

CLASS XII

SAMPLE PAPER

COMPUTER SCIENCE (083)

Time Allowed : 3HR

Maximum Marks: 70

General Instructions:

- I. All the questions are compulsory.
- II. Answer the questions after carefully reading the text.

Section A (Python)

Question 1.

a) How is a static method different from an instance method? [2]

b) Name the function / method required for [1]

i) Finding second occurrence of m in madam.

ii) get the position of an item in the list

c) Rewrite the following python code after removing all syntax error(s). Underline the corrections done. [2]

```
def main():
```

```
r = raw-input('enter any radius : ')
```

```
a = pi * math.pow(r,2)
```

```
print " Area = " + a
```

d) Give the output of following with justification [2]

```
x = 5
```

```
x+= x-x
```

```
print x
```

e) What will be printed, when following python code is executed [3]

```
class person:
```

```
def __init__(self,id):
```

```
self.id = id
```

```
arjun = person(150)
```

```
arjun.__dict__['age'] = 50
```

```
print arjun.age + len(arjun.__dict__)
```

Justify your answer.

f) What are the possible outcome(s) expected from the following python code? Also specify maximum and minimum value, which we can have. [2]

```
def main():  
p = 'MY PROGRAM'  
i = 0  
while p[i] != 'R':  
l = random.randint(0,3) + 5  
print p[i], '-',  
i += 1
```

- i) R - P - O - R -
- ii) P - O - R - Y -
- iii) O - R - A - G -
- iv) A - G - R - M -

Question 2.

a) How data encapsulation and data abstraction are implemented in python, explain with example. [2]

b) What will following python code produce, justify your answer [2]

```
x = 5  
y = 0  
print 'A'  
try :  
    print 'B'  
    a = x / y  
    print 'C'  
except ZerorDivisionError:  
    print 'F'  
except :  
    print 'D'
```

c) Write a class customer in python having following specifications [4]

Instance attributes:

customernumber - numeric value

customername - string value

price, qty, discount, totalprice, netprice - numeric value

methods :

init() to assign initial values of customernumber as 111, customername as “Leena”, qty as 0 and price, discount & netprice as 0.

caldiscount () – To calculate discount, totalprice and netprice

totalprice = price * qty

discount is 25% of totalprice, if totalprice >=50000

discount 15% of totalprice, if totalprice >=25000 and totalprice <50000

discount 10% of totalprice, if totalprice <250000

netprice= totalprice - discount

input() – to read data members customername, customernumber, price, qty and call caldiscount() to calculate discount, totalprice and netprice.

show() – to display Customer details.

d) What are the different ways of overriding function call in derived class of python ? Illustrate with example. [2]

e) Write a python function to find sum of square-root of elements of a list. List is received as argument, and function returns the sum. Ensure that your function is able to handle various situations viz. list containing numbers & strings, module required is imported etc. [2]

Question 3.

a) What will be the status of following list after third pass of bubble sort and third pass of selection sort used for arranging elements in ascending order?

40, 67, -23, 11, 27, 38, -1 [3]

b) Write a python function to search for a value in the given list using binary search method. Function should receive the list and value to be searched as argument and return 1 if the value is found 0 otherwise. [2]

c) Define stack class in python to operate on stack of numbers. [4]

d) Write a python function using yield statement to generate prime numbers till the value provided as parameter to it. [3]

e) Evaluate the following postfix expression. Show the status of stack after execution of each operation separately:

2,13, + , 5, -,6,3,/,5,*,< [2]

Question 4.

a) How is method write() different from writelines() in python? [1]

b) Write a function to read lines from the file “sentence.txt” and display all lines with line numbers in the beginning. [2]

c) Given a text file car.txt containing following information of cars
carNo, carname, milage. Write a python function to display details of all those cars whose milage is from 100 to 150. [3]

Section B

Question 5.

a. Define degree and cardinality. Based upon given table write degree and cardinality. [2]

PATIENTS

PatNo	PatName	Dept	DocID
1	Leena	ENT	100
2	Surpreeth	Ortho	200
3	Madhu	ENT	100
4	Neha	ENT	100
5	Deepak	Ortho	200

b. Write SQL commands for the queries (i) to (iv) and output for (v) & (viii) basedon a table COMPANY and CUSTOMER [6]

COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

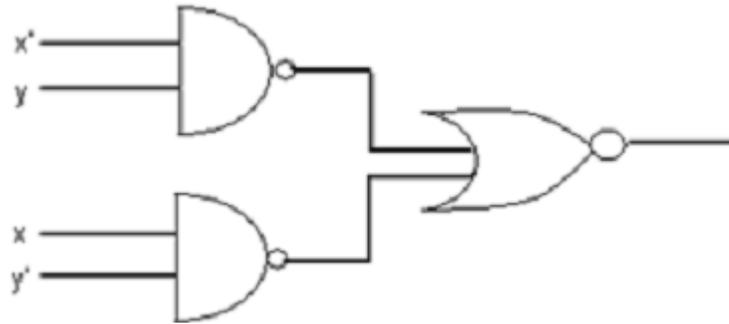
CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	Rohan Sharma	70000	20	222
102	Deepak Kumar	50000	10	666
103	Mohan Kumar	30000	5	111
104	Sahil Bansal	35000	3	333
105	Neha Soni	25000	7	444
106	Sonal Aggarwal	20000	5	333
107	Arjun Singh	50000	15	666

- (i) To display those company name which are having prize less than 30000.
- (ii) To display the name of the companies in reverse alphabetical order.
- (iii) To increase the prize by 1000 for those customer whose name starts with 'S'
- (iv) To add one more column totalprice with decimal(10,2) to the table customer
- (v) SELECT COUNT(*) ,CITY FROM COMPANY GROUP BY CITY;
- (vi) SELECT MIN(PRICE), MAX(PRICE) FROM CUSTOMER WHERE QTY>10 ;
- (vii)SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE "%r%";
- (viii)SELECT PRODUCTNAME,CITY, PRICE FROM COMPANY,CUSTOMER WHERE COMPANY.CID=CUSTOMER.CID AND PRODUCTNAME="MOBILE";

Question 6.

- a) State and define principle of Duality. Why is it so important in Boolean Algebra? [2]
- b) Write the equivalent boolean expression for the following logic circuit [2]



c) Write Product Of Sum expression of the function F (a,b,c,d) from the given truth table [1]

a	b	c	d	F
0	0	0	0	0
0	0	0	1	0
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	0
1	0	0	0	0
1	0	0	1	0
1	0	1	0	1
1	0	1	1	1
1	1	0	0	0
1	1	0	1	0
1	1	1	0	0
1	1	1	1	1

d) Obtain the minimal SOP form for the following boolean expression using KMap.

$$F(w,x,y,z) = (0,2,3,5,7,8,10,11,13,15)$$

[3]

Question 7.

a. Give any two advantage of using Optical Fibres. [1]

b. Indian School, in Mumbai is starting up the network between its different wings. There are Four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below.: [4]

SENIOR

JUNIOR

ADMIN

HOSTEL

- (b1) Suggest the cable layout of connections between the buildings.
- (b2) Suggest the most suitable place (i.e. building) to house the server of this School, provide a suitable reason.
- (b3) Suggest the placement of the following devices with justification.
- Repeater
 - Hub / Switch
- (b4) The organization also has Inquiry office in another city about 50-60 Km away in Hilly Region. Suggest the suitable transmission media to interconnect to school and Inquiry office out of the following.
- Fiber Optic Cable
 - Microwave
 - Radio Wave
- c. Identify the Domain name and URL from the following. [1]
- http://www.income.in/home.aboutus.html
- d. What is Web Hosting? [1]
- e. What is the difference between packet & message switching? [1]
- f. Define firewall. [1]
- g. Which protocol is used to creating a connection with a remote machine? [1]



“Treat your password like your toothbrush. Don't let anybody else use it, and get a new one every six months.”