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FIRST PRE-BOARD EXAMINATION 2020 – 21

CLASS: XII

SUBJECT: 083 – COMPUTER SCIENCE

DURATION: 3 HRS.

MAX. MARKS: 70

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
 2. Both Part A and Part B have choices.
 3. Part - A has 2 sections:
 - a. Section – I is short answer questions, to be answered in one word or one line.
 - b. Section – II has two case studies questions. Each case study has 4 case-based sub - parts. An examinee is to attempt any 4 out of the 5 subparts.
 4. Part - B is Descriptive Paper and it has three sections
 - a. Section - I is short answer questions of 2 marks each in which two question have internal choices.
 - b. Section - II is long answer questions of 3 marks each in which two questions have internal choices.
 - c. Section - III is very long answer questions of 5 marks each in which one question has internal choice.
 5. All programming questions are to be answered using Python Language only.
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PART – A

SECTION – I

Select the most appropriate option out of the options given for each question.

Attempt any 15 questions from question no 1 to 21.

1. Which of the following is not a valid identifier in Python? 1
a) KV2 b) _main c) Hello_Dear1 d) 7 Sisters
2. A variable created or defined in a function body is known as... 1
a) local b) global c) built-in d) instance
3. Suppose `list1 = [0.5 * x for x in range(0,4)]`, list1 is 1
a) [0, 1, 2, 3] b) [0, 1, 2, 3, 4]
c) [0.0, 0.5, 1.0, 1.5] d) [0.0, 0.5, 1.0, 1.5, 2.0]
4. Which statement is not correct 1

- a) The statement `x = x + 10` is a valid statement
- b) List slice is a list itself.
- c) Lists are immutable while strings are mutable.
- d) Lists and strings in python support two way indexing.

5. What will be the output of following code snippet: 1

msg = "Hello Friends"

msg [: : -1]

- a) Hello
- b) Hello Friend
- c) 'sdneirF olleH'
- d) Friend

6. Which of the following function is used to write data in binary mode? 1

- a) `write ()`
- b) `output ()`
- c) `dump ()`
- d) `send ()`

7. Suppose a tuple T1 is declared as 1

T1 = (10, 20, 30, 40, 50)

which of the following is incorrect?

- a) `print(T[1])`
- b) `T[2] = -29`
- c) `print(max(T))`
- d) `print(len(T))`

8. What will be output of following: 1

d = {1 : "SUM", 2 : "DIFF", 3 : "PROD"}

for i in d:

print (i)

- | | | | |
|------|--------|------|------|
| a) 1 | b) SUM | c) 1 | d) 3 |
| 2 | DIFF | SUM | SUM |
| 3 | PROD | 2 | 3 |
| | | DIFF | DIFF |
| | | 3 | 3 |
| | | PROD | PROD |

9. What will be output of following code: 1

X = 50

def funct(X):

X = 2

funct (X)

print('X is now: ', X)

- a) X is now: 50
- b) X is now: 2
- c) Error
- d) None of the above

10. To read the next line from the file object fob, we can use: 1

- a) `fob.read(2)`
- b) `fob.read()`
- c) `fob.readline()`
- d) `fob.readlines()`

11. TCP/IP stands for 1
 a) Transmission Communication Protocol / Internet Protocol
 b) Transmission Control Protocol / Internet Protocol
 c) Transport Control Protocol / Interwork Protocol
 d) Transport Control Protocol / Internet Protocol
12. An attack that encrypts files in a computer and only gets decrypted after paying money to the attacker.. 1
 a) Botnet b) Trojan c) Ransomware d) Spam
13. Which is known as range operator in MySQL. 1
 a) IN b) BETWEEN c) IS d) DISTINCT
14. If column "salary" of table "EMP" contains the dataset {10000, 15000, 25000, 10000, 25000}, what will be the output of following SQL statement? 1
 SELECT SUM(DISTINCT SALARY) FROM EMP;
 a) 75000 b) 25000 c) 10000 d) 50000
15. Which of the following functions is used to find the largest value from the given data in MySQL? 1
 a) MAX () b) MAXIMUM () c) LARGEST () d) BIG ()
16. Name the clause used in query to place the condition on groups in MySQL? 1
17. Write the name of topology in which all the nodes are connected through a single Coaxial cable? 1
18. Write SQL statement to find total number of records in table EMP? 1
19. Write full form of VoIP. 1
20. Write command to list the available databases in MySQL. 1
21. Expand the term DHCP. 1

SECTION – II

Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark

22. An organization SoftSolutions is considering to maintain their employees records using SQL to store the data. As a database administrator, Murthy has decided that :
- Name of the database - DATASOFT
 - Name of the table - HRDATA
 - The attributes of HRDATA are as follows:
 ECode – Numeric

EName – character of size 30

Desig – Character of size 15

Remn – numeric

Table: HRDATA

ECode	EName	Desig	Remn
80001	Lokesh	Programmer	50000
80004	Aradhana	Manager	65000
80007	Jeevan	Programmer	45000
80008	Arjun	Admin	55000
80012	Priya	Executive	35000

- a) Identify the attribute best suitable to be declared as a primary key. 1
- b) Write the degree and cardinality of the table HRDATA, 1
- c) Write command to insert following data in the table: 1
- ECode = 80015, Ename = "Allen" Remn = 43000
- d) Write SQL statement to delete the record of Jeevan from the table HRDATA. 1
- e) Write SQL statement to increase the Remn of all the employees by 10 percent. 1

23. MOHIT of class 12 is writing a program to search a name in a CSV file "MYFILE.csv". He has written the following code. As a programmer, help him to successfully execute the given task.

```
import _____ # Statement 1
f = open("MYFILE.csv", _____) # Statement 2
data = _____ ( f ) # Statement 3
nm = input("Enter name to be searched: ")
for rec in data:
    if rec[0] == nm:
        print (rec)
f. _____ ( ) # Statement 4
```

- (a) Name the module he should import in Statement 1. 1
- (b) In which mode, MOHIT should open the file to search the data in the file in statement 2? 1
- (c) Fill in the blank in Statement 3 to read the data from the file. 1
- (d) Fill in the blank in Statement 4 to close the file. 1
- (e) Write the full form of CSV. 1

PART – B
SECTION – I

24. Evaluate following expressions: 2
a) $18 \% 4 ** 3 // 7 + 9$ b) $2 > 5$ or $5 == 5$ and not $12 <= 9$

25. Write two characteristics of Wi-Fi. 2

OR

Write two advantages of using an optical fibre cable over an Ethernet cable.

26. Expand the following terms: 2
a) GSM b) POP c) JSP d) CDMA

27. What is a module in Python? Define any two functions of Math module in python. 2

OR

Differentiate between Positional Argument and Default Argument of function in python with suitable example

28. Rewrite the following code in Python after removing all syntax error(s). 2
Underline each correction done in the code.

```
Num = int(input("Number:"))  
s=0  
for i in range(1,Num,3)  
    s+=1  
if i%2=0:  
    print(i*2)  
Else  
    print(i*3)  
print (s)
```

29. What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable End . 2

```
import random  
Colours = ["VIOLET","INDIGO","BLUE","GREEN", "YELLOW","ORANGE","RED"]  
End = randrange(2)+3  
Begin = randrange(End)+1  
for i in range(Begin,End):  
    print(Colours[i],end="&")
```

(i) INDIGO&BLUE&GREEN&
(iii) BLUE&GREEN&YELLOW&

(ii) VIOLET&INDIGO&BLUE&
(iv) GREEN&YELLOW&ORANGE&

30. Differentiate between an Attribute and a Tuple in a Relational Database with suitable example. 2
31. Differentiate between fetchone() and fetchall() function. 2
32. Explain any two aggregate function of SQL with suitable example. 2
33. Write the output of following python code 2

```
Text="Welcome Python"  
L=len(Text)  
ntext=""  
for i in range (0,L):  
    if Text[i].isupper():  
        ntext=ntext+Text[i].lower()  
    elif Text[i].isalpha():  
        ntext=ntext+Text[i].upper()  
    else:  
        ntext=ntext+"!!!"  
print (ntext)
```

SECTION – II

34. Write a function in REP which accepts a list of integers and its size as arguments and replaces elements having even values with its half and elements having odd values with twice its value . 3
- eg: if the list contains
3, 4, 5, 16, 9
then the function should rearranged list as
6, 2,10,8, 18
35. Write a method in python to read lines from a text file DIARY.TXT and display those lines which start with the alphabets P. 3

OR

Write a function country() in python to read the text file "mystory.txt" and count the number of times "my" occurs in the file. For example if the file mystory.txt contains:

"This is my school. I love to play and study in my school."

the country() function should display the output as:"my occurs 2 times".

36. Consider the following tables: COMPANY and MODEL. 3

Write the outputs of the SQL queries (a) to (c) based on the relations COMPANY and MODEL given below:

Table: COMPANY

CompID	CompName	CompHQ	Contact Person
1	Titan	Okhla	C.B. Ajit
2	Ajanta	Najafgarh	R. Mehta
3	Maxima	Shahdara	B. Kohli
4	Seiko	Okhla	R. Chadha
5	Ricoh	Shahdara	J. Kishore

Table: MODEL

Model_ID	Comp_ID	Cost	DateOfManufacture
T020	1	2000	2010-05-12
M032	4	7000	2009-04-15
M059	2	800	2009-09-23
A167	3	1200	2011-01-12
T024	1	1300	2009-10-14

- a) Select COUNT(DISTINCT CompHO) from Company;
- b) Select CompName, 'Mr.', ContactPerson
from Company where CompName like '%a';
- c) select Model_ID, Comp_ID, Cost, CompName, ContactPerson
from Model, Company
where Model.Comp_ID = Company.Comp_ID
and Comp_ID > 2;

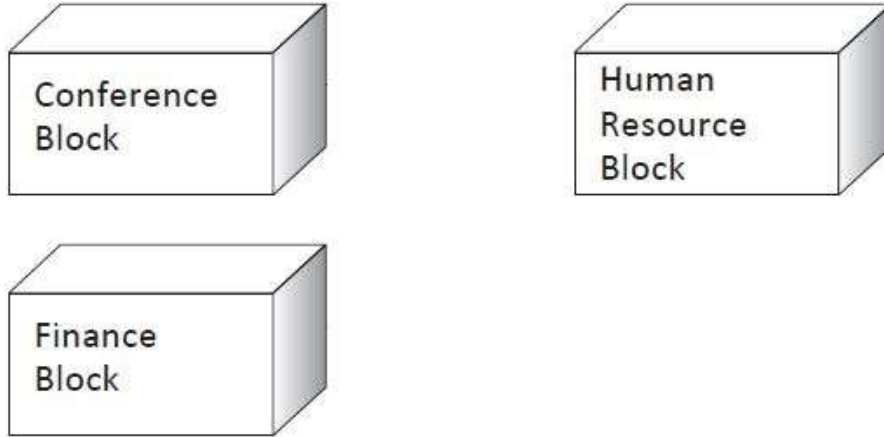
37. Write a function DELQ(Customer) in Python to delete a Customer from a Queue 3
implemented using list.

OR

Write a function POP(Book) in Python to delete a Book from a list of Book titles,
considering it to act as a pop operation of the Stack data structure.

SECTION - III

38. ABC CONSULTANTS is a professional consultancy company. The company is planning to set up new offices in India with its hub at Gurugram. As a network adviser, you have to understand their requirements and suggest to them the best available solutions.



Block-to-Block distance (in Mtrs.):

Block (From)	Block (To)	Distance
Human Resources	Conference	60
Human Resources	Finance	60
Conference	Finance	120

Expected Number of Computers to be installed in each block:

Block	Computers
Human Resources	125
Conference	25
Finance	60

- (a) What will be the most appropriate block where organization should plan to install their server? 1
- (b) Draw a block-to-block cable layout to connect all the buildings in the most appropriate manner for efficient communication. 1

- (c) What will be the best possible connectivity out of the following to connect the new set-up of offices in Dehradun with its London base office? 1
 (i) Infrared (ii) Satellite Link (iii) Ethernet Cable
- (d) Which of the following devices will you suggest to connect each computer in each of the above buildings? 1
 (i) Gateway (ii) Switch (iii) Modem
- (e) Write names of any **two** popular Open Source Software which are used as Operating Systems. 1

39. Write SQL commands for (i) to (v) on the basis of relations given below:

Table: **BOOKS**

book_id	Book_name	author_name	Publishers	Price	Type	qty
L01	Let us C	Sanjay Mukharjee	EPB	450	Comp	15
L02	Genuine	J. Mukhi	FIRST PUBL.	755	Fiction	24
L04	Mastering C++	Kantkar	EPB	165	Comp	60
L03	VC++ advance	P. Purohit	TDH	250	Comp	45
L05	Programming with Python	Sanjeev	FIRST PUBL.	350	Fiction	30

Table: **ISSUED**

Book_ID	Qty_Issued
L02	13
L04	5
L05	21

- (i) To show the books of FIRST PUBL. Publishers written by P. Purohit. 1
- (ii) To display cost of all the books published for EPB. 1
- (iii) Depreciate the price of all books of EPB publishers by 5%. 1
- (iv) To display the BOOK_NAME and price of the books, more than 5 copies of which have been issued. 1

- (v) To show total cost of books of each type. 1
40. Write a python program to append a new records in a binary file –“student.dat”. 5
The record can have Rollno, Name and Marks.

OR

Write a python program to search and display the record of the student from a binary file “Student.dat” containing students records (Rollno, Name and Marks).
Roll number of the student to be searched will be entered by the user.

