said that they needed the internet for a huge project coming up.</p>	2
	(e)	<p>Expand the following terms:</p> <p>(vii) OSI (open source initiative)</p> <p>(viii) GNU(GNU not unix)</p> <p>(ix) W3C (World wide web consortium)</p>	2
	(f)	<p>What is GPL software license? How is it different from LGPL software license?</p> <p>General Public License used for open source projects.its allow used to legally copy , distribute and modify software</p> <p>Lesser General Public License used to license free software LGPL is used by libraries.</p> <p>Main difference is that in LGPL there is no restriction to release software extension in open GPL.</p>	2

COMPUTER SCIENCE –NEW(083)
PREBOARD ANSWERKEY (2019-20)
CLASS- XII(SET-B)

SECTION-A			
Q1.	(a)	b) <code>import math</code>	1
	(b)	17 5	1
	(c)	Output 8 8 0	1
	(d)	underline rewritten code <code>x=int(input("enter value for x:"))</code> <code>for y in range(0,11):</code> <code> if x=y:</code> <code> print (x+y)</code> <code> else:</code> <code> print(x-y)</code>	2
	(e)	output {'m': 2, 'y': 1, 'c': 2, 'l': 1, 'a': 2, 's': 2, 'b': 1, 'o': 2, 'r': 1, 'd': 1, '!': 1}	2
	(f)	output <code>y= 5 a= 10</code> <code>y= 2 a= 2</code> <code>a+y= 4</code> <code>4</code> <code>y= 5 a= 10</code>	3
	(g)	v) DelhiDelhi MumbaiMumbai ChennaiChennai KolkataKolkata iii) Delhi Mumbai Chennai Kolkata	2

--	--	--	--

Q2.	(a)	Which module is a collection of sub –modules like request,errors,parse etc. d) urllib	1
	(b)	What do you understand by term immutable? One cannot change the elements in place if it is immutable.	1
	(c)	Identify the data types of the value given below: My_points={'a' : (4,5), 'b' : (1,2), 'c': (5,1)} dictionary	1
	(d)	Predict the output of the following code 62	1
	(e)	Find and write the output of the following python code: 95 15 15	1
	(f)	State condition(s) under which binary search is applicable so that it turns out to be most efficient. If the data is in sorted form To save on time and number of comparisons.	2
	(g)	Plot a line chart for depicting the population for the last 5 years as per the specifications given below: <ul style="list-style-type: none"> • Plt.title("My Title") will add a title " My Title" to your plot. • Plt.xlabel("Year") will add a label "Year" to your x-axis. • Plt.ylabel("population") will add a label "population" to your y-axis. <pre>import matplotlib.pyplot as plt year =[1971,1981,1991,2001,2011] population=[800,1500,2600,6200,10000] plt.xlabel("Year") plt.ylabel("population") plt.title("My Title") plt.plot(year , population)</pre>	2
OR			

Consider the data given below . Create a sequences required from the data below.

Rainfall in mm

Zones	N	S	E	W	C
Jan	140	160	140	180	110
Feb	130	200	180	150	160

Create a pie chart to check the amount of rainfall in Jan separately.

```
import numpy as np
import matplotlib.pyplot as plt
plt.axis("equal")
Zones=['N','S','E','W','C']
Jan=[140,160,140,180,110]
expl=[0,0.2,0.3,0,0]
plt.pie(Jan,labels=Zones, autopct="%6.2F%%" , explode=explode)
plt.legend()
plt.show()
```

(h) Write a program that copies a text file "s.txt" onto "t.txt" barring the lines starting with a "@" sign.

```
fin=open("s.txt","r")
fout=open("t.txt","w")
while true:
    text=fin.readline()
    if len(text)==0:
        break
    if text[0]=="@":
        continue
    fout.write(text)
fout.close()
fin.close()
```

OR

The file "New.txt" contains the following:
Better than Heaven or Arcadia

I love thee, o my India!
And thy love I shall give
To every brother nation that lives.

and find the output produce by following code fragment?

```
f=open("new.txt","r")
n1=0
for line in f:
    n1+=1
print (n1)
```

4

- (i) Write a Recursive function Fibonacci_series(n) in python to print fibonacci series upto nth term.

3

```
def fib(n):
    if n==1:
        return 0
    elif n==0:
        return 1
    else:
        return fib(n-1) +fib(n-2)
n=int(input("Enter last term required:"))
for i in range(1,n+1):
    print(fib(i), end=',')
print("... continue")
```

OR

Write recursive code to compute and print sum of squares of n numbers. Value of n is passed as parameter.

```
def sqsum(n):
    if n == 1:
        return 1
    else:
        return n*n+sqsum(n-1)
```

		<pre>n=int(input("Enter value of n:")) print(sqsum(n))</pre>	
(j)	<p>Each node of a stack contains the following information:</p> <ul style="list-style-type: none"> iii) Pin code of a city iv) Name of a city <p>Write a program to implement following operation in above stack</p> <ul style="list-style-type: none"> c) PUSH() :to push a node in to the stack d) POP(): to remove a node from the stack <pre>s=[] c="y" while (c=="y"): print("1.PUSH") print("2.POP") choice=int(input("ENTER YOUR CHOICE:")) if (choice==1): a=input("Enter pin code of city:") b=input("Name of city") x=(a,b) s.append(x) elif(choice==2): if(s==[]): print("Stack Empty") else: a,b=s.pop() print("Deleted element is",a,b)</pre> <p style="text-align: center;">OR</p> <p>Write AddClient (Client) and DeleteClient(Client) methods in python to add a new client and delete a client from a list client name considering them to act as insert and delete operations of the queue data structure.</p> <pre>s=[] c="y" while (c=="y"): print("1.ADD") print("2.DELETE") choice=int(input("ENTER YOUR CHOICE:"))</pre>	4	

```

if (choice==1):
    a=input("Enter new client:")
    s.append(a)
elif(choice==2):
    if(s==[]):
        print("queue Empty")
    else:
        print("Deleted client is",s[o])
        s.pop(0)

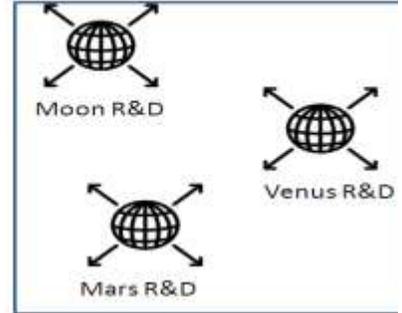
```

SECTION-B

SECTION-B			
Q3		Questions 3(a) to 3(c): Fill in the blanks	
	(a)	Cloud computing is internet –based computing, whereby shared resources, software, and information are provided to computers and other devices on demand, like the electricity grid.	1
	(b)	https _____protocol is often used to protect highly confidential online transaction.	1
	(c)	Router _____ is responsible for the routing of traffic between networks.	1
	(d)	Repeaters _____ is used to regenerates the received signal and re-transmits it to its destination.	1
	(e)	<p>Discuss following network protocols, briefly:</p> <ul style="list-style-type: none"> iv) HTTP : Hyper text Transfer protocol v) SMTP: Simple mail transfer protocol vi) VoIP : voice over Internet protocol <p>HTTP Hypertext Transfer Protocol(HTTP) is an application-level protocol with the lightness and speed necessary for distributed , collaborative, hypermedia information systems. <i>HTTP protocol consists of two fairly distinct items: the set of requests from browsers to servers and the set of responses going back to the other way.</i></p> <p>SMTP Simple mail transfer Protocol is used to sending emails across the Internet.</p> <p>VoIP Voice over Internet Protocol is a technology that enables voice communications</p>	2

	<p>over the Internet through the compression of voice into data packets that can be efficiently transmitted over data networks and then converted back into voice at the other end.</p>	
(f)	<p>Discuss how IPv4 is different from IPv6.</p> <p>1. IPv4: is the most widely deployed Internet protocol used to connect devices to the Internet. It used a 32-bit address scheme allowing for total of 2^{32} addresses. With the growth of internet it is expected that the number of unused IPv4 address will eventually run out because every device – including computers, smartphones and game consoles- that connect to the Internet requires an address.</p> <p style="text-align: center;">IPv4 address format is x.x.x.x</p> <p>2. IPv6: a new Internet Addressing system Internet Protocol version 6 (IPv6) is being deployed to fulfill the need for more Internet addresses IPv6 utilizes 128-bit Internet addresses. Therefore, it can support 2^{128} Internet address. In other words, there are more than enough IPv6 addresses to keep the Internet operational for a very, very long time.</p> <p style="text-align: center;">Pure IPv6 address format is y:y:y:y:y:y</p> <p style="text-align: center;">Dual IPv6 plus IPv4 format is y:y:y:y:y:x.x.x.x</p>	2
(g)	<p>Name the network tools used in the given situation-</p> <p>x) To track the pathway taken by a packet on an IP network from source to destination.</p> <p>Traceroute</p> <p>xi) Is an extensively used network troubleshooting command.</p> <p>ipconfig</p> <p>xii) Is a web service that provides free analysis of internet access performance metrics, such as connection data rate and latency.</p> <p>Speed test</p>	3
(h)	<p>ISRO expanding its office setup to Delhi. At Delhi office campus, they are planning to have 3 different wings for Moon R&D, Venus R&D, and Mars R&D related work. Each block has a number of computers which are required to be connected in a network for communication, data and resource sharing.</p> <p>As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised in (i) to (vi), keeping in mind the distance between</p>	4

various wings and other given parameters.



Shortest distances between various blocks :

Mars R&D block to Venus R&D block	9000 meters
Moon R&D block to Venus R&D block	7500meters
Moon R&D block to Mars R&D block	8600 meters
ISRO to Delhi	700 Km

Number of Computers installed at various blocks are as follows:

Venus R&D block	50
Moon R&D block	98
Mars R&D block	65
ISRO	3000

- v) Suggest the most appropriate block to house the server in the Delhi office(out of the 3 blocks) to get the best and most effective connectivity. Justify your answer.

Moon R&D Block , Max no. of computer

- vi) Suggest the best wired medium and draw the cable layout (block to block) to efficiently connect various blocks with the Delhi office Compound. Name the topology formed by the above cable layout.

Fibre optics star

- vii) Suggest a device /software and its placement that would provide data security for the entire network of the Delhi office.

	<p>Firewall</p> <p>viii) Which wireless channel out of the following should be chosen by the organization management to connect to their campus in Delhi .</p> <ol style="list-style-type: none"> 1. Radiowave 2. Microwave 3. Satelite 	
--	--	--

SECTION-C									
Q4									
	(a)	Which function/method do you use in python program for establishing connection to database? The connect () function	1						
	(b)	Which clause is used in combination with the group by clause to filter the records , by specifying a condition. Having	1						
	(c)	Which command is used to add the data in an existing table. Insert	1						
	(d)	What is the purpose of drop table command in MYSQL? To delete table from database as delete command only delete data from table	1						
	(e)	How is the cardinality different from the tuple? Cardinality is total number of rows whereas tuple is single record in a table OR What do you understand by DDL and DML commands? Data definition language is used to define data structure etc. Data manipulation language is used to update , insert , delete data .	2						
	(f)	What are the advantages of using Django for web development? Make website administration easy Business logic can be separated	2						
	(g)	Consider the given table Faculty and answer the questions that follow: <table border="1" style="margin-left: 40px;"> <tr> <td>F_ID</td> <td>F_Name</td> <td>L_Name</td> <td>department</td> <td>HireDate</td> <td>Salary</td> </tr> </table>	F_ID	F_Name	L_Name	department	HireDate	Salary	3
F_ID	F_Name	L_Name	department	HireDate	Salary				

102	Vishal	Mishra	Maths	13-10-2014	78000
103	Sagar	Soni	Physical Education	27-04-2019	64000
104	Vivek	Tiwari	Physics	18-05-2007	34000
105	Sulakshana	Pandit	Computer	15-05-2017	56000
106	Shailja	Mukharjee	Maths	02-02-2004	25000
107	Renuka	Sahane	Maths	30-10-2002	82000
108	Nupur	Sharma	Computer	05-05-2011	103000

iv) Select * from faculty where salary between 40000 and 80000;

F_ID	F_Name	L_Name	department	HireDate	Salary
102	Vishal	Mishra	Maths	13-10-2014	78000
103	Sagar	Soni	Physical Education	27-04-2019	64000
105	Sulakshana	Pandit	Computer	15-05-2017	56000

v) Select sum(salary) from faculty where F_name like "s%";
145000

vi) Select department, HireDate from faculty where subject ="Maths";

department	HireDate
Maths	13-10-2014
Maths	02-02-2004
Maths	30-10-2002

(h) Write SQL queries for (i) to (iv) , which are based on the table : **FACULTY** given in the question 4(g):

xiii) To increase Salary of all the Lecturers by Rs. 8000 whose salary is below 50000.

Update faculty

Set salary = salary+8000

Where salary<50000;

xiv) To display First name, Last name and hire date of all the Lecturers in descending order of their salary.

Select f_name,L_name , hiredate from faculty order by salary desc;

xv) Display only those Lecturers name and department whose salary is the highest in their departments.

Select F_name , department from faculty group by department where salary=(select max(salary) from faculty);

xvi) Display the entire faculties name along with their date of joining who

4

	received salary in a range of 60000 to 95000. Select f_name,Hiredate from faculty where salary between 60000 and 95000;	
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SECTION-D			
Q5.	(a)	What do you understand by ‘privacy of data’? Ethical and legal rights	1
	(b)	What is meant by the term cyber forensics? Electronic discovery technique used to determine and reveal technical criminal evidence.	1
	(c)	What is identity theft? What protection measures would you take against identity theft? Acquisition of personal data of the victim and using it for illegal purposes. Ensure a strong and unique password Shop from trusted websites only Etc.	2
	(d)	Expand the following terms: (x) FLOSS Free Libre Open Source Software (xi) FSF Free Software foundation (xii) GPL General public license	2
	(e)	 <p>Dear valued customer of TrustedBank,</p> <p>We have recieved notice that you have recently attempted to withdraw the following amount from your checking account while in another country: \$135.25.</p> <p>If this information is not correct, someone unknown may have access to your account. As a safety measure, please visit our website via the link below to verify your personal information:</p> <p>http://www.trustedbank.com/general/custverifyinfo.asp</p> <p>Once you have done this, our fraud department will work to resolve this discrepancy. We are happy you have chosen us to do business with.</p> <p>Thank you, TrustedBank</p> <p>Karim received a mail from his bank informing him about an attempt of withdrawing money from his account and to stop it a link is given .on clicking the</p>	2

	link he was taken to a web site designed to imitate to his bank looking site as TrustedBank. Unknowingly he uploaded all the asked information on it. Identify and explain the cybercrime being discussed in the above scenario.	
	Phishing	
(f)	What are common gender and disability issues faced while teaching/using computers in classrooms? Under representative of girls Not girl – friendly work culture Unavailability of teaching material Lack of supporting curriculum	2