

Instructions to candidates –

1. Attempt all questions
2. Programming Language – Python

Q1	<p>i. What is the output of the following code : <code>print 9//2</code> a. 4 b. 4.5 c. 4.0 d. Error</p> <p>ii. What is the output of the following program : <pre> i = 0 while i < 3: print i i++ print i+1 </pre> (a) 0 2 1 3 2 4 (b) 0 1 2 3 4 5 (c) 1 0 2 4 3 5 (d) Error</p> <p>iii. What is the output of the following code : <pre> L = ['a', 'b', 'c', 'd'] print "".join(L) </pre> (a) None (b) abcd (c) ['a','b','c','d'] (d) Error</p> <p>iv. Which of the following is the use of <code>id()</code> function in python? (a) <code>id</code> returns the identity of the object (b) Every object doesn't have a unique <code>id</code> (c) Both (a) and (b) (d) None of the above</p> <p>v. Suppose <code>list1</code> is <code>[3, 4, 5, 20, 5, 25, 1, 3]</code>, what is <code>list1</code> after <code>list1.pop(1)</code>? (a) <code>[3, 4, 5, 20, 5, 25, 1, 3]</code> (b) <code>[1,3,3, 4, 5, 20, 5, 25]</code> (c) <code>[3, 5, 20, 5, 25, 1, 3]</code> (d) <code>[1, 3, 4, 5, 20, 5, 25,]</code></p> <p>vi. What is the output of the following program : <code>print "Hello World"[::-1]</code> (a) <code>dlroW olleH</code> (b) <code>Hello Worl</code> (c) <code>d</code> (d) Error</p> <p>vii. Given a string <code>s = "Welcome"</code>, which of the following code is incorrect? (a) <code>print s[0]</code> (b) <code>print s.lower()</code> (c) <code>s[1]='r'</code> (d) <code>print s.strip()</code></p> <p>viii. What is the output of the following program : <pre> def myfunc(a): a = a + 2 a = a * 2 return a print myfunc(2) </pre> (a) 8 (b) 16 (c) Indentation Error (d) Runtime Error</p>	12 X 1 = 12
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ix. What is the output of the following program?

```
numberGames = {}  
numberGames[(1,2,4)] = 8  
numberGames[(4,2,1)] = 10  
numberGames[(1,2)] = 12
```

```
sum = 0  
for k in numberGames:  
    sum += numberGames[k]
```

```
print len(numberGames) + sum
```

- (a) 30 (b) 33 (c) 31 (d) None of these

x. What is the output of given program code:

```
list1 = range(100, 110)  
print "index of element 105 is : ", list1.index(105)
```

- (a) 4 (b) 5 (c) 6 (d) Error

xi. What is the output of the following program: `print 'abef'.partition('cd')`

- (a) ('abef') (b) ('abef', 'cd', '') (c) ('abef', '', '') (d) Error

xii. What is the output of the following program?

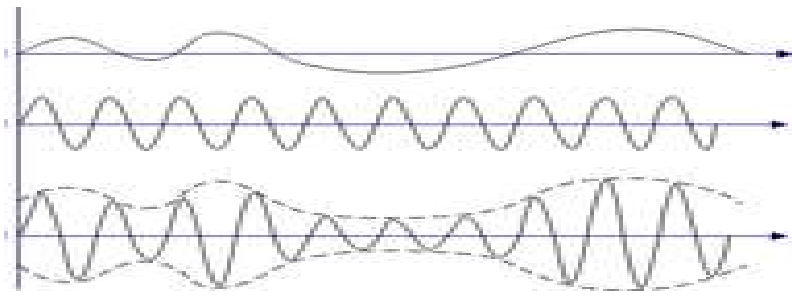
```
my_tuple = (6, 9, 0, 0)  
my_tuple1 = (5, 2, 3, 4)  
print my_tuple > my_tuple1
```

- (a) False (b) True (c) Cannot Compare (d) Error

xiii. What will be the output of the code snippet if input is '1bzz'

```
Inp = raw_input('Enter a string')  
while len(Inp) <= 4:  
    if Inp[-1] == 'z':  
        Inp = Inp[0:3] + 'c'  
    elif 'a' in Inp:  
        Inp = Inp[0] + 'bb'  
    elif not int(Inp[0]):  
        Inp = '1' + Inp[1:] + 'z'  
    else:  
        Inp = Inp + '*'  
print(Inp)
```

Q2	<p>(a) Write the definition of a function reverse(X) in Python to display the elements in reverse order such that each displayed element is twice of the original element of the list X. For example: if the input List X is [4, 8, 7, 5, 6, 11, 10] then the function produces output as – 20, 22, 12, 10, 14, 16, 8</p> <p>(b) Write a user defined function GenNum(a, b) to generate odd numbers between a and b (including b)</p> <p>(c) Give output of the following: <pre>def ChangeLst(): L=[] L1=[] L2=[] for i in range(1,10): L.append(i) for i in range(10,1,-2): L1.append(i) for i in range(len(L1)): L2.append(L1[i]+L[i]) L2.append(len(L)-len(L1)) print(L2)</pre> </p> <p>(d) Write functions to perform insert (Enqueue) and delete (Dequeue) operations in a Queue containing Member details as given in the following definition of item node: - Node <table border="1" style="margin-left: 40px;"> <tr> <td>Member No</td> <td>Integer,</td> <td>Member Name</td> <td>String,</td> <td>Age</td> <td>Integer</td> </tr> </table> <pre>def isEmpty(Qu) if Qu==[]: return True else: return False def Enqueue(Qu, item) # write code to insert an item in the Queue def Dequeue(Qu) # write code to delete an item from the Queue</pre> </p> <p>(e) Evaluate the following Postfix notation: - 50, 60, +, 20, 10, -, *</p>	Member No	Integer,	Member Name	String,	Age	Integer	<p>2</p> <p>2</p> <p>2</p> <p>4</p> <p>2</p>
Member No	Integer,	Member Name	String,	Age	Integer			
Q3	<p>(a) Observe the following code and answer the questions that follow – <pre>File = open("Mydata", "a") _____ # statement 1 File.close()</pre> <p>(i) What type of file is Mydata (ii) Fill in the blank with statement to write "ABC" in the file</p> <p>(b) Write a user defined function in Python that displays number of lines starting with 'H' present in the text file Poem.txt.</p> </p>	<p>1</p> <p>3</p>						

Q4	<p>(a) What do the underlined areas represent in the MAC address - <u>10:B5:03:63:2E:FC</u></p> <p>(b) What is the difference in working of switches and routers?</p> <p>(c) Define the term Cloud in context of Internet. Give some examples.</p> <p>(d) What is a URL? Identify the various parts of a URL in the example given below: http://encycle.msn.com/getinfo.styles.asp</p> <p>(e) Look at the image given below and answer questions that follow : -</p> <pre>Reply from 127.0.0.1: bytes=32 time<1ms TTL=128 Reply from 127.0.0.1: bytes=32 time<1ms TTL=128 Reply from 127.0.0.1: bytes=32 time<1ms TTL=128 Reply from 127.0.0.1: bytes=32 time<1ms TTL=128</pre> <p>(i) Name the command which gives such type of result.</p> <p>(ii) Why is this command used?</p>  <p>(f)</p> <p>(1) What is the above image representing?</p> <p>(2) Which device in the Internet terminology does modulation demodulation?</p> <p>(g) Expand the terms: TCP, VoIP, SSL, NFC, IMAP, FTP, WiFi, HTTPS</p> <p>(h) What measures wireless networks employ to avoid collisions?</p>	<p>1</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p>
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Q5	<p>(a) Write a MYSQL-Python connectivity code to retrieve one record at a time from table EMPLOYEES who live in 'Delhi'</p> <p>(b) Consider the tables given below: -</p> <p style="text-align: center;">STAFF</p> <table border="1" data-bbox="332 1323 1307 1606"> <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" data-bbox="332 1648 1307 1921"> <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>	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	<p>3</p> <p>6</p>
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	<p>With reference to the above table, write commands in SQL for (i) to (iv) and output for (v) to (viii)</p> <p>(i) To display names of all staff that are in Sales department having experience less than 9 years and commission more than 700</p> <p>(ii) Display average salary of staff working in Finance department. Salary= Basic+Allowance</p> <p>(iii) Display number of female members in each department.</p> <p>(iv) Display name of employee earning maximum salary.</p> <p>Give Output</p> <p>(v) SELECT NAME FROM STAFF ST, SALARY SA WHERE COMM <=700 AND ST.STAFFID = SA.STAFFID</p> <p>(vi) SELECT NAME, BASIC FROM STAFF, SALARY WHERE DEPT="SALES" AND STAFF.STAFFID= SALARY.STAFFID</p> <p>(vii) SELECT COUNT(DEPARTMENT),DEPARTMENT FROM STAFF GROUP BY DEPARTMENT</p> <p>(viii) SELECT COUNT(*),GENDER FROM STAFF GROPU BY GENDER</p> <p>(c) What are two types of HTTP requests? Write a view function that an process a GET request and display "main.html" as template. Assume that required files and methods are already imported.</p> <p>(d) You have created a Django project folder. It contains 3 apps as: Register, Sell and Work. What will be the contents of Django project folder? List the folders (not files inside the folders)</p> <p>(e) What is a Django template?</p>	<p>2</p> <p>2</p> <p>2</p>
Q6	<p>(a) "Privacy stands for protection of personal information given online. Especially in e-commerce, it is related to a company's policies on the use of user's data".</p> <p>(i) Why is the above given statement important?</p> <p>(iii) What is the need to safeguard user privacy?</p> <p>(b) Expand the terms: FLOSS, SDLC, OSS, GNU</p> <p>(c) Sumit downloaded XYZ software from the internet. After 2 weeks the software is asking Sumit to purchase a license for it to work at its best. In this context answer the questions –</p> <p>(i) XYZ comes under what category of software.</p> <p>(ii) Can Sumit see the source code and also freely edit the software code of XYZ software?</p> <p>(d) ABC has by online medium duped a person of 50 thousand rupees? What kind of crime is this and how will it be resolved?</p> <p>(e) A producer has made a movie whose story line is completely based on a previous Hollywood movie. This producer did not take permission to make the movie based on this story. The writer of the story has now filed a case against this producer in court?</p> <p>(a) Which kind of offence is this?</p> <p>(b) What are the consequences?</p>	<p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p>

Solutions

Q1	<ul style="list-style-type: none">• Ans A• Ans D• Ans C• Ans A• Ans C• Ans A• Ans C• Ans C• Ans B• Ans B• Ans C• Ans B• Ans - 1bzc*
Q2	<pre>(a) def reverse(X): for i in range(len(X)): X[i]=X[i]*2 X.reverse() print(X) (b) def getNum(a,b): for i in range(a,b+1): if i%2==1: print(i) (c) [11, 10, 9, 8, 7, 4] (d) def isEmpty(Qu) if Qu==[]: return True else: return False def Enqueue(Qu, item) Qu.append(item) if len(Qu)==1: front=rear=0 else: rear=len(Qu)-1 def Dequeue(Qu) if isEmpty(Qu): return "Underflow" else: item=Qu.pop(0) if len(Qu)==0:</pre>

```

front=rear=None
return item
(e) 1100

```

Q3

(a) (i) Text file
 (iii) File.write("ABC")

(b) def count_lines():
 fi=open("Poem.txt","r")
 str=""
 while string:
 string=fi.readline()
 if string[0]!='H':
 print(string)

Q4

- (a) 10:B5:03 represents Manufacturer ID
63:2E:FC represents Card Number
- (b) Difference between router and switch is given below -

Switches	Routers
Are found in LAN where there is a single path from source to destination	They connect LANs and there can be multiple paths from source to destination

- (c) Cloud is an Internet based computing where shared resources, software and information is provided to computers and users on demand. Some examples are Gmail, Online data storage accounts
- (d) URL stands for uniform resource locator. It is address of a file on the Internet.
 The parts are:
 (1) http:// is type of server
 (2) encycle.msn.com is address of server
 (3) getinfo.styles.asp path of file from where it is to be retrieved.
- (e) (i) The command is Ping.
 (ii) Ping is used to test connectivity between two hosts. It checks if there is a connection to the remote machine.
- (f) (1) It represents Amplitude Modulation
 (3) The device is Modem.
- (g) TCP – Transmission Control Protocol,
 VoIP – Voice over Internet Protocol
 SSL – Secure Sockets Layer
 NFC – Near Field Communication
 IMAP – Internet Message Access Protocol
 FTP – File Transmission Protocol
 WiFi – Wireless Fidelity
 HTTPS – Secure Hypertext Transfer Protocol

	<p>(h) Wireless networks employ a protocol called as CSMA/CA (Carrier Sense Multiple Access with Collision Avoidance) to avoid collision in the network</p>
<p>Q5</p>	<pre>(a) import MySQLdb as my try: db=my.connect(host="localhost", user="root", password="", database="india") cursor=db.cursor sql="select * from city where city='delhi'" no_rows=cursor.execute(sql) print(cursor.fetchone()) db.close() except my.DataError as e: print("Data Error") print(e)</pre> <p>(b) (1) select name from staff st, salary sl where st.staffid = sl.staffid and dept='sales' and experience<9 and comm>700; (2) select avg(basic+allowance) as 'average salary' from staff st, salary sl where st.staffid=sl.staffid and dept='finance'; (3) select gender, count(gender) from staff group by gender; (4) select name from staff st, salary sl where (sl.basic+sl.allowance) = (select max(sl.basic+sl.allowance) from salary);</p> <p>(c) There are two types of HTTP requests: GET and POST GET Request: This HTTP request is made to request data from server. This request sends the URL to the webserver which in turn sends the requested web page HTML to the web client. POST Request: This HTTP request is made to submit data to be processed at the server. This request is issued when the client has data to be sent to the server for processing.</p> <p>(d) The folders are: EasySell – Base directory of Project. This folder contains in it EasySell – Project Web application folder, in addition to Register, Sell and Work folders.</p> <p>(e) Django templates make up the presentation tier of Django. A template can use any presentation format such as XML,HTML etc. Templates can also include logic to fill in data or values coming from Django's files and databases.</p>
<p>Q6</p>	<p>(a) (i) It is important for the safeguard of user privacy online. (ii) Online world is an open world and so the personal information of a user must not be available openly as it may be misused. Hence the privacy is important.</p> <p>(b) FLOSS: Free Libre and Open Source Software SDLC – System Development Life Cycle OSS – Open Source Software GNU – GNU is not UNIX</p>

(c) (i) XYZ is a shareware.

(ii) No, it is not possible for Sumit to see the source code and edit the software.

(d) ABC has committed Identity Theft (a part of Cyber Crime). The affected person needs to report this theft to the cyber cell of the police department.

(e) (i) This is a case of Plagiarism (Stealing)

(ii) The producer may have to face huge fine and penalties in this case.