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FIRST PREBOARD EXAMINATION
COMPUTER SCIENCE (083)
CLASS XII

MAX MARKS-70 TIME: 3 hrs

MARKING ACHEME

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	Identify the invalid Python statement from the following. (a) _b=1 (b) __b1= 1 (c) b_=1 (d) 1 = _b Ans – (d) 1 = _b	1

2	Identify the valid arithmetic operator in Python from the following.
	(a) // (b) < (c) or (d) <>
	
	Ans – (a) // floor division
		1

3	If Statement in Python is __ (a) looping statement (b) selection statement (c) iterative (d) sequential Ans – (b) selection statement	1
4	Predict the correct output of the following Python statement – print(4 + 3**3/2) (a) 8 (b) 9 (c) 8.0 (d) 17.5 Ans – (d) 17.5	1
5	Choose the most correct statement among the following – (a) a dictionary is a sequential set of elements (b) a dictionary is a set of key-value pairs (c) a dictionary is a sequential collection of elements key-value pairs (d) a dictionary is a non-sequential collection of elements Ans – (b) a dictionary is a set of key-value pairs	1
6	Consider the string state = “Jharkhand”. Identify the appropriate statement that will display the last five characters of the string state? (a) state [-5:] (b) state [4:] (c) state [:4] (d) state [:-4] Ans – (a) state [-5:]	1
7	What will be the output of the following lines of Python code?	1

	if not False:
	  print(10)
	else:
	  print(20)
	
	(a) 10 (b) 20 (c) True (d) False
	
	Ans – (a) 10	

8	Consider the Python statement: f.seek(10, 1) Choose the correct statement from the following: (a) file pointer will move 10 byte in forward direction from beginning of the file (b) file pointer will move 10 byte in forward direction from end of the file (c) file pointer will move 10 byte in forward direction from current location (d) file pointer will move 10 byte in backward direction from current location Ans: (c) file pointer will move 10 byte in forward direction from current location	1
9	Which of the following function returns a list datatype? a) d=f.read() b) d=f.read(10) c) d=f.readline() d) d=f.readlines() Ans: d) d=f.readlines()	1
10	Identify the device on the network which is responsible for forwarding data from one device to another (a) NIC (b) Router (c) RJ45 (d) Repeater Ans: (b) Router	1
11	A table has initially 5 columns and 8 rows. Consider the following sequence of operations performed on the table – i. 8 rows are added ii. 2 columns are added iii. 3 rows are deleted iv. 1 column is added What will be the cardinality and degree of the table at the end of above operations? (a) 13,8 (b) 8, 13 (c) 14,5 (d) 5,8 Ans: (a) 13,8	1
12	Which of the following constraint is used to prevent a duplicate value in a record? (a) Empty (b) check (c) primary key (d) unique Ans: (d) unique	1
13	The structure of the table/relation can be displayed using _____ command. (a) view (b) describe (c) show (d) select Ans: (b) describe	1
14	Which of the following clause is used to remove the duplicating rows from a select statement? (a) or (b) distinct (c) any (d)unique	1

	Ans: (b) distinct	
15	How do you change the file position to an offset value from the start? (a) fp.seek(offset, 0) (b) fp.seek(offset, 1) (c) fp.seek(offset, 2) (d) None of them Ans: (a) fp.seek(offset, 0)	1
16	Which of the following method is used to create a connection between the MySQL database and Python? (a) connector ( ) (b) connect ( ) (c) con ( ) (d) cont ( ) Ans: (b) connect ( )	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): The function definition calculate(a, b, c=1,d) will give error. Reason (R): All the non-default arguments must precede the default arguments. Ans: (a) Both A and R are true and R is the correct explanation for A	1
18	Assertion (A): CSV files are used to store the data generated by various social media platforms. Reason (R): CSV file can be opened with MS Excel. Ans: (b) Both A and R are true and R is not the correct explanation for A	1
SECTION - B		

19	Find error in the following code(if any) and correct code by rewriting code and underline the correction;-
	
	x= int("Enter value of x:")
	for in range [0,10]:
	if x=y
	print(x + y)
	else:
	print(x-y)
	
	Ans . Correct code:-
	x= int(input("Enter value of x:"))
	for in range (0,10):
	if x==y:
	print(x+y)
	else:
	print (x-y)
	
	½ mark for each correction
		2

20	(a) Find output generated by the following code: Str = "Computer" Str = Str[-4:] print(Str*2) Ans:	2

	uteruter OR Consider the following lines of codes in Python and write the appropriate output: student = {'rollno':1001, 'name':'Akshay', 'age':17} student['name']= “Abhay” print(student) Ans: {'rollno': 1001, 'name': 'Abhay', 'age': 17}	
21	What do you mean by Foreign key? How it is related with Referential Integrity? Ans: A foreign key is a non-key attribute whose value is derived from the primary key of another table. The relationship between two tables is established with the help of foreign key. Referential integrity is implemented on foreign key. 1 mark for explanation and 1 mark for relation with referential integrity.	2

22	Find output generated by the following code:
	string="aabbcc"
	count=3
	while True:
	  if string[0]=='a':
	  string=string[2:]
	  elif string[-1]=='b':
	  string=string[:2]
	  else:
	  count+=1
	  break
	print(string)
	print(count)
	
	Ans:
	bbcc
	4
		2

23	Expand the following terms: i. NIC ii. TCP/IP iii. POP iv. SMTP Ans: i. Network Interface Card ii. Transmission Control Protocol/ Internet Protocol iii. Post Office Protocol iv. Simple Mail Transfer Protocol ½ mark for each expansion	2
24	Write one advantage and one disadvantage of each – STAR Topology and Tree Topology ½ marks for each advantage and disadvantage OR	2

	What do you mean by Guided Media? Name any three guided media? Ans – Guided media – Physical Connection – ½ mark Twisted pair cable, Co-axial cable, Fiber-optic cable) ½ mark for each name	
25	Differentiate between DDL and DML? Ans: Data Definition Language (DDL): This is a category of SQL commands. All the commands which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER. Data Manipulation Language (DML): This is a category of SQL commands. All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE. OR Write the main difference between INSERT and UPDATE Commands in SQL Ans: INSERT used to insert data into a table. UPDATE used to update existing data within a table.	2
	SECTION - C	

26	Write definition of a method/function AddOdd(VALUES) to display sum of odd values from the list of VALUES
	
	Ans:
	def AddOdd(Values):
	n=len(NUMBERS)
	s=0
	for i in range(n):
	if (i%2!=0):
	s=s+NUMBERS[i]
	print(s)
	
	(2 Marks for Logic 1 mark for function definition)
		3

27	Define a function SHOWWORD () in python to read lines from a text file STORY.TXT, and display those words, whose length is less than 5.
	
	Ans:
	def SHOWWORD () :
	c=0
	file=open('STORY.TXT,'r')
	line = file.read()
	word = line.split()
	for w in word:
	if len(w)<5:
	print(w)
	file.close()
		3

(½ Mark for opening the file)
(½ Mark for reading line and/or splitting)
(½ Mark for checking condition)
(½ Mark for printing word)

OR

Write a user defined function in python that displays the number of lines starting with 'H' in the file para.txt

Ans:

```
def count H( ):
   f = open (“para.txt” , “r” )
   lines =0
   l=f. readlines ()
   for i in L:
      if i [0]== ‘H’:
         lines +=1
   print (“No. of lines are: “ , lines)
```

(½ Mark for opening the file)
(½ Mark for reading line and/or splitting)
(½ Mark for checking condition)
(½ Mark for printing word)

28 Write the outputs of the SQL queries (a) to (c) based on the relation **Furniture** 3

No	Itemname	Type	Dateofstock	Price	Discount
1	White lotus	Double Bed	23/02/02	30000	25
2	Pink feather	Baby Cot	20/01/02	7000	20
3	Dolphin	Baby Cot	19/02/02	9500	20
4	Decent	Office Table	01/01/02	25000	30
5	Comfort Zone	Double Bed	12/01/02	25000	25
6	Donald	Baby Cot	24/02/02	6500	15
7	Royal finish	Office Table	20/02/02	18000	30
8	Royal tiger	Sofa	22/02/02	31000	30
9	Econo sitting	Sofa	13/12/01	9500	25
10	paradise	Dining Table	19/02/02	11500	25
11	Wood Comfort	Double Bed	23/03/03	25000	25
12	Old Fox	Sofa	20/02/03	17000	20
13	Micky	Baby Cot	21/02/03	7500	15

(a) SELECT Itemname FROM Furniture WHERE Type="Double Bed";
(b) SELECT MONTHNAME(Dateofstock) FROM Furniture WHERE Type="Sofa";
(c) SELECT Price*Discount FROM Furniture WHERE Dateofstock>31/12/02;

Ans:

(a) Itemane White lotus Comfort Zone Wood Comfort	(b) MONTHNAME(Dateofstock) February December February	(c) Price*DIscount 625000 340000 112500

(1 mark for correct Answer)

29 | Consider the following table GAMES | 3

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	Lawn Tennis	4	25000	19-Mar-2004

Write the output for the following queries :

(i) SELECT COUNT(DISTINCT Number) FROM GAMES;

(ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;

(iii) SELECT SUM(PrizeMoney) FROM GAMES;

Ans:

(i) 2

(ii) 19-Mar-2004 12-Dec-2003

(iii)59000

30 | Write PushOn(Book) and Pop(Book) methods/functions in Python to add a new Book and delete a Book from a list of Book titles, considering them to act as push and pop operations of the Stack data structure. | 3

Ans:

```
def PushOn(Book):
    a=input("enter book title :")
    Book.append(a)

def Pop(Book):
    if (Book = =[ ]):
        print("Stack empty")
    else:
        print("Deleted element :")
        Book.pop()
```

OR

Mr.Ajay has created a list of elements. Help him to write a program in python with functions, PushEl(element) and PopEl(element) to add a new element and delete an element from a List of element Description, considering them to act as push and pop operations of the Stack data structure . Push the element into the stack only when the element is divisible by 4.

For eg:if L=[2,5,6,8,24,32]
then stack content will be 32 24 8

Ans:

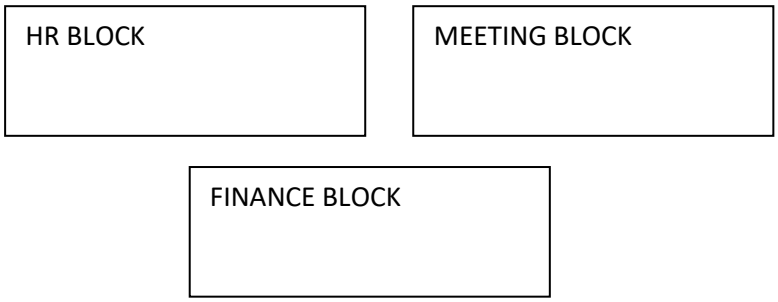
```
N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38]
def PUSHEl(S,N):
  S.append(N)
def POPEl(S):
  if S!=[]:
    return S.pop()
  else:
```

```
    return None
ST=[]
for k in N:
  if k%4==0:
     PUSH(ST,k)
while True:
  if ST!=[]:
    print(POP(ST),end=" ")
  else: break
```

SECTION - D

31 India Tech Solutions (ITS) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirement and suggest them the best available solutions. Their queries are mentioned as (i) to (v) below. 5

Physical locations of the blocks of TTC



Block to block distance (in m)

Block (From)	Block (To)	Distance
HR Block	MEETING	110
HR Block	Finance	40
MEETING	Finance	80

Expected number of computers

Block	Computers
HR	25
Finance	120
MEETING	90

(i)Which will be the most appropriate block, where TTC should plan to install their server?
(ii) Draw a block to block cable layout to connect all the buildings in the most appropriate manner for efficient communication.
(iii)What will be the best possible connectivity out of the following, you will suggest to connect the new set up of offices in Bengalore with its London based office.

- Satellite Link
- lInfrared
- Ethernet

(iv)Which of the following device will be suggested by you to connect each computer in each of the buildings?

- l Switch
- l Modem
- l Gateway

(v) Company is planning to connect its offices in Hyderabad which is less than 1 km. Which type of network will be formed?

Ans:
(i) TTC should install its server in finance block as it is having maximum number of computers.
(ii) Any suitable lyout
(iii) Satellite Link.
(iv) Switch.
(v) LAN

32 (a) Find the output of the following: 2

```
fruit_list1 = ['Apple', 'Berry', 'Cherry', 'Papaya']
fruit_list2 = fruit_list1
fruit_list3 = fruit_list1[:]
fruit_list2[0] = 'Guava'
fruit_list3[1] = 'Kiwi'
sum = 0
for ls in (fruit_list1, fruit_list2, fruit_list3):
   if ls[0] == 'Guava':
      sum += 1
   if ls[1] == 'Kiwi':
      sum += 20
print (sum)
```

Ans. Output is:
22

(b) Consider the table 3

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

The Following program code is used to increase the salary of Trainer SUNAINA by 2000.

Note the following to establish connectivity between Python and MYSQL:
- Username is root
- Password is system
- The table exists in a MYSQL database named Admin.

Write the following missing statements to complete the code:
Statement 1 – to form the cursor object
Statement 2 – to execute the command that inserts the record in the table Student.
Statement 3- to add the record permanently in the database

```
import mysql.connector as mydb
mycon = mydb.connect
      (host = "localhost",
      user = "root",
      passwd = "system",
```

database = "Admin")
cursor = _____ **#Statement 1**
sql = "UPDATE **TRAINER** SET SALARY = SALARY + 2000
WHERE TNAME = 'SUNAINA'"
cursor. _____ **#Statement 2**
_____ **#Statement 3**
mycon.close( )

Ans:
Statement 1 – `mycon.cursor ( )`
Statement 2 – `execute(sql).`
Statement 3- `mycon.commit ( )`

OR

(a) Write the output of the following Python program code: 2

```
my_dict = {}
my_dict[(1,2,4)] = 8
my_dict[(4,2,1)] = 10
my_dict[(1,2)] = 12
sum = 0
for k in my_dict:
   sum += my_dict[k]
print (sum)
print(my_dict)
```

Ans. Output is:
30
{(1, 2, 4): 8, (4, 2, 1): 10, (1, 2): 12}

(b) Consider the table 3

TABLE : **GRADUATE**

S.NO	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	I
2	DIWAKAR	450	COMP Sc	68	I
3	DIVYA	300	CHEMISTRY	62	I
4	REKHA	350	PHYSICS	63	I
5	ARJUN	500	MATHS	70	I
6	SABINA	400	CHEMISTRY	55	II
7	JOHN	250	PHYSICS	64	I
8	ROBERT	450	MATHS	68	I
9	RUBINA	500	COMP Sc	62	I
10	VIKAS	400	MATHS	57	II

The Following program code is used to view the details of the graduate whose subject is PHYSICS.

Note the following to establish connectivity between Python and MYSQL:
- Username is root
- Password is system
- The table exists in a MYSQL database named Admin.

Write the following missing statements to complete the code:
Statement 1 – to import the proper module

	Statement 2 – to create the cursor object. Statement 3- to Close the connection import _____ as mydb **#Statement 1** mycon = mydb.connect (host = "localhost", user = "root", passwd = "system", database = "Admin") cursor = _____ **#Statement 2** sql = "SELECT * FROM GRADUATE WHERE SUBJECT = 'PHYSICS'" cursor. execute(sql) mycon.commit ( ) _____ **#Statement 3** Ans: Statement 1 – mysql.connector Statement 2 –. mycon.cursor ( ) Statement 3- mycon.close( )	

33	Sumit is a programmer who is working on a project that requires student data of a school to be stored in a CSV file. Student data consists of roll no, name, class and section. He has written a program to obtain the student data from user and write it to a CSV file. After getting errors in the program he left five statements blank in the program as shown below. Help him to find the answer of the following questions to find the correct code for missing statements.
	
	#Incomplete Code
	import_____ #Statement 1
	fh = open(_____, _____, newline=' ') #Statement 2
	stuwriter = csv._____ #Statement 3
	data = []
	header = ['ROLL_NO', 'NAME', 'CLASS', 'SECTION']
	data.append(header)
	
	for i in range(5):
	roll_no = int(input("Enter Roll Number : "))
	name = input("Enter Name : ")
	Class = input("Class : ")
	section = input("Enter Section : ")
	rec = [_____] #Statement 4
	data.append(rec)
	stuwriter. _____ (data) #Statement 5
	fh.close()
	
	(i) Identify the suitable code for blank space in line marked as Statement 1.
	(ii) Identify the missing code for blank space in line marked as Statement 2.
	(iii) Choose the function name (with argument) that should be used in the blank space of line marked as Statement 3.
	(iv) Identify the suitable code for blank space in line marked as Statement 4.
	(v) Choose the function name that should be used in the blank space of line marked as Statement 5 to create the desired CSV file?
	
	Ans.
	(i) csv
	(ii) "Student.csv","w"
		5

(iii) writer(fh)
(iv) roll_no,name,Class,section
(v) writerows()

OR

What are the advantages of binary file over text file? Write a Python program in Python to search the details of the employees (name, designation and salary) whose salary is greater than 5000. The records are stored in the file emp.dat. consider each record in the file emp.dat as a list containing name, designation and salary.

Ans.
In binary file, there is no terminator for a line and the data is stored after converting it into machine understandable binary language. A binary file stores the data in the same way as stored in the memory. Like text file we can't read a binary file using a text editor.
---------- 2 marks (any suitable difference)

```
import pickle as p
L=[]
with open('emp.dat','rb') as f:
    L=p.load(f)
for r in L:
    if r[2]>5000:
        print("name=",r[0])
        print("designation=",r[1])
        print("salary=",r[2])
```
----------3 marks (any suitable code)

SECTION - E

34 Based on given table "DITERGENTS" answer following questions.

PID	PName	Price	Category	Manufacturer
1	Nirma	40	Detergent Powder	Nirma Group
2	Surf	80	Detergent Powder	HL
3	Vim Bar	20	Disc washing Bar	HL
4	Neem Face Wash	50	Face Wash	Himalaya

a) Write SQL statement to display details of all the products not manufactured by HL. 1
b) Write SQL statement to display name of the detergent powder manufactured by HL. 1
c) Write SQL statement to display the name of the Product whose price is more than 0.5 hundred. 2

OR

c) Write SQL statement to display name of all such Product which start with letter 'N'

Ans:

a) Select * from DITERGENTS where manufacturer = 'HL';
b) Select Pname from DITERGENTS where manufacturer != 'HL';
c) Select Pname from DITERGENTS where price > price/100;

or

c) Select Pname from DITERGENTS where left(pname) = 'N';

35	Arun is a class XII student of computer science. The CCA in-charge of his school wants to display the words form a text files which are less than 4 characters. With the help of his computer teacher Arun has developed a method/function FindWords() for him in python which read lines from a text file Thoughts. TXT, and display those words, which are lesser than 4 characters. His teachers kept few blanks in between the code and asked him to fill the blanks so that the code will run to find desired result. Do the needful with the following python code.
	
	def FindWords():
	  c=0
	  file=open('NewsLetter.TXT', '_____') #Statement-1
	  line = file._____ #Statement-2
	  word = _____ #Statement-3
	  for c in word:
	  if _____: #Statement-4
	  print(c)
	  _____ #Statement-5
	FindWords()
	
	(i) Write mode of opening the file in statement-1?
	(ii) Fill in the blank in statement-2 to read the data from the file.
	(iii) Fill in the blank in statement-3 to read data word by word
	(iv) Fill in the blank in statement-4, which display the word having lesser than 4 characters
	
	OR (Only for iii and iv above)
	(v) Fill in the blank in Statement-5 to close the file.
	(vi) Which method of text file will read only one line of the file?
	
	Ans:
	(i) r
	(ii) read()
	(iii) line.split()
	(iv) len(c)<4
	
	OR (Only for iii and iv above)
	(iii) file.close()
	(iv) readline()
		1+1+2