Total No. of Questions – [2]

Total No. of Printed Pages: 2

G.R. No.	

PAPER CODE	U124-314

March 2024 (INSEM) EXAM

F.Y.B. TECH. (SEMESTER - II)

BRANCH: ARTIFICIAL INTELLIGENCE & DATA SCIENCE

COURSE NAME: INTRODUCTION TO DATA STRUCTURE & ALGORITHM

COURSE CODE: ADUA12235

(PATTERN 2023)

Time: [40 min]

[Max. Marks: 20]

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **Solve any two sub questions from Question 1 and 2**

Question No.	Question Description	Marks	CO mapped	Blooms Taxonomy Level
Q.1	a)Compare and Contrast Linear vs Non-Linear and Static vs Dynamic Data Structure.	[5]	CO1	ANALYZE
	b) Develop an algorithm to convert Decimal number to Binary. Demonstrate with example.	[5]	CO1	CREATE
	c)Evaluate Time Complexity of given program using Step Count Method and Write an output of the program.	[5]	CO1	EVALUATE

	`#include <iostream>`
	`using namespace std;`
	`int main()`
	`{`
	`int a=10,b=20;`
	`for(int i=0;i<5;i++)`
	`{`
	`for(int j=i;j<5;j++)`
	`{`
	`a=b++;`
	`b=++a;`
	`}`
	`cout<<" "<<b;`
	`}`
	`cout<<endl<<a;`
	`return 0;`
	`}`			

Q2	a) Represent given array using row major and column major arrangement and find the address of given index if base address is 2000. int Arr[3][4]={3,56,1,57,90,34,66,78,33,55,22,69 }; find address of Arr[2][3] using row major, and address of Arr[1][3] using column major arrangement.	[5]	CO2	UNDERSTAND
	b) Develop an algorithm to add two single variable polynomial using arrays.	[5]	CO2	APPLY

	c) Explain the concepts of an array of pointers and a pointer to an array. Write output of given code.
	`#include <iostream>`
	`using namespace std;`
	
	`int main()`
	`{`
	`int a[5]={11,22,33,44,55};`
	`int *p,*q;`
	`p=a;`
	`q=p++;`
	`*q+2;`
	`++*p;`
	`q++;`
	`cout<<*p<<*q<<*p+1<<*(p+2);`
	`return 0;`
	`}`
		[5]	CO2	UNDERSTAND