BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2024)

CLASS: IMSc   SEMESTER : II
BRANCH: QEDS   SESSION : SP/2024

SUBJECT: ED119 PROGRAMMING LANGUAGE AND DATABASE MANAGEMENT SYSTEM
TIME: 02 Hours   FULL MARKS: 25

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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Q.1(a) Consider this recursive function: [2]   1
```
def mystery(n):
if n <= 0: return 0
return n + mystery (n – 1)
```
What is mystery (4)?

Q.1(b) Suppose you want to build a site similar to Facebook. Considering disadvantages of keeping   [3]   1
data in a file-processing system. Discuss the relevance of each of these points to the storage
of actual data, and to metadata about the data, such as title, the user who uploaded it, tags,
and which users viewed it.

Q.2(a) Describe the output of the following snippet.   [2]   1
```
# include <iostream.h>
main()
{
struct val {
int Net;
};
struct val x;
struct val *p;
p = &x;
p->Net = 50;
cout << "\n", <<(x.Net)++;
}
```

Q.2(b) Explain how new and delete operators manage memory allocation and deallocation.   [3]   1

Q.3(a) Explain the concept of physical data independence and its importance in database systems.   [2]   2
Q.3(b) Explain the difference between two-tier and three-tier application architectures. Which is   [3]   2
better suited for web applications? Why?

Q.4(a) Describe the Architecture of Database for Centralized as well as Shared Memory.   [2]   2
Q.4(b) Explain different types of DBMS languages with example of each.   [3]

5   Consider the entities given below and answer the following questions.

Batch	
Batch	Year
1	1999-2002
2	2000-2003
3	2001-2004
4	2002-2005
5	2003-2006
6	2004-2007
7	2005-2008
8	2006-2009
9	2007-2010
10	2008-2011
11	2009-2012

Class			
Class Code	Class Describe	Total Students	Batch
Fy-1	fy div-1	60	1
Fy-2	fy div-2	60	1
Sy-1	sy div-1	60	1
Fy-1	fy div-1	60	2
Sy-2	sy div-2	60	2
Fy-1	fy div-1	90	3
Fy-2	fy div-2	90	3

Q.5(a) Draw hierarchical and network models for the entities given below.   [2]   2
Q.5(b) Identify the relationships between entities.   [3]   2

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