MANAV RACHNA
Vidyanaparishal

MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF CST

"T3 Examination, December 2021"

SEMESTER	3rd	DATE OF EXAM	02.12.2021
SUBJECT NAME	Database Management System	SUBJECT CODE	CSH202B-T
BRANCH	CSE/AIML/CSTI/CDA	SESSION	I
TIME	3 hr	MAX. MARKS	100
PROGRAM	B.Tech	CREDITS	4
NAME OF FACULTY	HanuBhardwaj, GaganjotKaur, ShreyaMalhotra, Sarika	NAME OF COURSE COORDINATOR	Ms.Sarika

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1	A data file contains 60,000 records. The record length is 300 bytes of which the key occupies 10 bytes, The block size is 512 bytes. Calculate:- 1.The average time to find a record assuming a sequential file. 2.Size of the primary index 3. Average time to access a record through the primary index the primary index	2+2+1	CO1	BT3	2.3.2
	2	Write the Create Table (SQL) command to create the following relations along with the constraints specified: a) **Employee(empid integer, dateof birth date,Lnamevarchar(20), Fnamevarchar(20), s_ageinteger,addressvarchar(20),phno integer)** PRIMARY KEY – eno FOREIGN KEY – dno refers to Department relation dobshould be more than 01-jan-1990 ephone can have unique values only **b) Department (eno char(3), dnamevarchar(20), dno char(3))** PRIMARY KEY – dno, dname can't be blank	2.5+2.5	CO1	BT3	2.3.2
PART-B	3	Student (ID ,Name, Major) Course (DeptNum, Title) Dept (Abbrev, Name, Office) Enroll(SID ,DeptNum ,Date) Major is a FK to Dept in Course Dept is a FK to Abbrev in Dept SID is a FK to ID in Student; Dept-Num is a FK to Dept-Num in Course Write the queries in Tuple Relational Calculus • Express the following queries in Tuple Relational Calculus &Domain Relational Calculus: 1. What are the department abbreviations and titles of all courses numbered 101? 2. What are the IDs of the MATH students taking "Discrete Structures? 3. Find the deptno of the courses with title"DBMS"	2+2+1	CO2	BT3	2.3.1

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	4	Schema :account(acc_Id,br_name,balance) depositor(cust_name,acc_Id) loan(loan_Id,br_name,amount) borrower(cust_name,loan_Id) Write the following query in relational algebra. a)Find names of all customers that have either a bank account or a loan at the bank b) Find all customers that have an account but not a loan c) Selects the account IDs of all accounts with a balance of $300 or more	2+2+1	CO2	BT3	1.4.1
PART-C	5	a) Draw an EER diagram of the conceptual schema for another part of a University database, described as follows: • Academic staff, general staff and students are the only persons at the university. • Each person is either an academic staff, or a general staff, or a student. • A person is uniquely identified by a PerId (person's ID), and has a Name, and an Address. An Address is composed of HouseNo, Street, and City. • A characteristic property of a student is that she/he has at least one Major and one NoOfPts (number of points) for each major. • An academic staff has a Position and an AcQual (academic qualification). • A general staff has a GenPos (general position). • An academic staff teaches at most one course, whereas a student takes at least one course. • A course is uniquely identified by a CourId (course ID), and has a CourName (course name). • Each course is taught by at least one academic staff, and can be taken by many students, but there may be courses that are not taken by any students. • Each course can use more than one textbook, but there may be courses with no textbook. • A textbook is uniquely identified by the course which uses the book, and by an OrdNo. The attribute OrdNo is the ordinal number of the book in the list of the textbooks of a particular course. A book also has a Title.	15	CO3	BT3	1.4.1
	6	Given a relation R(P, Q, R, S, T, U, V, W, X, Y) and Functional Dependency set FD = { PQ → R, PS → VW, QS → TU, P → X, W → Y }, determine whether the given R is in 2NF? If not, convert it into 2 NF.	7	CO3	BT3	2.3.1
	7	Relation R has eight attributes ABCDEFGH. Fields of R contain only atomic values. F={CH→G, A→BC, B→CFH, E→A, F→EG} is a set of functional dependencies (FDs) so that F + is exactly the set of FDs that hold for R. How many candidate keys does the relation R have?	7	CO4	BT3	2.3.2
	8	Let a relation R (A, B, C, D) and functional dependency {AB –> C, C –> D, D –> A}. Relation R is decomposed into R1(A, B, C) and R2(C, D). Check whether decomposition is dependency preserving or not.	6	CO4	BT3	2.3.2
	9	Consider a schema R(A,B,C,D) and functional dependencies A->B and C->D. Then the decomposition of R into R1(AB) and R2(CD) is	5	CO4	BT3	2.3.2

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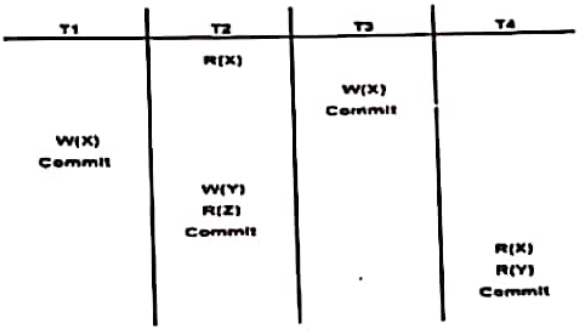
PART-D

10	The locking information for several transactions is shown below. Produce a wait-for-graph (WFG) for the transactions and determine whether deadlock exists or not. Transaction Id Data item Lock mode T1 Q SHARED T2 P EXCLUSIVE Q EXCLUSIVE T3 Q SHARED T4 P EXCLUSIVE Q EXCLUSIVE	10	CO5	BT3	2.3.2
11	Check whether the given schedule S is conflict serializable and recoverable or not- 	10	CO5	BT3	1.4.1

12	Consider the following two transactions:
	T1: read(A);
	read(B);
	if A = 0then B := B + 1;
	write(B).
	T2: read(B);
	read(A);
	if B = 0then A := A + 1;
	write(A).
	Add lock and unlock instructions to transactions T1 and T2, so that they observe the two-phase locking protocol. Can the execution of these transactions result in a deadlock
		10	CO5	BT3	2.3.2

10	Consider a simple checkpointing protocol and the following set of operations in the log. (start, T4); (write, T4, y, 2, 3); (start, T1); (commit, T4); (write, T1, z, 5, 7); (checkpoint); (start, T2); (write, T2, x, 1, 9); (commit, T2); (start, T3); (write, T3, z, 7, 2); If a crash happens now and the system tries to recover using both undo and redo operations, what are the contents of the undo list and the redo list?	10	CO5	BT3	1.4.1

END

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Declared as Deemed to be University under Haryana Act 26 of 2014

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"T3 Examination, December -2021"

SEMESTER	3rd Sem	DATE OF EXAM	December 4, 2021
SUBJECT NAME	Computer Architecture & Organization	SUBJECT CODE	CSH209B-T
BRANCH	CSE	SESSION	First
TIME	3 Hour	MAX. MARKS	100
PROGRAM	B.Tech	CREDITS	04
NAME OF FACULTY	Dr Prinima, Ms. Neelu, Ms. Urmila	NAME OF COURSE COORDINATOR	Dr Prinima

Note: *Part A: All questions are compulsory. Each Question carries 2 marks.*
Part B: All questions are compulsory. Each Question carries 10 marks.
Part C & D: Attempt any two Questions. Each Question carries 15 marks.

Q.NO.		QUESTIONS	MARKS	CO ADD	BLOOM'S LEVEL	PI
PART-A	1(a)	Explain two Universal Gates and its usefulness.	2	CO1	BT2	1.4.1
	1(b)	Explain various types of interrupts with examples.	2	CO3	BT1	1.4.1
	1(c)	Explain the Amdahl's Law of performance.	2	CO4	BT1	1.4.1
	1(d)	Differentiate between direct and indirect addressing.	2	CO2	BT2	1.4.1
	1(e)	A micro-instruction format has micro-ops field which is divided into three subfields F1, F2, F3 each having seven distinct micro-operations, condition field CD for four status bits, branch field BR having four options used in conjunction with address field ADF. The address space is of 128 memory locations. Calculate the size of micro-instruction.	2	CO2	BT3	1.4.1
	1(f)	Differentiate between parallelism & pipelining.	2	CO4	BT2	1.4.1
	1(g)	Which one is the fastest memory in computer and why.	2	CO3	BT2	1.4.1
	1(h)	Explain the Locality of reference principle.	2	CO3	BT3	1.4.1
	1(i)	Find the size of data bus for 128*16 memory.	2	CO3	BT3	1.4.1
	1(j)	Explain Write-Through with example.	2	CO3	BT2	1.4.1
PART-B	2a	Draw a logical diagram of 16 x 1 multiplexer using 4 x 1 multiplexer.	5	CO1	BT3	1.4.1
	2b	Simplify the following expression (with the help of Boolean Algebra Rule): (X + Y + Z) (X + Y + U + V) (Z + U)	5	CO1	BT4	1.4.1
	3a	Explain General Register organization with diagram?	5	CO2	BT2	1.4.1

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	3b	What are the different types of Computer Registers? Explain.	5	CO2	BT2	1.4.1
PART-C	4a	How many 64K × 1 RAM chips are needed to provide a memory capacity of 256 K-bytes?	5	CO1, CO3	BT3	1.4.1
	4b	Why is Cache mapping required and also state all types of mapping.	10	CO1, CO3	BT3	1.4.1
	5a	State different Modes of transfer. Explain working of DMA controller with the help of block diagram.	10	CO1, CO3	BT2	1.4.1
	5b	Explain how an I/O interrupt can be handled with the help of interrupt cycle.	5	CO1, CO3	BT2	1.4.1
	6a	The memory access time is 1 nanosecond for a read operation with a hit in cache, 5 nanoseconds for a read operation with a miss in cache, 2 nanoseconds for a write operation with a hit in cache and 10 nanoseconds for a write operation with a miss in cache. Execution of a sequence of instructions involves 100 instruction fetch operations, 60 memory operand read operations and 40 memory operand write operations. The cache hit-ratio is 0.9. Calculate average memory access time (in nanoseconds) in executing the sequence of instructions.	10	CO1, CO3	BT3	1.4.1
	6b	Explain the concept of Cache Coherence and how it can be controlled?	5	CO1, CO3	BT1, BT2	1.4.1
PART-D	7a	Instructions are executed in a 3-stage pipelining. Assume that each instruction required different stage delay (in terms of number of clock cycle) as mentioned in the table below. Find the speedup factor. Table mentioned below:	10	CO4	BT3	1.4.1
	7b	Explain various dependency problems in pipelining.	5	CO4	BT2	1.4.1
	8a	Differentiate between instruction format and microinstruction format.	5	CO2, CO4	BT1, BT2	1.4.1
	8b	Explain the working of microprgram sequencer in the execution of microinstructions stored in control memory with the help of block diagram.	10	CO2, CO4	BT2	1.4.1
	9a	Assume that the time required for the five functional units, which operate in each of the five cycles are: 10 ns, 8 ns, 10 ns, 5 ns and 7 ns. Assume that pipelining adds 1 ns of overhead. Find the speed up versus single cycle data path.	5	CO4	BT3	1.4.1
	9b	Differentiate between Synchronous and Asynchronous Pipeline. Design a 4-segment instruction pipeline.	10	CO4	BT3	1.4.1

	IF	ID	EX
I1	1	2	2
I2	2	3	3
I3	2	1	3
I4	1	4	2
I5	3	2	4

********** END **********

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MANAV RACHNA UNIVERSITY
FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED R GRADE INSTITUTION
Declared as State Private University under section 21 of the UGC act, 1956

DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, December -2021"

Semester: 3rd/5th
Subject: Analysis and Design of Algorithms
Branch: CSE /DSML
Course Type: Core
Time: 3 Hours
Program: B.Tech.

Date of Exam: 06/12/2021
Subject Code: CSH204B-T
Session: I
Course Nature: Hard
Max.Marks:100
Signature: HOD/Associate HOD:

Note: All questions are compulsory.

PART -A

S. No	Questions	Marks	Course Outcomes	BT Level
1	Define space and time complexity of an algorithm. State the asymptotic notations used in Computing the complexities.	5	CO1	L1

2	ALGORITHM Sum(n)
	// Input: A nonnegative integer n
	S←0
	For i ← 1 to n do
	S ← S + i
	Return S
	1. What does this algorithm compute?
	2. What is basic operation?
	How many times the basic operation is executed?
		5	CO3	L2

	PART B			
S. No	**Questions**	**Marks**	**Course Outcomes**	**BT Level**
3	Solve the following recurrence relations. i. x (n) = x (n - 1) + 5 for n > 1; x (1) = 0 ii. x (n) = 3x (n - 1) for n > 1; x (1) = 4	.5	CO2	L2

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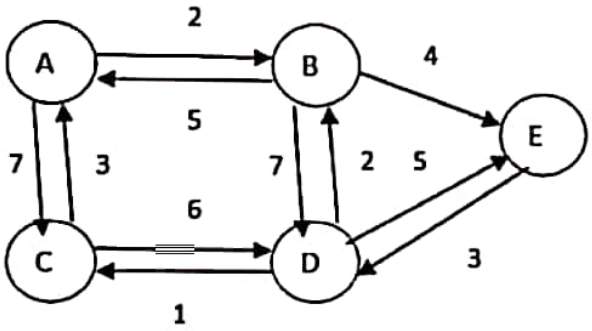
4	Sort the following elements using Merge Sort. 45,22,88,23,78,46,84,44,21,34.	5	CO2	L3

PART – C

S. No	Questions	Marks	Course Outcomes	BT Level
5	Explain the Job sequencing with deadlines using following example. N=5, profits(p1,p2.....p5)=(20,15,10,5,1), deadlines (d1,d2,..d5) = (2, 2, 1, 3, 3).	8	CO3	L3
6	Find the shortest path between all pairs of nodes in the following graph shown in Figure by using suitable algorithm. 	16	CO3	L3,L4
7	What is the Knapsack problem? Find an optimal solution to Knapsack problem with n=7, m=15 (P1,.....,P7)=(10,5,15,7,6,18,3) and (w1,.....,w7)=(2,3,5,7,1,4,1) .	8	CO3	L3

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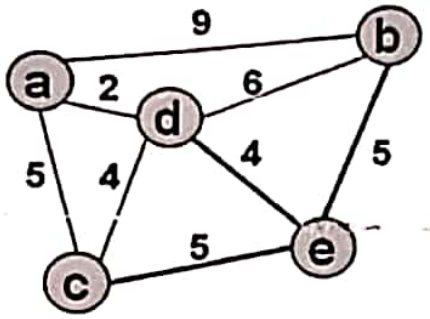
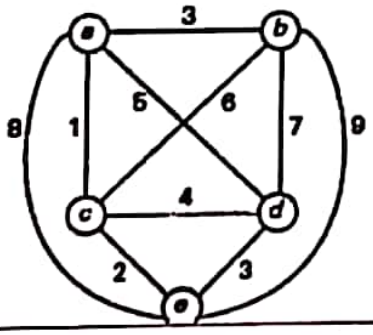
8	Elucidate the minimum spanning tree with the help of prim's algorithm and show the result for the given graph shown in Figure.  	8	CO4	L3
	PART D			
S. No	**Questions**	**Marks**	**Course Outcomes**	**BT Level**
9	Write a brief note on P, NP,NP hard and NP complete problems.	10	CO3	L1,L2
10	What is graph coloring problem? Discuss in detail the m-coloring graph problem.	5	CO4	L2
11	Using backtracking enumerate how can you solve the following problems (i) 8-Queen (ii) Hamilton circuit problem	10	CO3	L1,L2
12	Find the optimal tour of travelling salesman problem for the graph shown in figure.  	15	CO4	L3,L4

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DEPARTMENT OF CST

"T3 Examination, Dec-2021"

SEMESTER	**3rd**	**DATE OF EXAM**	**9 Dec 2021**
SUBJECT NAME	**Data Structures &Algorithms**	**SUBJECT CODE**	**CSH103B- T**
BRANCH	**AIML/CDA/CSTI/ECE**	**SESSION**	**I**
TIME	**3 hrs**	**MAX. MARKS**	**100**
PROGRAM	**B tech**	**CREDITS**	**5**
NAME OF FACULTY	**Hanu Bhardwaj,Parneeta Dhaliwal, Meena Chaudhary**	**NAME OF COURSE COORDINATOR**	**Meena Chaudhary**

Note: All questions are compulsory.

Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
1(A)	Consider a two dimensional array A[20][10]. Assume 4 words per memory cell, the base address of array A is 100, elements are stored in row-major order and first element is A[0][0]. What is the address of A[11][5] ?	6	CO1	BT1	2.2.4
1(B)	Which data structure is used to store file in a system? Define a structure book which includes book name, total_no_pages and book_prize. Also declare a variable of book data structure.	1+3	CO1	BT2	2.4.1
Q2(A)	In an institution, stud_id of all the students is being stored using doubly linked list in ascending order. Write an algorithm for printing all stud_id in descending order.	5	CO2	BT2	2.4.1
Q2(B)	A circular linked list is being used to store the ids of the customer coming for shopping in a departmental store. Write an algorithm for adding id 25 at 6th position in circular linked list.	5	CO2	BT1	2.4.1
Q3	Convert the infix expression **2*3/(2-1)+5*3** into postfix expression using infix to postfix conversion algorithm. Also write the algorithm for converting infix expression to prefix expression.	5+5	CO3	BT3	2.3.2
Q4	Evaluate the following prefix and postfix expressions. i) * + 3 4 + 1 2	4*2.5	CO3	BT2	2.2.3

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	ii) * 4 + 3 - 1 2 iii) 2 10 + 9 6 - / iv) 2 4 3 2 * + 5 - *				
Q5	Using a Circular Queue, trace the insert and delete functions to perform sequence of following operations and show the status of queue after every operation: **Insert 3, Insert 4, Insert 5, Insert 6, Delete, Delete, Delete, Insert 7, Insert 8, Delete, Delete, Insert 7, Delete, Insert 8, Insert 9, Delete**	10	CO3	BT3	2.4.1
Q6	Share your observations on advantage of implementing a queue in form of a circular array instead of a linear array. Also write the algorithm to insert elements in Circular Queue.	5+5	CO3	BT3	2.4.1
Q7	Construct a binary search tree for the following values: **19, 11 ,4 ,15, 17, 18, 8, 20, 32, 14, 60, 3** Once the tree is constructed, implement **Deletion** of 14 and 8 values respectively.	6+2+2	CO4	BT4	4.4.2
Q8	Insert the following values in AVL tree : **65, 2, 15, 26, 13, 100, 97, 85, 78** Clearly depict the status of AVL tree after insertion of new value.	10	CO4	BT4	4.4.2
Q9	Insert the following values in a 5-way B-tree: 3, 7, 9, 23, 45, 1, 5, 14, 25, 24, 13, 11, 8, 19, 4, 31, 35, 56	10	CO4	BT4,BT5	4.4.2
Q10	Represent a directed graph (diagrammatically) with : Vertices A, B, C, D, E : Edges (A, B), (C, D), (C, A), (A,D), (B,E),(C,E),(A,E) Also show the above constructed graph's representation using Linked List.	5+5	CO4	BT4	2.4.2

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Declaration under Private University Sole Proprietor Act 26 of 2014

DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, December-2021"

SEMESTER	III		
SUBJECT NAME	OOPs using Java	DATE OF EXAM	09/12/2021
		SUBJECT CODE	CSH201B-T
BRANCH	CSE		
TIME	9:00AM - 12:00 NOON	SESSION	Morning
PROGRAM	B.Tech. CSE	MAX. MARKS	100
		CREDITS	5
NAME OF FACULTY	CSE3A, 3B: Mr. Ram Chatterjee, CSE3C: Ms. Mamta	NAME OF COURSE COORDINATOR	Mr. Ram Chatterjee
		AUTHORIZED SIGNATORY	

Note: Part A, B : All questions are compulsory. Questions are of short answer type (10 Marks).
Part C, D: Questions are of descriptive/programming type.
Each question is of 20 marks. Attempt all questions.

Q.NO.		QUESTIONS	MARKS	CO	BLOOM'S LEVEL	PI
PART-A	Q1.	**Answer the following questions with most appropriate terminology and/or justification:**				
	1(A)	The process of designing class is known as _____	1	CO1	BT1	1.4.1
	1(B)	Which type of polymorphism addresses late binding?	1	CO1	BT1	1.4.1
	1(C)	When it isn't necessary to create objects from class?	1	CO1	BT1	1.4.1
	1(D)	Which type of coupling applies to inheritance?	1	CO1	BT2	1.4.1
	1(E)	What will happen if the top level class is made private/protected?	1	CO1	BT2	1.4.1
	1(F)	Which design pattern involves private constructor?	1	CO1	BT1	1.4.1
	1(G)	What would happen if you say this = null?	1	CO1	BT2	1.4.1
	1(H)	Is Java not 100% Object Oriented? Justify.	1	CO1	BT2	1.4.1
	1(I)	What is a classloader in Java?	1	CO1	BT1	1.4.1
	1(J)	How many abstract classes can a class extend?	1	CO1	BT1	1.4.1
PART-B	Q2(A)	Differentiate between method overloading and method overriding via Java program.	5	CO2	BT3	1.4.1
	2(B)	Illustrate by writing a program in Java how you can create two public classes in a single package.	5	CO2	BT3	1.4.1

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PART-C	Q3(A)	In context of Law of Demeter, answer the following with proper justification. (i) What's the other name for it? (ii) What coupling does it support? (iii) Which feature of OOP confirms to this law? (iv) Which type of methods (getter/setter) violate the law? (v) Does the following statement abide by or violates the law? a.getX().getY()	10	CO2	BT2	1.4.1
	3(B)	In context of exception handling, answer the following with proper justification. (i) Can we write only try block without catch and finally blocks? (ii) Can we keep other statements in between try, catch and finally blocks? (iii) There are three statements in a try block – statement1, statement2 and statement3. After that there is a catch block to catch the exceptions occurred in the try block. Assume that exception has occurred in statement2. Does statement3 get executed or not? (iv) What is unreachable catch block error and why does it occur? (v) What are run time exceptions in Java. Give example?	10	CO2	BT2	1.4.1
	Q4(A)	Write a program in Java signifying the handling of NullPointerException, ArrayIndexOutOfBoundsException along with Exception class using multiple catch blocks.	10	CO3	BT3	1.4.1
	4(B)	In context of Design Pattern, answer the following: (i) Which category of design pattern helps create objects and how? (ii) Which category of design pattern helps compose objects and how? (iii) Which category of design pattern help objects communicate and how? (iv) Why do we prefer to use design pattern? (v) Which design pattern is helpful in cloning the object and why would you prefer to use it?	10	CO2	BT2	1.4.1
	Q5(A)	Explain the state transition diagram of a thread diagrammatically and explain associated thread methods.	10	CO3	BT4	1.4.1
	5(B)	Write a java program to illustrate concept of thread priority.	10	CO3	BT3	1.4.1
	Q6(A)	Write java code to depict reading/writing operations in a random access file.	10	CO3	BT3	1.4.1
	6(B)	Mention the classes and class add-ons with proper syntax that allows you to speed up reading / writing by using a buffer?	10	CO3	BT3	1.4.1

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"T3 Examination, December-2021"

SET-02

SEMESTER	**3rd**	**DATE OF EXAM**	**13.12.2021**
SUBJECT NAME	**Secure Coding in C/C++**	**SUBJECT CODE**	**CSH213B-T**
BRANCH	**CSTI**	**SESSION**	**I**
TIME	**3 hours**	**MAX. MARKS**	**60**
PROGRAM	**B.Tech**	**CREDITS**	**3.5**
NAME OF FACULTY	**Mr.Awadhesh/Ms Vidushi (QuickHeal Instructor)**	**NAME OF COURSE COORDINATOR**	**Ms.Shreya Malhotra**

Note: All questions are compulsory.
PART A - Q1 to Q2 are short answer type with 3 marks each
Part B - Q3 is long answer type with 5 marks each.
Part C- Q4 is very long answer type with 8 marks each.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART A	Q1(A)	Explain the File I/O basics with the relative file operations used for them.	3	CO4	BT2	1.2.1
	1(B)	Discuss the file access methods in detail.	3	CO4	BT2	1.2.1
	1(C)	Explain the C memory management and how the program is stored over the memory.	3	CO2	BT3	1.4.1
	1(D)	What are UNIX File permissions? Discuss	3	CO4	BT2	1.2.1
	Q2(A)	What is Parallelism and its types? Explain with example.	3	CO3	BT3	1.4.1
	2(B)	What are pointers and how they are vulnerable in coding?	3	CO1	BT2	1.2.1
	2(C)	Write four differences between Stack and Heap.	3	CO2	BT3	1.4.1

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PART B	Q3(A)	Explain Call by Value and Call by Reference in detail.	5	CO1	BT3	1.4.1
	3(B)	What is Stack randomization and other mitigation techniques to overcome integer vulnerabilities?	5	CO3	BT2	1.2.1
	3(C)	Discuss the vulnerabilities with respect to dynamic memory allocation in C.	5	CO2	BT3	1.4.1
PART C	Q4(A)	What do you understand by below mentioned terms, explain with examples? 1. Concurrency 2. Race Condition 3. Variadic Functions 4. Function pointers	8	CO3	BT2	1.2.1
	4(B)	Explain the Security Development Lifecycle.	8	CO4	BT3	1.4.1
	4(C)	Write a program in C to access the file in read and write mode.	8	CO4	BT3	1.4.1

********** END **********

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DEPARTMENT OF COMPUTER ENGINEERING

"T3 Examination, Dec-2021"

SEMESTER	3rd	DATE OF EXAM	13/12/2021
SUBJECT NAME	Modern Web and Mobile Framework	SUBJECT CODE	CSH211B-T
BRANCH	CSE - COA	SESSION	Morning
TIME	09.00AM-12.00NOON	MAX. MARKS	100
PROGRAM	B.Tech	CREDITS	4
NAME OF FACULTY	Ankur Kumar Aggarwal	NAME OF COURSE COORDINATOR	Ankur Kumar Aggarwal

Note: All questions are compulsory.
Question 1 is of short answer type and Question 2 & 3 is of descriptive type write only required code snippet were ever asked in question.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	How to perform the user input validation at client side, use example to explain?	4	CO1	BT1	1.3.1
	1(B)	Explain the inheritance behavior of using inline, internal and external CSS in HTML document tags.	4	CO3	BT2	3.2.1
	1(C)	What is DOM? Explain 3 ways to update element using JavaScript.	2+2	CO2	BT4	2.2.4
	1(D)	Explain how the architectures helps developer to create a standard project.	4	CO4	BT4	3.1.2
	1(E)	Write a simple javascript code using HTTP module to handle client request on 12345 port number.	4	CO3	BT3	3.3.1
	1(F)	Explain creating and using user defined modules in NodeJS.	5	CO2	BT4	2.2.4
PART-B	Q2(A)	Comment "Node JS is not a programming language". Explain features of Node JS	5 + 5	CO3	BT2	3.2.1

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2(B)	Explain the functionality/working principle of React application. How virtual DOM is helpful in performing fast updating?	4 + 6	CO4	BT3	4.2.1
Q3(A)	What is a component and how are they used? Differentiate between States and Props. Write code to explain the use of States and Props using JavaScript	5+5 +10	CO5	BT5	4.3.4
3(B)	Explain the steps of Ajax based application development and processing of XMLHttpRequest object from Client to Server to Client for dynamic updates. List the six principles of REST API.	10+ 5	CO5	BT3	4.3.2
3(C)	Write example code snippet for the below points: ↳ The *let and const* ↳ The *arrow functions* ↳ New Literal Syntax ↳ Default Parameter Values ↳ Spread Operator (...)	2 (each)	CO6	BT5	3.4.2
3(D)	List few advantage and disadvantages of creating cross platform application. Write code to handle event based operation to handle State update in React JS code.	10	CO4	BT5	3.2.2

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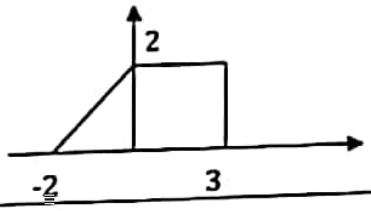
	Hence, comment the stability of the system.				
4(B)	Find the Laplace transform of the following signal: (a). $x(t) = cosw_o t$ (b). $x(t) = e^t u(t) + e^{-2t} u(t)$ Also, draw the ROCs for both cases.	10	CO3	BT1	2.1.1
Q5(A)	(i). Examine whether the following system is LTI or not: $y[n] = x[n+1] - x[n-1]$ (ii). Find whether the following signal is periodic or not. $x(t) = \cos(t) + sin\sqrt{2}t$	10	CO1	BT1, BT4	1.1.3
5(B)	Transform the following signal x(t) to x(3t+2) and x(-t+2).  	10	CO1	BT4	3.1.1

********** END **********

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DEPARTMENT OF COMPUTER ENGINEERING

"T3 Examination, Dec-2021"

SEMESTER	3rd	DATE OF EXAM	4/12/2021
SUBJECT NAME	Big Data	SUBJECT CODE	CSH602B-T
BRANCH	CSE	SESSION	I
TIME	9.00AM - 12.00 NOON	MAX. MARKS	100
PROGRAM	M.Tech	CREDITS	4
NAME OF FACULTY	Dr. Parneeta Dhaliwal	NAME OF COURSE COORDINATOR	Dr. Parneeta Dhaliwal

Please go through the following instructions before the start of the exam:

a. All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Briefly discuss the various compression formats in Hadoop.	3	CO2	BT4	5.2.2
	1(B)	Explore what is Erasure Coding in HDFS, and why this feature is introduced in Hadoop 3.0	3	CO1	BT1	1.4.1
	1(C)	What is the need for Disk Balancer in Hadoop HDFS ?	2	CO4	BT3	5.2.2
	1(D)	Explain NameNode and DataNode in HDFS?	2	CO1	BT2	5.2.1
	1(E)	Which is better between Hadoop 2 and Hadoop 3?	3	CO2	BT1	5.1.1
	1(F)	A single database engine is inefficient and insufficient for all data searches. Discuss.	2	CO3	BT3	5.1.1
PART-B	Q2(A)	What is Apache Zookeeper Meant For?	5	CO4	BT4	5.3.1
	2(B)	MapReduce on YARN Job Execution.	5	CO2	BT3	5.1

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	Discuss.				.1
Q3(A)	Explain the way to execute Apache Pig scripts.	3	CO3	BT4	5.3.1
3(B)	List 4 Hbase Commands in each category: a)DDL b)DML	8	CO2	BT2	5.1.1
3(C)	How is Big Data Different? Discuss the various Issues being faced by Big Data Applications.	4	CO1	BT2	5.1.1
Q4(A)	How does Hadoop Ecosystem work?	5	CO4	BT1	5.1.2
4(B)	Discuss any two tools for building Data Visualization Dashboards in Big Data Stack.	10	CO4	BT4	5.2.2
Q5	Write short notes on any 3 of the following: 1)Structure of Big Data 2) Amazon DynamoDB 3) Hadoop Framework Tools 4) Workflow Orchestration in Hadoop	15	CO4,CO2	BT1	5.2.1
Q6(A)	**Empirically explain the architecture of Hive.**	7	CO2	BT1	5.2.1
Q6(B)	Briefly discuss the Journey of Analytics.	8	CO3	BT1,BT3, BT4	5.3.2, 5.2.1
Q7	Differentiate between the following (Any 3): 1) Performance of NoSQL Databases 2) NoSQL and SQL 3) Hive Hadoop Workflow 4) BI and Big Data	15	CO4	BT2	5.1.1

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NAAC ACCREDITED 'A' GRADE INSTITUTION

Name : _____

Roll No : _____

Class/Sec : _____

DEPARTMENT OF FOREIGN LANGUAGE

T3 Examination, December 2021"

Paper ID:.....

Semester: 3rd & 7th
Subject: Spanish - I
Time: 90 Minutes
Program: B.Tech / B.ed / Law / B.Sc / BBA
Invigilator Signature:

Date of Exam: 7/12/2021
Subject Code: FLS101
Max.Marks: 40 Session - I
Signature: HOD/Associate HOD: Meg

Note: All questions are compulsory.

Ques. 1 **Escribe diez líneas sobre ti mismo, tu familia, tu clase etcétera usando nombre/ adjetivo/ nacionalidad/ profesión/ edad etcétera.** **(8)**
Write 10 sentences about yourself, your family, your class etc. using name/adjective/nationality / profession/ age/ etc..)

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Ques. 2 Lee el texto y responde las preguntas. **(6)**
Read the text and respond to the questions.

¡Hola! ¡Buenas tardes! Me llamo Rahul, soy indio pero vivo en Francia con mis amigos. Yo tengo 34 años y soy profesor de matemáticas en la escuela Mi número de teléfono es 9393939. Tengo (I have) un amiga en Francia que se llama Eva. Ella es de China, es china, Eva tiene 20 años y es doctora. Tengo otros amigos que son jugadores, Ingenieros y profesores. Nosotros vivimos en una casa muy grande. Gracias, ¡chao!

a. ¿Es Rahul de Francia? Verdadero o falso- _____
b. ¿Cuántos años tiene la amiga de Rahul?
_____
c. ¿Cuál es la profesión de Eva?
_____
d. ¿Dónde vive Eva?
_____
e. ¿Cuáles las profesiónes de otros amigos de Raúl?
_____
f. Escribe el contrario (opposite) de grande. _____.

Ques.3 Completa las frases con adjetivo posesivo. **(4)**
Complete the phrases with adjective possessive.

e.g. (Ellas)_____ coche es pequeño. Su coche es pequeño.

a. (Yo) _____ casa es nueva.
b. (Nosotros) _____ universidad es grande.
c. (Usted) _____ ordenador es pequeño.
d. (Ellas) _____ televisión es vieja.
e. (Vosotras) _____ hijas son inteligentes.
f. (Ustedes) _____ libros son interesantes.
g. (Él) _____ profesora de español es simpática.
h. (Tú) _____ perro es muy activo.

Ques. 4 Traduce (translate):- **(6)**

Escribe en inglés o español. Write in English or Spanish.

a. Este es mi hermano, es australiano.
_____.
b. Hay 4 ventanas en la clase.
_____.

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c. Tengo clases de español los lunes, los miércoles y los domingos.

_____.

d. That book is blue and red.

_____.

e. Her cousin sister is a lawyer.

_____.

f. My father's car is black and grey

_____.

Ques. 5 Completa con la forma adecuada de los verbos. **(4)**
Complete with the appropriate form of AR, ER and IR ending verbs.

a. Ustedes _____(hablar) español.

b. Ella _____ (vivir) en España.

c. Vosotros _____ (leer) la conjugación.

d. Nosotros _____ (escribir) una carta.

e. Yo _____ (aprender) lingua extranjera.

f. Usted _____ (escuchar) canción.

g. Tú _____ (comer) hamburguesa.

h. Ellas _____(trabajar) en colegio.

Ques. 6 Escribe los números en español. **(4)**
Write numbers in Spanish.

a. 56-

b. 23-

c. 11

d. 100-

e. 57-

f. 93-

g. 16-

h. 44

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Ques. 7 Relaciona los meses, días y estaciones a inglés. (4)
Match months, days and seasons.

a. Invierno	October
b. Octubre	January
c. Miercoles	Autumn
d. Jueves	Winter
e. Otoño	Wednesday
f. Domingo	Spring
g. Primavera	Thursday
h. Enero	Sunday

Ques. 8 Elige la opción correcta: (4)
Choose the correct option

a.	i. Un coche	ii. Una coche	iii. Uno coche	iv. Unas coches
b.	i. Unas casos	ii. Unas casas	iii. Unos cacos	iv. Uno casa
c.	i. El perra	ii. La perro	iii. El perro	iv. El perros
d.	i. Las silas	ii. Las cilas	iii. Las sillas	iv. Los sillas
e.	i. La ordenador	ii. Las ordenadores	iii. Lo ordenadore	iv. El ordenador
f.	i. Una planta	ii. Un planta	iii. Las planta	iv. Los plantes
g.	i. Un madre	ii. Una madre	iii. Los madres	iv. El madre
h.	i. Unos niños	ii. Unas niños	iii. Los niño	iv. Las niños

Buena Suerte

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Vidyanatariksha

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DEPARTMENT OF FOREIGN LANGUAGES
T3 EXAMINATION, DECEMBER 2021
Paper ID:……

Semester: 3rd & 7th
Subject: German - I
Time: 90 Minutes
Program: All
Invigilator Signature:

Date of Exam: 07/12/2021
Subject Code: FLS102
Max.Marks: 40 Session-I
Signature: HOD/Associate HOD:

Note: All questions are compulsory.

Roll number:_____ Name : _____

Class / Sec _____

I. Schreiben Sie das Datum auf Deutsch. **[5]**
(Write the date in German.)

a) 25.04 _____
b) 01.02 _____
c) 31.12 _____
d) 24.09 _____
e) 03.05 _____

II. Schreiben Sie richtig. **[5]**
(Frame the correct sentences.)

a) spielt - Er - gern - Tennis. _____
b) Ich - gehe - in das Theater - . _____
c) heißen - Sie - Maria – . _____
d) kommen - Woher - Sie - ? _____
e) spielen - Wir - jeden Tag - . _____

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III. **Schreiben Sie 5 Sätze über Ihr Lieblingshobby.** **[5]**
Write 5 sentences about your favourite hobby.

_____.

_____.

_____.

_____.

_____.

IV. **Konjugieren Sie die Verben.** **[5]**
Conjugate the verbs.

a) Ben _____ ins Theater. (gehen, geht, gehe)

b) Karin _____ mit meinem Hund. (spielen, spielt, spiele)

c) _____ ihr um 8.00 Uhr nach Italien? (fliegen, fliegt, fliege)

d) Wir _____ sehr gut Deutsch. (sprechen, sprichst, spricht)

e) _____ Anna und Mark „Secret of Life''? (lesen, lest, lese)

f) _____ du Taj Mahal? (sehen, siehst, sehe)

g) _____ Sie bei Microsoft, Herr Meier? (arbeitet, arbeiten, arbeite)

h) Ich _____ in Tokyo. (wohnen, wohne, wohnt)

i) Meine Mutter _____ 50 Jahre alt. (ist, seid, bin)

j) Er _____ Martin. (heiβt, heiβen, heiβe)

V. **Schreiben Sie den bestimmten Artikeln 'der', 'die' oder 'das'.**
Write the definite articles 'der', 'die' or 'das'. **[5]**

a) _____ Stift

b) _____ Sofa

c) _____ Stuhl

d) _____ Tasse

e) _____ Brille

f) _____ Computer

g) _____ Buch

h) _____ Kaffee

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i) _____ Bett

j) _____ Ventilator

VI. **Wie spät ist es? (Offizielle Zeit)**
What time is it? (Write in the official format) **[5]**

a) 04.00 Uhr _____

b) 5.10 Uhr _____

c) 12.45 Uhr _____

d) 15.00 Uhr _____

e) 7.33 Uhr _____

VII. **Übersetzen Sie ins Deutsch!**
Translate the given sentences into German! **[5]**

a) I play football.

_____.

b) She is a teacher.

_____.

c) He drinks coffee.

_____.

d) I speak English.

_____.

e) We belong to Delhi.

_____.

VIII. **Ergänzen Sie!**
Translate the given words accordingly! **[5]**

Englisch	Deutsch
Italy	
	Spanien

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Boxing	
Volleyball	
	Mittwoch
	Guten Tag
Winter	
	Herbst
January	
	Juli

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Name : _____

Roll No : _____

Class/ Sec : _____

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DEPARTMENT OF FOREIGN LANGUAGES
T3 EXAMINATION, December 2021
Paper ID:.....

Semester: 3rd & 7th
Subject: French - I
Time: 90 Minutes
Program: B.Tech / B.ed / Law / B.Sc / BBA
Invigilator Signature:

Date of Exam: 7/12/2021
Subject Code: FLS103
Max.Marks: 40 Session - I
Signature: HOD/Associate HOD:

Note: *All questions are compulsory.*

Section-A
(COMPRÉHENSION ÉCRITE)

I. Lisez le passage et répondez aux questions
(Read the passage and answer to the questions)

Aujourd'hui c'est le premier jour de l'école ! Les élèves de l'école sont contents. Voilà la petite Caroline dans le cours de français. Elle est anglaise. Elle a quatorze ans. Elle est très belle. Son(Her) amie de la classe c'est Martha, elle est belge et elle a treize ans. Elle est grande et aussi belle. Elle joue au badminton avec Caroline. Elles aiment beaucoup la France. Le garçon s'appelle Jean-Pierre. Il est français. Il a quinze ans. Il habite à Strasbourg en Alsace. Il est sympathique. Il donne des bonbons à Caroline et Martha. Il parle en anglais et en français avec elles. Les trois sont bons amis.

1. Dites vrai ou faux : **(3)**
(True or False)

a) Martha est japonaise. _____
b) Caroline a 14 ans. _____
c) Les filles jouent au tennis. _____
d) Martha donne les bonbons. _____
e) Caroline est jolie. _____
f) Jean-Pierre parle anglais et français avec les filles. _____

2. Répondez aux questions : **(2)**
(Answer to the questions)

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a) Où habite Jean-Pierre ?

_____

b) Quel âge a Martha ?

_____

Section B
Expression Écrite

II. **Présentez – vous (Present yourself)** **(5)**
Ou (Or)
Décrivez votre ami(e) (Describe your friend)

_____

_____

_____

_____

_____

_____

Section - C
Grammaire

III. **Complétez avec les articles définis** **(2.5)**
(Complete with definite articles)
(le /la/l'/les)

a) Ce sont _____ stylos de Pierre.
b) C'est _____ pupitre de cette classe.
c) _____ garçon est bon.
d) _____ hôtel est beau.
e) _____ femme est belle.

IV. **Complétez avec les articles indéfinis** **(2.5)**
(Complete with indefinite articles)
(un/une/des)

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a) C'est _____ crayon.
b) Ce sont _____ trousses.
c) C'est _____ cravate.
d) J'ai _____ pantalon.
e) Il a _____ livre.

V. Répondez aux questions : (2)
(Answer to the questions)

a) Quel est le sixième jour de la semaine?

_____

b) Quel est le mois entre septembre et décembre ?

_____

VI. Traduisez en français- (5)
(Translate in French)

a) Good evening! _____
b) She watches television. _____
c) Thank you very much! _____
d) See you tomorrow! _____
e) He lives in Paris. _____

VII. Complétez avec les verbes: (6)
(Complete with the verbs)

a) Vous _____ (aller) à Delhi.
b) Nous _____ (avoir) une maison.
c) Elle _____ (jouer) avec le chat.
d) Ils _____ (parler) français.
e) Tu _____ (chanter) bien.
f) Ce _____ (être) des gommes

VIII. Traduisez en francais:- (5)
(Translate in French)

a) It's beautiful! _____

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b) It's sunny! _____

c) It's cold! _____

d) It's hot! _____

e) It snows! _____

IX. Quelle heure est-il ? (2)
(What time is it ?)

a) 8 : 25

_____

b) 5 : 45

_____

Section-D
Culture and Civilisation

X. Complétez les phrases : (5)
(Complete the sentences)

a) _____ est une ville française.
b) _____ est une fleuve française.
c) _____ est un fromage français.
d) _____ est une montagne française.
e) _____ est un vin français.

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Career Development Centre
" End Semester Examination, Dec' -2021"

Roll No.....
Subject: ***PCE-I***
Subject Code:CD0-201
Time: 60 Minutes

Name:.....
Date of Exam: 10/12/2021
Branch: CST/ME/ECE
Max.Marks:30

Semester: 3
Session - I
Program: B- tech

23/11/21

Instructions*: All questions are compulsory. Each question carries multiple options. No negative marking. Calculator is not allowed. *Answers are to be filled in the answer table only. Answers written outside the answer table won't be considered.

Answer Table:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

Q1.A family consists of six members P, Q, R, X, Y and Z. Q is the son of R but R is not mother of Q. P and R are a married couple. Y is the brother of R. X is the daughter of P. Z is the brother of P. How many children does P have ?

A. 1 B. 2 C. 3 D. 4

Q2. A woman going with a boy is asked by another woman about their relationship between them. The woman replied, "My maternal Uncle and the uncle of his maternal uncle is the same". How is the lady related with that boy?

A. Grandmother and Grandson
B. Mother and Son
C. Aunt and Nephew
D. None of these

Q3 One morning after sunrise, Suresh was standing facing a pole. The shadow of the pole fell exactly to his right. To which direction was he facing?

A. East B. West C. South D. Data is inadequate

Q4 Ram is facing west. He took a right turn and walks 20 m. He then again turns right and walk for 10 m. From there he walks 10 m to north and then 10 m towards west. In which direction is he from original position?

A. North-East B. North-West C. South-East D. South-West

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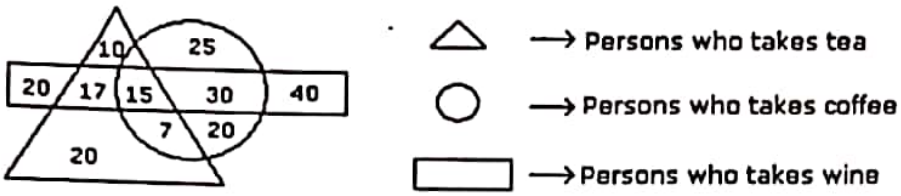
Directions (Q5 to Q9): Study the diagram given below and answer each of the following questions.



Q5. How many persons who take tea and wine but not coffee?
A. 20 B. 17 C. 25 D. 15

Q6. How many persons are there who take both tea and coffee but not wine?
A. 22 B. 17 C. 7 D. 20

Q7. How many persons take wine?
A. 100 B. 82 C. 92 D. 122

Q8. How many persons are there who takes only coffee?
A. 90 B. 45 C. 25 D. 20

Q9 How many persons take all the three?
A. 20 B. 17 C. 25 D. 15

DIRECTION Q10 TO Q14 Answer the questions on the basis of the information given below: K, L, M, N, P, Q, R, S, U and W are the only ten members in a department. There is a proposal to form a team from within the members of the department, subject to the following conditions:

A. A team must include exactly one among P, R, and S.
B. A team must include either M or Q, but not both.
C. if a team includes K, then it must also include L, and vice versa
D. If a team includes one among S, U, and W, then it must also include the other two.
E. L and N cannot be members of the same team.
F. L and U cannot be members of the same team.
The size of a team is defined as the number of members in the team.

Q10 Who cannot be a member of a team of size 3?
A. L B. M C. N D. P

Q11 Who can be a member of a team of size 5?
A. K B. L C. M D. P

Q12 What would be the size of the largest possible team?
A. 8 B. 7 C. 6 D. 5

Q13 What could be the size of a team that includes K?
A. 2 or 3 B. 2 or 4 C. 3 or 4 D. Only 4

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Q14 In how many ways a team can be constituted so that the team includes N?

A. 3 B. 4 C. 5 D. 6

Direction Q15 to Q18 Study the following information carefully and answer the questions given below : Eight persons A, B, C, D, E, F, G and H are sitting around a rectangular table in such a way that two persons sit on each of the four sides of the table facing the centre. Persons sitting on opposite sides are exactly opposite to each other. D faces North and sits exactly opposite to H. E is to the immediate left of H. A and G sit on the same side. G is exactly opposite of B who is to the immediate right of C. A is next to the left of D.

Q15. Who is sitting opposite to A ?

A.G B. D C. E D. C

Q16 Who is next to E in clockwise direction ?

A. G B. B C. F D. A or F

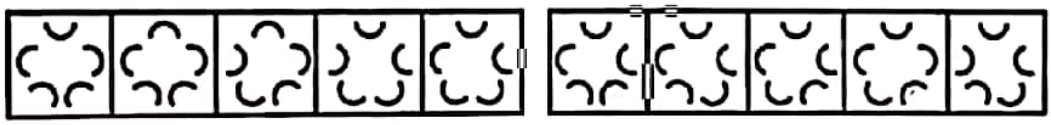
Q17 Which of the following pairs of persons has both the persons sitting on the same side with first person sitting to the right of second person ?

DF B. CB C. EH D. AG

Q18 Which of the following statements is definitely true?

A is facing North
B. E is sitting opposite of F
C. F is to the left of G
D. C is to the left of A

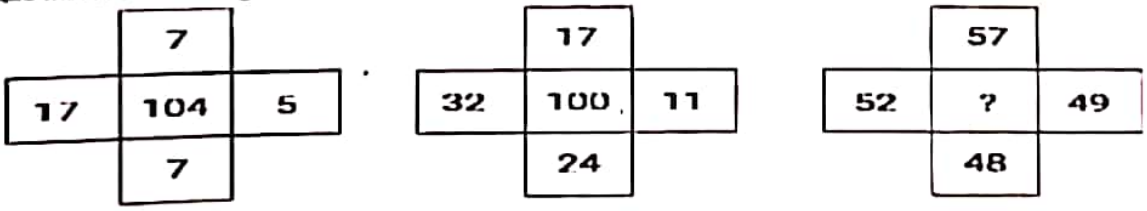
Q19 Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.



Problem Figures: Answer Figures:

A.1 B. 2 C. 3 D. 4

Q20 Insert the missing number



A.70 B.80 C. 90 D. 100

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Q21 There is a row of boys in a stadium. If a boy A, who is 10th from the left and another boy B, who is 9th from the right interchange their positions, then A becomes 15th from the left. How many boys are there in the row?

A.63 B.24 C.23 D.22

Q22 Sanjeev ranks seventh from the top and twenty eight from the bottom in a class. How many students are there in the class ?

A.37 B.36 C.35 D.34

Q23 Find the missing number in the following series?

1, 2, 3, 10, ?, 9802

A.99 B. 199 C.299 D.999

Q24 Find the next number in the given sequence?

11, 17, 39, 85, ?

A.133 B.143 C.153 D.163

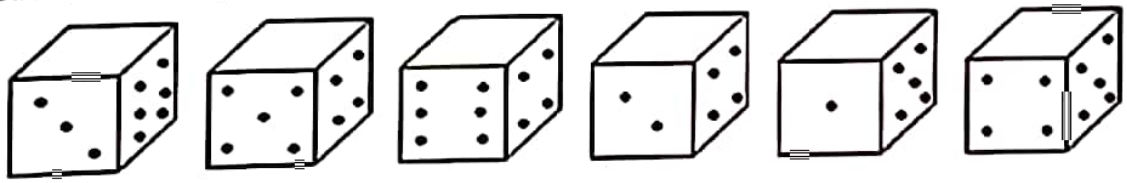
Q25 In a certain code language,
'134' means 'good and tasty';
'478' means 'see good pictures' and
'729' means 'pictures are faint'.
Which of the following digits stands for 'see'?

A.9 B.2 C.1 D. 8

Q26 In a certain code 'SEQUENCE' is coded as 'FDOFVRFT. How is 'CHILDREN' coded in that code?

A.OFESJMID B. OFSEMJID C. OFSEJIMD D. OFSEJMID

Direction Q27 to Q28. Six different positions of dice are given below:



(I) (II) (III) (IV) (V) (VI)

The sum of the numbers of dots on the opposite face is 7.

Q27 If an even numbered dice has an odd number of dots on their top faces, and then find the total number of dots on the top faces of their dice?

A.22 B.3 C. 10 D. 24

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Q28 If an odd numbered dice have an odd number of dots on their top faces, then find the total number of dots on top faces of their dice is?

A.11 B. 12 C.13 D. 14.

Direction Q 29 to Q30. The following questions are based on the information given below:
All the opposite faces of a big cube are coloured with red, black and green colours. After that is cut into 64 small equal cubes.

Q29 How many small cubes are there where one face is green and other one is either black or red ?

A.28 B.8 C. 16 D. 24

Q30 How many small cubes are there whose at the most two faces are coloured ?

A. 48 B.56 C. 28 D. 24

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MANAV RACHNA UNIVERSITY

DEPARTMENT OF EDUCATION AND HUMANITIES

T3 Examination, Dec-2021 (SET A)

SEMESTER	V	DATE OF EXAM	03/12/21
SUBJECT NAME	Applied Philosophy	SUBJECT CODE	EDS 288
BRANCH	EFB/ HCM/OM	SESSION	Morning
TIME	9.00 am-10.30 am	MAX. MARKS	40
PROGRAM	BBA	CREDITS	2
NAME OF FACULTY	Dr. Savita Sharma	NAME OF COURSE COORDINATOR	Dr. Savita Sharma

Note
All questions in Part A are compulsory. Each question carries 2 marks.
Attempt any four Questions in Part B. Each question carries 8 Marks.

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	Q.1	List down practical uses of Philosophy.	2	CO1	BT1	
	Q.2	Briefly explain core principles of Philosophy of Rabindra Nath Tagore.	2	CO2	BT2	
	Q.3	What idea does Democracy hold for you, being an Indian National.	2	CO3	BT3	
	Q.4	'Secularism is the baseline to promote Indian Diversity'. Justify with example.	2	CO4	BT5	
PART-B	Q.5	Compare and Contrast Idealism and Naturalism with reference to their ideas about Knowledge, Reality and Values.	8	CO1	BT4	
	Q.6	Critically analyze the philosophy of Mahatma Gandhji in the modern context.	8	CO2	BT4	
	Q.7	Reflect upon the idea on One India in the backdrop of different kinds of existing diversity.	8	CO3	BT5	
	Q.8	Spirituality is the common underlying base beneath all religion. Support your answer with suitable examples.	8	CO4	BT4	
	Q.9	Explain three branches of Philosophy in Detail	8	CO1	BT4	
	Q.10	Which aspect of Steve Jobs's life inspires you the most and why?	8	CO2	BT5	

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MANAV RACHNA MANAV RACHNA UNIVERSITY

DEPARTMENT OF EDUCATION AND HUMANITIES

ODD SEMESTER (JUL-DEC-2021)

T3 QUESTION PAPER STRUCTURE (QPS)

FACULTY NAME: Dr Ritu Sharma | COURSE COORDINATOR: Dr Ritu Sharma

COURSE NAME: Applied Psychology | COURSE CODE: EDS289 | CREDIT: | MAX. MARKS: 40 | DURATION: 1 Hour 30 minutes | DATE: 3.12.2021

PROGRAM: B Tech CSE+ CSTI/ B Sc Maths/ Chemistry /Eng | SEMESTER: III | Session - I

Q.NO.		Attempt two questions from each section. Each question carries 5 marks	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Define Psychology. Discuss atleast five characteristics of psychology	5	CO1	BT2	
	1(B)	Discuss types of attitudes and four ways of enhancing attitude	5	CO1	BT5	
	1(C)	Write a short note on gender discrimination and ways in which it can be checked	5	CO2	BT6	
PART-B	Q2(A)	Discuss the characteristics of personality and the importance in professional field.	5	CO3	BT2	
	2(B)	Define personality. Discuss various aspects of personality as outlined in the Big Five personality theory	5	CO4	BT3	
	Q2(C)	What is meant by a group dymanics. Discuss group formation and its impact in socialization	5	CO3	BT4	
PART-C	Q3(A)	Illustrate how group conflicts are actually constructive for the organizational success.	5	CO3	BT4	
	Q3(B)	Write a note on social influence and social identity.	5	CO4	BT5	
	Q3(C)	Differentiate between group competition and group conflict. How do they help in better performance?	5	CO4	BT6	
PART-D	Q4(A)	Elaborate on the important aspects of Organizational psychology	5	CO6	BT5	
	Q4(B)	Evaluate does motivation play a positive role in improving job satisfaction?	5	CO5	BT3	
	Q4(C)	Evaluate some strategies of stress management	5	CO2	BT3	

********** END **********

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	3b	What are the different types of Computer Registers? Explain.	5	CO2	BT2	1.4.1
PART-C	4a	How many 64K × 1 RAM chips are needed to provide a memory capacity of 256 K-bytes?	5	CO1, CO3	BT3	1.4.1
	4b	Why is Cache mapping required and also state all types of mapping.	10	CO1, CO3	BT3	1.4.1
	5a	State different Modes of transfer. Explain working of DMA controller with the help of block diagram.	10	CO1, CO3	BT2	1.4.1
	5b	Explain how an I/O interrupt can be handled with the help of interrupt cycle.	5	CO1, CO3	BT2	1.4.1
	6a	The memory access time is 1 nanosecond for a read operation with a hit in cache, 5 nanoseconds for a read operation with a miss in cache, 2 nanoseconds for a write operation with a hit in cache and 10 nanoseconds for a write operation with a miss in cache. Execution of a sequence of instructions involves 100 instruction fetch operations, 60 memory operand read operations and 40 memory operand write operations. The cache hit-ratio is 0.9. Calculate average memory access time (in nanoseconds) in executing the sequence of instructions.	10	CO1, CO3	BT3	1.4.1
	6b	Explain the concept of Cache Coherence and how it can be controlled?	5	CO1, CO3	BT1, BT2	1.4.1
PART-D	7a	Instructions are executed in a 3-stage pipelining. Assume that each instruction required different stage delay (in terms of number of clock cycle) as mentioned in the table below. Find the speedup factor. Table mentioned below:	10	CO4	BT3	1.4.1
	7b	Explain various dependency problems in pipelining.	5	CO4	BT2	1.4.1
	8a	Differentiate between instruction format and microinstruction format.	5	CO2, CO4	BT1, BT2	1.4.1
	8b	Explain the working of microprgram sequencer in the execution of microinstructions stored in control memory with the help of block diagram.	10	CO2, CO4	BT2	1.4.1
	9a	Assume that the time required for the five functional units, which operate in each of the five cycles are: 10 ns, 8 ns, 10 ns, 5 ns and 7 ns. Assume that pipelining adds 1 ns of overhead. Find the speed up versus single cycle data path.	5	CO4	BT3	1.4.1
	9b	Differentiate between Synchronous and Asynchronous Pipeline. Design a 4-segment instruction pipeline.	10	CO4	BT3	1.4.1

	IF	ID	EX
I1	1	2	2
I2	2	3	3
I3	2	1	3
I4	1	4	2
I5	3	2	4

********** END **********

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MANAV RACHNA UNIVERSITY

Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF MATHEMATICS

"T3 Examination, December-2021"

SEMESTER	THIRD	DATE OF EXAM	06/12/2021
SUBJECT NAME	CALCULUS, PROBABILITY & STATISTICS	SUBJECT CODE	MAH201B-T
BRANCH	MATHEMATICS	SESSION	MORNING
TIME	9 AM - 12 PM	MAX. MARKS	100
PROGRAM	B.Tech. CSE AIML	CREDITS	4
NAME OF FACULTY	Ms. Savitta Saini	NAME OF COURSE COORDINATOR	Dr. Advin Masih

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	If $u = \sqrt{x^2 + y^2 + z^2}$, show that $\left(\frac{\partial u}{dx}\right)^2 + \left(\frac{\partial u}{dy}\right)^2 + \left(\frac{\partial u}{dz}\right)^2 = 1$	5	CO1	BT3	
	1(B)	Find the co-ordinates of the centre of curvature for any point (x, y) on the parabola $y^2 = 4ax$.	5	CO1	BT3	
	2(A)	Change the order of integration in $\int_0^a \int_y^a \frac{x\,dx\,dy}{x^2+y^2}$ and hence evaluate the same.	5	CO2	BT3	
	2(B)	Evaluate $\iint (x^2 + y^2)\ dx\,dy$ over the circle $x^2 + y^2 = 1$.	5	CO2	BT3	
PART-B	3(A)	Consider tossing 2 tetrahedra with sides numbered 1 to 4. Let Y_1 denote the smaller of the two downturned numbers and Y_2 the larger. i. Find the joint density function of Y_1 and Y_2. ii. Find $P[Y_1 \geq 2, Y_2 \geq 2]$ iii. Find the mean and variance of Y_1 and Y_2.	10	CO4	BT4	
PART-C	3(B)	For the following given bivariate probability distribution of X and Y find (i) $P(X \leq 2, Y = 3)$ (ii) $P(Y = 4)$ (iii) $P(Y \leq 5)$	10	CO4	BT4	

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X\Y	1	2	3	4	5	6
0	0	0	1/32	2/32	2/32	3/32
1	1/16	1/16	1/8	1/8	1/8	1/8
2	1/32	1/32	1/64	1/64	0	2/64

4(A)	The probability density function of a continuous bivariate distribution is given by $f(x,y) = \begin{cases} x+y, where\ 0 \le x \le 1, 0 \le y \le 1 \\ 0, otherwise \end{cases}$ Find the marginal distributions and correlation coefficient of x and y.	10	CO4	BT4
4(B)	If X and Y are two random variables having joint density function. $f(x,y) = \begin{cases} \frac{6-x-y}{8}, where\ 0 \le x \le 2, 2 \le y \le 4 \\ 0, otherwise \end{cases}$ Find $P(X+Y<3), P(X<1 \cap Y<3)$.	10	CO4	BT4
5(A)	The sales in a supermarket during a week are given below. Test the hypothesis that the sales do not depend on the day of the week, using a significant level of 0.05.	10	CO4	BT4

Days	Mon	Tue	Wed	Thu	Fri	Sat
Sales (in Rs. 1000)	65	54	60	56	71	84

PART-D

5(B)	The marks obtained by a group of 9 regular course students and another group of 11 part time students in a test are given below:	10	CO4	BT4

Regular	56	62	63	54	60	51	67	69	58		
Part-Time	62	70	71	62	60	56	75	64	72	68	66

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	Examine whether the marks obtained by regular students and part time students differ significantly at 5% and 1% level of significance.				
6(A)	A filling machine is expected to fill 5 kg of powder in to bags. A sample of 10 bags gave the following weights: 4.7, 4.9, 5.0, 5.1, 5.4, 5.2, 4.6, 5.1, 4.6 and 4.7. Test whether the machine is working properly?	10	CO4	BT4	
6(B)	A simply supported beam carries A concentrated load P(lb) at its midpoint. Corresponding to various values of P, the maximum deflection Y(in) is measured. The data are given below.	10	CO4	BT3	

P	100	120	140	160	180	200
Y	30	35	45	44	42	48

Find a law of the form $Y = a + bP$.

********** END **********

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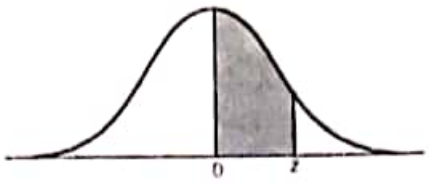
VII. AREA UNDER STANDARD NORMAL CURVE



	00	01	02	03	04	05	06	07	08	09
0.0	0000	0040	0080	0120	0160	0199	0239	0279	0319	0359
0.1	0398	0438	0478	0517	0557	0596	0636	0675	0714	0753
0.2	0793	0832	0871	0910	0948	0987	1026	1064	1103	1141
0.3	1179	1217	1255	1293	1331	1368	1406	1443	1480	1517
0.4	1554	1591	1628	1664	1700	1736	1772	1808	1844	1879
0.5	1915	1950	1985	2019	2054	2088	2123	2157	2190	2224
0.6	2257	2291	2324	2357	2389	2422	2454	2486	2517	2549
0.7	2580	2611	2642	2673	2704	2734	2764	2794	2823	2852
0.8	2881	2910	2939	.2967	.2995	3023	3051	3078	.3106	.3133
0.9	3159	3186	3212	.3238	.3264	3289	.3315	3340	3365	3389
1.0	3413	3438	.3461	3485	3508	.3531	3554	3577	3599	3621
1.1	3643	3665	3686	.3708	3729	3749	.3770	3790	3810	3830
1.2	3849	3869	3888	.3907	3925	3944	3962	3980	3997	4015
1.3	4032	4049	4066	.4082	4099	4115	.4131	4147	4162	4177
1.4	4192	4207	4222	4236	.4251	4265	.4279	4292	4306	4319
1.5	4332	4345	4357	4370	4382	4394	.4406	4418	4429	4441
1.6	4452	4463	4474	4484	4495	4505	4515	4525	4535	4545
1.7	4554	4564	4573	4582	4591	4599	.4608	4616	4625	4633
1.8	4641	4649	4656	4664	4671	4678	4686	4693	4699	4706
1.9	4713	4719	4726	4732	4738	4744	.4750	4756	4761	4767
2.0	4772	4778	4783	4788	4793	4798	4803	4808	4812	4817
2.1	4821	4826	4830	4834	4838	4842	4846	4850	4854	4857
2.2	4861	4864	4868	4871	4875	4878	4881	4884	4887	4890
2.3	4893	4896	4898	4901	4904	4906	4909	4911	4913	4916
2.4	4918	4920	4922	4925	4927	4929	4931	4932	4934	4936
2.5	4938	4940	4941	4943	4945	4946	4948	4949	4951	4952
2.6	4953	4955	4956	4957	4959	4960	4961	4962	4963	4964
2.7	4965	4966	4967	4968	4969	4970	4971	4972	4973	4974
2.8	4974	4975	4976	4977	4977	4978	4979	4979	4980	4981
2.9	4981	4982	4982	4983	4984	4984	4985	4985	4986	4986
3.0	4987	4987	4987	4988	4988	4989	4989	4989	4990	4990

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Table 3: CHI-SQUARE (χ^2)

Significant Values $\chi^2(\alpha)$ of χ^2 Distribution Right Tail Areas for Given Probability α, $P = P_x(\chi^2 > \chi^2(\alpha)) = \alpha$ And is Degrees of Freedom (d.f.)

Degree of freedom (v)	Probability (Level of Significance)						
	$\alpha = .99$	0.95	0.50	0.10	0.05	0.02	0.01
1	.000157	.00393	.455	2.706	3.841	5.214	6.635
2	.0201	.103	1.386	4.605	5.991	7.824	9.210
3	.115	.352	2.366	6.251	7.815	9.837	11.341
4	.297	.711	3.357	7.779	9.488	11.668	13.277
5	.554	1.145	4.351	9.236	11.070	13.388	15.086
6	.872	2.635	5.348	10.645	12.592	15.033	16.812
7	1.239	2.167	6.346	12.017	14.067	16.622	18.475
8	1.646	2.733	7.344	13.362	15.507	18.168	20.090
9	2.088	3.325	8.343	14.684	16.919	19.679	21.669
10	2.558	3.940	9.340	15.987	18.307	21.161	23.209
11	3.053	4.575	10.341	17.275	19.675	22.618	24.725
12	3.571	5.226	11.340	18.549	21.026	24.054	26.217
13	4.107	5.892	12.340	19.812	22.362	25.472	27.688
14	4.660	6.571	13.339	21.064	23.685	26.873	29.141
15	4.229	7.261	14.339	22.307	24.996	28.259	30.578
16	5.812	7.962	15.338	23.542	26.296	29.633	32.000
17	6.408	8.672	15.338	24.769	27.587	30.995	33.409
18	7.015	9.390	17.338	25.989	28.869	32.346	34.805
19	7.633	10.117	18.338	27.204	30.144	33.687	36.191
20	8.260	10.851	19.337	28.412	31.410	35.020	37.566
21	8.897	11.591	20.337	29.615	32.671	36.343	38.932
22	9.542	12.338	21.337	30.813	33.924	37.659	40.289
23	10.196	13.091	22.337	32.007	35.172	38.968	41.638
24	10.856	13.848	23.337	32.196	36.415	40.270	42.980
25	11.524	14.611	24.337	34.382	37.65	41.566	44.314
26	12.198	15.379	25.336	35.363	38.885	41.856	45.642
27	12.879	16.151	26.336	36.741	40.113	41.140	46.963
28	13.565	16.928	27.336	37.916	41.337	45.419	48.278
29	14.256	17.708	28.336	39.087	42.557	46.693	49.588
30	14.953	18.493	29.336	40.256	43.773	47.962	50.892

Note. For degrees of freedom (v) greater than 30, the quantity $\sqrt{2\chi^2} - \sqrt{2v-1}$ may be used as a normal variate with unit variance

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X. 5% POINTS OF THE F-DISTRIBUTION

n₂ / n₁	1	2	3	4	5	6	7	8	9	10	12	15	20	30	60	∞
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88	243.91	245.95	248.01	250.09	252.20	254.32
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385	19.396	19.413	19.429	19.446	19.462	19.479	19.496
3	10.128	9.5521	9.2766	9.1172	9.0135	8.9406	8.8868	8.8452	8.8123	8.7855	8.7446	8.7029	8.6602	8.6166	8.5720	8.5263
4	7.7086	6.9443	6.5914	6.3883	6.2560	6.1631	6.0942	6.0410	5.9988	5.9644	5.9117	5.8578	5.8025	5.7459	5.6878	5.6281
5	6.6079	5.7861	5.4095	5.1922	5.0503	4.9503	4.8759	4.8183	4.7725	4.7351	4.6777	4.6188	4.5581	4.4957	4.4314	4.3650
6	5.9874	5.1433	4.7571	4.5337	4.3874	4.2839	4.2066	4.1468	4.0990	4.0600	3.9999	3.9381	3.8742	3.8082	3.7398	3.6688
7	5.5914	4.7374	4.3468	4.1203	3.9715	3.8660	3.7870	3.7257	3.6767	3.6365	3.5747	3.5108	3.4445	3.3758	3.3043	3.2298
8	5.3177	4.4590	4.0662	3.8378	3.6875	3.5806	3.5005	3.4381	3.3881	3.3472	3.2840	3.2184	3.1503	3.0794	3.0053	2.9276
9	5.1174	4.2565	3.8626	3.6331	3.4817	3.3738	3.2927	3.2296	3.1789	3.1373	3.0729	3.0061	2.9365	2.8637	2.7872	2.7067
10	4.9646	4.1028	3.7083	3.4780	3.3258	3.2172	3.1355	3.0717	3.0204	2.9782	2.9130	2.8450	2.7740	2.6996	2.6211	2.5379
11	4.8443	3.9823	3.5874	3.3567	3.2039	3.0946	3.0123	2.9480	2.8962	2.8536	2.7876	2.7186	2.6464	2.5705	2.4901	2.4045
12	4.7472	3.8853	3.4903	3.2592	3.1059	2.9961	2.9134	2.8486	2.7964	2.7534	2.6866	2.6169	2.5436	2.4663	2.3842	2.2962
13	4.6672	3.8056	3.4105	3.1791	3.0254	2.9153	2.8321	2.7669	2.7144	2.6710	2.6037	2.5331	2.4589	2.3803	2.2966	2.2064
14	4.6001	3.7389	3.3439	3.1122	2.9582	2.8477	2.7642	2.6987	2.6458	2.6021	2.5342	2.4630	2.3879	2.3082	2.2230	2.1307
15	4.5431	3.6823	3.2874	3.0556	2.9013	2.7905	2.7066	2.6408	2.5876	2.5437	2.4753	2.4035	2.3275	2.2468	2.1601	2.0658
16	4.4940	3.6337	3.2389	3.0069	2.8524	2.7413	2.6572	2.5911	2.5377	2.4935	2.4247	2.3522	2.2756	2.1938	2.1058	2.0096
17	4.4513	3.5915	3.1968	2.9647	2.8100	2.6987	2.6143	2.5480	2.4943	2.4499	2.3807	2.3077	2.2304	2.1477	2.0584	1.9604
18	4.4139	3.5546	3.1599	2.9277	2.7729	2.6613	2.5767	2.5102	2.4563	2.4117	2.3421	2.2686	2.1906	2.1071	2.0169	1.9168
19	4.3808	4.5219	3.1274	2.8951	2.7401	2.6283	2.5435	2.4768	2.4227	2.3779	2.3080	2.2341	2.1555	2.0712	1.9795	1.8780
20	4.3513	3.4928	3.0984	2.8661	2.7100	2.5990	2.5140	2.4471	2.3928	2.3479	2.2776	2.2033	2.1242	2.0391	1.9464	1.8432
21	4.3248	3.4668	3.0725	2.8401	2.6848	2.5727	2.4876	2.4205	2.3661	2.3210	2.2504	2.1757	2.0960	2.0102	1.9165	1.8117
22	4.3009	3.4434	3.0491	2.8167	2.6613	2.5491	2.4638	2.3965	2.3419	2.2967	2.2258	2.1508	2.0707	1.9842	1.8895	1.7831
23	4.2793	3.4221	3.0280	2.7955	2.6400	2.5277	2.4422	2.3748	2.3201	2.2747	2.2036	2.1282	2.0476	1.9605	1.8649	1.7570
24	4.2597	3.4028	3.0088	2.7763	2.6207	2.5082	2.4226	2.3551	2.3002	2.2547	2.1834	2.1077	2.0267	1.9390	1.8424	1.7331
25	4.2417	3.3852	2.9912	2.7587	2.6030	2.4904	2.4047	2.3371	2.2821	2.2365	2.1649	2.0889	2.0075	1.9192	1.8217	1.7110
26	4.2252	3.3690	2.9752	2.7426	2.5868	2.4741	2.3883	2.3205	2.2655	2.2197	2.1479	2.0716	1.9898	1.9010	1.8027	1.6906
27	4.2100	3.3541	2.9604	2.7278	2.5719	2.4591	2.3732	2.3053	2.2501	2.2043	2.1323	2.0558	1.9736	1.8842	1.7851	1.6717
28	4.1960	3.3404	2.9467	2.7141	2.5581	2.4453	2.3593	2.2913	2.2360	2.1900	2.1179	2.0411	1.9586	1.8687	1.7689	1.6541
29	4.1830	3.3277	2.9340	2.7014	2.5454	2.4324	2.3463	2.2782	2.2229	2.1768	2.1045	2.0275	1.9440	1.8543	1.7555	1.6377
30	4.1709	3.3158	2.9223	2.6896	2.5336	2.4205	2.3343	2.2662	2.2107	2.1646	2.0921	2.0148	1.9317	1.8409	1.7396	1.6223
40	4.0848	3.2317	2.8387	2.6060	2.4495	2.3359	2.2490	2.1802	2.1240	2.0772	2.0035	1.9245	1.8389	1.7444	1.6373	1.5089
60	4.0012	3.1504	2.7581	2.5252	2.3688	2.2540	2.1665	2.0970	2.0401	1.9926	1.9174	1.8364	1.7480	1.6491	1.5343	1.3893
120	3.9201	3.0718	2.6802	2.4472	2.2900	2.1750	2.0867	2.0164	1.9588	1.9105	1.8337	1.7505	1.6587	1.5543	1.4290	1.2539
∞	3.8415	2.9957	2.6049	2.3719	2.2141	2.0986	2.0096	1.9384	1.8799	1.8307	1.7522	1.6664	1.5705	1.4591	1.3180	1.0000

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Table 2 : SIGNIFICANT VALUES $t_\nu(\alpha)$ OF t-DISTRIBUTION (TWO TAIL AREAS) $[|\ t\ | > t_\nu(\alpha)] = \alpha$

ν	Probability (Level of Significance)					
(α)	0.50	0.10	0.05	0.02	0.01	0.001
1	1.00	6.31	12.71	31.82	63.66	636.62
2	0.82	0.92	1.30	6.97	6.93	31.60
3	0.77	2.32	3.18	4.54	5.84	12.94
4	0.74	2.13	2.78	3.75	4.60	8.61
5	0.73	2.02	2.57	3.37	4.03	6.86
6	0.72	1.94	2.45	3.14	3.71	5.96
7	0.71	1.90	2.37	3.00	3.50	5.41
8	0.71	1.80	2.31	2.90	3.36	5.04
9	0.70	1.83	2.26	2.82	3.25	4.78
10	0.70	1.81	2.23	2.76	3.17	4.59
11	0.70	1.80	2.20	2.72	3.11	4.44
12	0.70	1.78	2.18	2.68	3.06	4.32
13	0.69	1.77	2.16	2.65	3.01	4.22
14	0.69	1.76	2.15	2.62	2.98	4.14
15	0.69	1.75	2.13	2.60	2.95	4.07
16	0.69	1.75	2.12	2.58	2.92	4.02
17	0.69	1.74	2.11	2.57	2.90	3.97
18	0.69	1.73	2.10	2.55	2.88	3.92
19	0.69	1.73	2.09	2.54	2.86	3.88
20	0.69	1.73	2.09	2.53	2.85	3.85
21	0.69	1.72	2.08	2.52	2.83	3.83
22	0.69	1.72	2.07	2.51	2.42	3.79
23	0.69	1.71	2.07	2.50	2.81	3.77
24	0.69	1.71	2.06	2.49	2.80	3.75
25	0.68	1.71	2.06	2.49	2.79	3.73
26	0.68	1.71	2.06	2.48	2.78	3.71
27	0.68	1.70	2.05	2.47	2.77	3.69
28	0.68	1.70	2.05	2.47	2.76	3.67
29	0.68	1.70	2.05	2.46	2.76	3.66
30	0.68	1.70	2.04	2.46	2.75	3.65
∞	0.67	1.65	1.96	2.33	2.58	3.29

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MANAV RACHNA
Vishwavidyalaya

MANAV RACHNA UNIVERSITY
Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF MATHEMATICS

"T3 Examination, December-2021"

SEMESTER	III	DATE OF EXAM	06/12/2021
SUBJECT NAME	Probability and Statistics	SUBJECT CODE	MAH 202 B-T
BRANCH	CSTI+CDA	SESSION	I
TIME	9:00-12:00AM	MAX. MARKS	100
B.Sc B.Ed	B.Tech	CREDITS	04
NAME OF FACULTY	Ms Seema Aggarwal	NAME OF COURSE COORDINATOR	Ms Seema Aggarwal

Note: *All questions are compulsory.*

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	A bag X contains 2 *white* and 3 *red* balls and a bag Y contains 4 *white* and 5 *red* balls. One ball is drawn at random from one of the bags and is found to be red. Find the probability that it was drawn from bag Y.	5	CO1	BT2	1.1.2.2 .1.34.4 .1
	1(B)	Assume that on the average one telephone number out of fifteen called between 2 $P.M$ and 3 $P.M$ on week days is busy. What is the probability that if 6 randomly selected telephone numbers are called (i) not more than three ,(ii) at least three of them will be busy?	5	CO2	BT2	1.1.2.2 .1.34.4 .1
PART-B	2(a)	In a normal distribution 17% of the items are below 30 and 17% of the items are above 60. Find the mean and standard deviation.	5	CO2	BT3	1.1.2.2 .1.34.4 .1
	2(b)	If the random variable X has an exponential distribution with parameter $\lambda > 0$, then $P[X > a + b \mid X > a] = P[X > b]$,for $a > 0, b > 0$.	5	CO2	BT3	1.1.2.2 .1.34.4 .1
PART-C	3(a)	The data on the profits (in Rs lakh) earned by 60 companies is as follows: Profits: Below 10 | 10-20 | 20-30 | 30-40 | 40-50 | 50 and above No. of companies: 5 | 12 | 20 | 16 | 5 | 2 (a)Obtain the limits of profits of the central 50% companies. (b) Calculate Bowley's coefficient of Skewness.	10	CO3	BT3	1.1.2.2 .1.34.4 .1

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PART-C

3(b)	Calculate the mean and standard deviation for the following data given the age distribution of 542 members. Age- group (years): 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 No. of members: 3 | 61 | 132 | 153 | 140 | 51 | 2	10	CO3	BT3	1.1.2,2 .1.34.4 .1
4(a)	The following data relate to age of employees and the number of days they reported sick in a month. Age: 30 | 32 | 35 | 40 | 48 | 50 | 52 | 55 | 57 | 61 Sick days: 1 | 0 | 2 | 5 | 2 | 4 | 6 | 5 | 7 | 8 Calculate Karl Pearson's coefficient of correlation and interpret it.	10	CO4	BT3	1.1.2,2 .1.34.4 .1
4 (b)	The following data gives the age and blood pressure of 10 persons: Age: 56 | 42 | 36 | 47 | 49 | 42 | 60 | 72 | 63 | 55 Blood Pressure: 147 | 125 | 118 | 128 | 145 | 140 | 155 | 160 | 149 | 150 (i)Determine the least squares regression equation of blood pressure on age . (ii)Estimate the blood pressure of a woman whose age is 45 years.	10	CO4	BT3	1.1.2,2 .1.34.4 .1

PART-D

5(a)	Growth of bacteria (N) in a culture after t hrs is given in the following table : t: 0 | 1 | 2 | 3 | 4 | 5 | 6 N: 32 | 47 | 65 | 92 | 132 | 190 | 275 Fit a curve of the form $N = ab^t$ and estimate N when $t = 7$.	10	CO5	BT4	1.1.2,2 .1.34.4 .1
5(b)	Records taken of the number of male and female births in 800 families having four children are as follows No. of male births: 0 | 1 | 2 | 3 | 4 No. of female births: 4 | 3 | 2 | 1 | 0 No. of families: 32 | 178 | 290 | 236 | 94 Test whether the data are consistent with the hypothesis that the binomial law holds and the chance of male birth is equal to that of female birth ,namely $p = q = 1/2$.	10	CO5	BT3	1.1.2,2 .1.34.4 .1
6(a)	The following figures refer to observations in live independent samples. Sample I: 25 | 30 | 28 | 34 | 24 | 20 | 13 | 32 | 22 | 38 Sample I: 30 | 34 | 22 | 20 | 31 | 40 | 30 | 23 | 36 | 17 Analyse whether the samples have been drawn from the population of equal means.	10	CO5	BT3	1.1.2,2 .1.34.4 .1
6(b)	The following figures relate to the number of units of an item produced per shift by two workers A and B for a number of days: A: 19 | 22 | 24 | 27 | 24 | 18 | 20 | 19 | 25 B: 26 | 37 | 40 | 35 | 30 | 30 | 40 | 26 | 30 | 35 | 45 Can it be inferred that worker A is more stable compared to worker B?Answer using $F - test$ at 5% level of significance.	10	CO5	BT4	1.1.2,2 .1.34.4 .1

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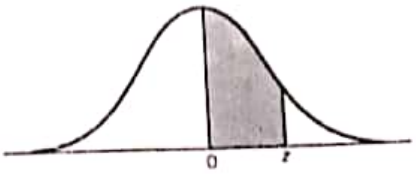
VII. AREA UNDER STANDARD NORMAL CURVE



	00	01	02	03	04	05	06	07	08	09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2731	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4901	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

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Table 2 : SIGNIFICANT VALUES $t_\nu(\alpha)$ OF t-DISTRIBUTION (TWO TAIL AREAS) $[|t| > t_\nu(\alpha)] = \alpha$

d.f.	*Probability (Level of Significance)*					
(ν)	*0.50*	*0.10*	*0.05*	*0.02*	*0.01*	*0.001*
1	1.00	6.31	12.71	31.82	63.66	636.62
2	0.82	0.92	4.30	6.97	6.93	31.60
3	0.77	2.32	3.18	4.54	5.84	12.94
4	0.74	2.13	2.78	3.75	4.60	8.61
5	0.73	2.02	2.57	3.37	4.03	6.86
6	0.72	1.94	2.45	3.14	3.71	5.96
7	0.71	1.90	2.37	3.00	3.50	5.41
8	0.71	1.80	2.31	2.90	3.36	5.04
9	0.70	1.83	2.26	2.82	3.25	4.78
10	0.70	1.81	2.23	2.76	3.17	4.59
11	0.70	1.80	2.20	2.72	3.11	4.44
12	0.70	1.78	2.18	2.68	3.06	4.32
13	0.69	1.77	2.16	2.05	3.01	4.22
14	0.69	1.76	2.15	2.62	2.98	4.14
15	0.69	1.75	2.13	2.60	2.95	4.07
16	0.69	1.75	2.12	2.58	2.92	4.02
17	0.69	1.74	2.11	2.57	2.90	3.97
18	0.69	1.73	2.10	2.55	2.88	3.92
19	0.69	1.73	2.09	2.54	2.86	3.88
20	0.69	1.73	2.09	2.53	2.85	3.85
21	0.69	1.72	2.08	2.52	2.83	3.83
22	0.69	1.72	2.07	2.51	2.42	3.79
23	0.69	1.71	2.07	2.50	2.81	3.77
24	0.69	1.71	2.06	2.49	2.80	3.75
25	0.68	1.71	2.06	2.49	2.79	3.73
26	0.68	1.71	2.06	2.48	2.78	3.71
27	0.68	1.70	2.05	2.47	2.77	3.69
28	0.68	1.70	2.05	2.47	2.76	3.67
29	0.68	1.70	2.05	2.46	2.76	3.66
30	0.68	1.70	2.04	2.46	2.75	3.65
∞	0.67	1.65	1.96	2.33	2.58	3.29

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Table 3: CHI-SQUARE (χ^2)

Significant Values χ^2 (α) of χ^2 Distribution Right Tail Areas for Given Probability α,

$$P = P_r(\chi^2 > \chi^2(\alpha)) = \alpha$$

And is Degrees of Freedom (d.f.)

Degree of freedom (v)	*Probability (Level of Significance)*						
	0 = .99	*0.95*	*0.50*	*0.10*	*0.05*	*0.02*	*0.01*
1	000157	00393	.455	2.706	3.841	5.214	6.635
2	.0201	.103	1.386	4.605	5.991	7.824	9.210
3	.115	.352	2.366	6.251	7.815	9.837	11.341
4	297	.711	3.357	7.779	9.488	11.668	13.277
5	554	1.145	4.351	9.236	11.070	13.388	15.086
6	872	2.635	5.348	10.645	12.592	15.033	16.812
7	1.239	2.167	6.346	12.017	14.067	16.622	18.475
8	1.646	2.733	7.344	13.362	15.507	18.168	20.090
9	2.088	3.325	8.343	14.684	16.919	19.679	21.669
10	2.558	3.940	9.340	15.987	18.307	21.161	23.209
11	3.053	4.575	10.341	17.275	19.675	22.618	24.725
12	3.571	5.226	11.340	18.549	21.026	24.054	26.217
13	4.107	5.892	12.340	19.812	22.362	25.472	27.688
14	4.660	6.571	13.339	21.064	23.685	26.873	29.141
15	4.229	7.261	14.339	22.307	24.996	28.259	30.578
16	5.812	7.962	15.338	23.542	26.296	29.633	32.000
17	6.408	8.672	15.338	24.769	27.587	30.995	33.409
18	7.015	9.390	17.338	25.989	28.869	32.346	34.805
19	7.633	10.117	18.338	27.204	30.144	33.687	36.191
20	8.260	10.851	19.337	28.412	31.410	35.020	37.566
21	8.897	11.591	20.337	29.615	32.671	36.343	38.932
22	9.542	12.338	21.337	30.813	33.924	37.659	40.289
23	10.196	13.091	22.337	32.007	35.172	38.968	41.638
24	10.856	13.848	23.337	32.196	36.415	40.270	42.980
25	11.524	14.611	24.337	31.382	37.65	41.566	44.314
26	12.198	15.379	25.336	35.363	38.885	41.856	45.642
27	12.879	16.151	26.336	36.741	40.113	41.140	46.963
28	13.565	16.928	27.336	37.916	41.337	45.419	48.278
29	14.256	17.708	28.336	39.087	42.557	46.693	49.588
30	14.933	18.493	29.336	40.256	43.773	47.962	50.892

Note. For degrees of freedom (v) greater than 30, the quantity $\sqrt{2\chi^2} - \sqrt{2v-1}$ may be used as a normal variate with unit variance

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X. 5% POINTS OF FISHER'S F-DISTRIBUTION

n_2 \ n_1	1	2	3	4	5	6	7	8	9	10	12	15	20	30	60	∞
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88	243.91	245.95	248.01	250.09	252.20	254.32
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385	19.396	19.413	19.429	19.446	19.462	19.479	19.496
3	10.128	9.5521	9.2766	9.1172	9.0135	8.9406	8.8868	8.8452	8.8123	8.7855	8.7446	8.7029	8.6602	8.6166	8.5720	8.5263
4	7.7086	6.9443	6.5914	6.3883	6.2560	6.1631	6.0942	6.0410	5.9988	5.9644	5.9117	5.8578	5.8025	5.7459	5.6878	5.6281
5	6.6079	5.7861	5.4095	5.1922	5.0503	4.9503	4.8759	4.8183	4.7725	4.7351	4.6777	4.6188	4.5581	4.4957	4.4314	4.3650
6	5.9874	5.1433	4.7571	4.5337	4.3874	4.2839	4.2066	4.1468	4.0990	4.0600	3.9999	3.9381	3.8742	3.8082	3.7398	3.6688
7	5.5914	4.7374	4.3468	4.1203	3.9715	3.8660	3.7870	3.7257	3.6767	3.6365	3.5747	3.5108	3.4445	3.3758	3.3043	3.2298
8	5.3177	4.4590	4.0662	3.8378	3.6875	3.5806	3.5005	3.4381	3.3881	3.3472	3.2840	3.2184	3.1503	3.0794	3.0053	2.9276
9	5.1174	4.2565	3.8626	3.6331	3.4817	3.3738	3.2927	3.2296	3.1789	3.1373	3.0729	3.0061	2.9365	2.8637	2.7872	2.7067
10	4.9646	4.1028	3.7083	3.4780	3.3258	3.2172	3.1355	3.0717	3.0204	2.9782	2.9130	2.8450	2.7740	2.6996	2.6211	2.5379
11	4.8443	3.9823	3.5874	3.3567	3.2039	3.0946	3.0123	2.9480	2.8962	2.8536	2.7876	2.7186	2.6464	2.5705	2.4901	2.4045
12	4.7472	3.8853	3.4903	3.2592	3.1059	2.9961	2.9134	2.8486	2.7964	2.7534	2.6866	2.6169	2.5436	2.4663	2.3842	2.2962
13	4.6672	3.8056	3.4105	3.1791	3.0254	2.9153	2.8321	2.7669	2.7144	2.6710	2.6037	2.5331	2.4589	2.3803	2.2966	2.2064
14	4.6001	3.7389	3.3439	3.1122	2.9582	2.8477	2.7642	2.6987	2.6458	2.6021	2.5342	2.4630	2.3879	2.3082	2.2230	2.1307
15	4.5431	3.6823	3.2874	3.0556	2.9013	2.7905	2.7066	2.6408	2.5876	2.5437	2.4753	2.4035	2.3275	2.2468	2.1601	2.0658
16	4.4940	3.6337	3.2389	3.0069	2.8524	2.7413	2.6572	2.5911	2.5377	2.4935	2.4247	2.3522	2.2756	2.1938	2.1058	2.0096
17	4.4513	3.5915	3.1968	2.9647	2.8100	2.6987	2.6143	2.5480	2.4943	2.4499	2.3807	2.3077	2.2304	2.1477	2.0584	1.9604
18	4.4139	3.5546	3.1599	2.9277	2.7729	2.6613	2.5767	2.5102	2.4563	2.4117	2.3421	2.2686	2.1906	2.1071	2.0166	1.9168
19	4.3807	3.5219	3.1274	2.8951	2.7401	2.6283	2.5435	2.4768	2.4227	2.3779	2.3080	2.2341	2.1555	2.0712	1.9795	1.8780
20	4.3512	3.4928	3.0984	2.8661	2.7100	2.5990	2.5140	2.4471	2.3928	2.3479	2.2776	2.2033	2.1242	2.0391	1.9464	1.8432
21	4.3248	3.4668	3.0725	2.8401	2.6848	2.5727	2.4876	2.4205	2.3661	2.3210	2.2504	2.1757	2.0960	2.0102	1.9165	1.8117
22	4.3009	3.4434	3.0491	2.8167	2.6613	2.5491	2.4638	2.3965	2.3419	2.2967	2.2258	2.1508	2.0707	1.9842	1.8894	1.7831
23	4.2793	3.4221	3.0280	2.7955	2.6400	2.5277	2.4422	2.3748	2.3201	2.2747	2.2036	2.1282	2.0476	1.9605	1.8649	1.7570
24	4.2597	3.4028	3.0088	2.7763	2.6207	2.5082	2.4226	2.3551	2.3002	2.2547	2.1834	2.1077	2.0267	1.9390	1.8424	1.7331
25	4.2417	3.3852	2.9912	2.7587	2.6030	2.4904	2.4047	2.3371	2.2821	2.2365	2.1649	2.0889	2.0075	1.9192	1.8217	1.7110
26	4.2252	3.3690	2.9751	2.7426	2.5868	2.4741	2.3883	2.3205	2.2655	2.2197	2.1479	2.0716	1.9898	1.9010	1.8027	1.6906
27	4.2100	3.3541	2.9604	2.7278	2.5719	2.4591	2.3732	2.3053	2.2501	2.2043	2.1323	2.0558	1.9736	1.8842	1.7851	1.6717
28	4.1960	3.3404	2.9467	2.7141	2.5581	2.4453	2.3593	2.2913	2.2360	2.1900	2.1179	2.0411	1.9586	1.8687	1.7689	1.6541
29	4.1830	3.3277	2.9340	2.7014	2.5454	2.4324	2.3463	2.2782	2.2229	2.1768	2.1045	2.0275	1.9446	1.8543	1.7537	1.6377
30	4.1709	3.3158	2.9223	2.6896	2.5336	2.4205	2.3343	2.2662	2.2107	2.1646	2.0921	2.0148	1.9317	1.8409	1.7396	1.6223
40	4.0848	3.2317	2.8387	2.6060	2.4495	2.3359	2.2490	2.1802	2.1240	2.0772	2.0035	1.9245	1.8364	1.7444	1.6373	1.5089
60	4.0012	3.1504	2.7581	2.5252	2.3688	2.2540	2.1665	2.0970	2.0401	1.9926	1.9174	1.8364	1.7480	1.6491	1.5343	1.3893
120	3.9201	3.0718	2.6802	2.4472	2.2900	2.1750	2.0867	2.0164	1.9588	1.9105	1.8337	1.7505	1.6587	1.5543	1.4290	1.2539
∞	3.8415	2.9957	2.6049	2.3719	2.2141	2.0986	2.0096	1.9384	1.8799	1.8307	1.7522	1.6664	1.5705	1.4591	1.3180	1.0000

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, December -2021"

Semester: 3rd/5th
Subject: Analysis and Design of Algorithms
Branch: CSE /DSML
Course Type: Core
Time: 3 Hours
Program: B.Tech.

Date of Exam: 06/12/2021
Subject Code: CSH204B-T
Session: I
Course Nature: Hard
Max.Marks:100
Signature: HOD/Associate HOD:

Note: All questions are compulsory.

PART -A

S. No	Questions	Marks	Course Outcomes	BT Level
1	Define space and time complexity of an algorithm. State the asymptotic notations used in Computing the complexities.	5	CO1	L1

2	ALGORITHM Sum(n)
	// Input: A nonnegative integer n
	S←0
	For i ← 1 to n do
	S ← S + i
	Return S
	1. What does this algorithm compute?
	2. What is basic operation?
	How many times the basic operation is executed?
		5	CO3	L2

	PART B			
S. No	**Questions**	**Marks**	**Course Outcomes**	**BT Level**
3	Solve the following recurrence relations. i. x (n) = x (n - 1) + 5 for n > 1; x (1) = 0 ii. x (n) = 3x (n - 1) for n > 1; x (1) = 4	.5	CO2	L2

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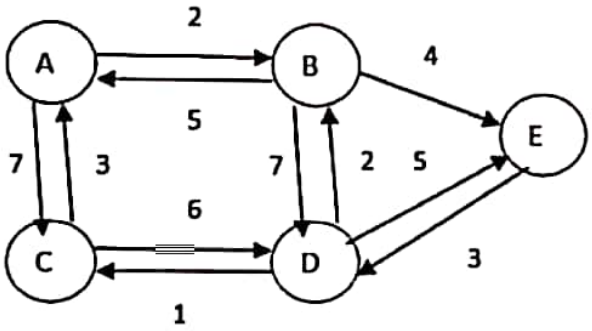
4	Sort the following elements using Merge Sort. 45,22,88,23,78,46,84,44,21,34.	5	CO2	L3

PART – C

S. No	Questions	Marks	Course Outcomes	BT Level
5	Explain the Job sequencing with deadlines using following example. N=5, profits(p1,p2.....p5)=(20,15,10,5,1), deadlines (d1,d2,..d5) = (2, 2, 1, 3, 3).	8	CO3	L3
6	Find the shortest path between all pairs of nodes in the following graph shown in Figure by using suitable algorithm. 	16	CO3	L3,L4
7	What is the Knapsack problem? Find an optimal solution to Knapsack problem with n=7, m=15 (P1,.....,P7)=(10,5,15,7,6,18,3) and (w1,.....,w7)=(2,3,5,7,1,4,1) .	8	CO3	L3

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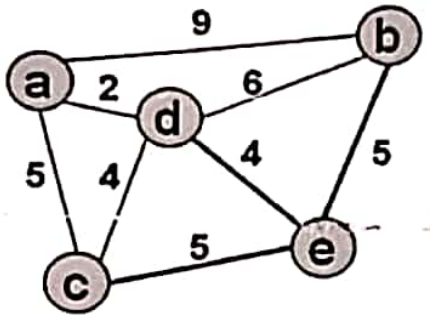
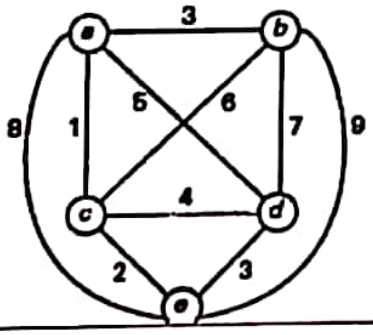
8	Elucidate the minimum spanning tree with the help of prim's algorithm and show the result for the given graph shown in Figure.  	8	CO4	L3
	PART D			
S. No	**Questions**	**Marks**	**Course Outcomes**	**BT Level**
9	Write a brief note on P, NP,NP hard and NP complete problems.	10	CO3	L1,L2
10	What is graph coloring problem? Discuss in detail the m-coloring graph problem.	5	CO4	L2
11	Using backtracking enumerate how can you solve the following problems (i) 8-Queen (ii) Hamilton circuit problem	10	CO3	L1,L2
12	Find the optimal tour of travelling salesman problem for the graph shown in figure.  	15	CO4	L3,L4

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, Dec. -2021"

SEMESTER	5th	DATE OF EXAM	2/12/2021
SUBJECT NAME	Computer Networks	SUBJECT CODE	CSH301B-T
BRANCH	Comp. Sc. & Engg.	SESSION	II
TIME	3 hrs.	MAX. MARKS	100
PROGRAM	B. Tech.	CREDITS	4
NAME OF FACULTY	Narender, Manoj, Nikita	NAME OF COURSE COORDINATOR	Narender

***Note:** All questions are compulsory.*

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART A	1(A)	Explain Unipolar and Bipolar line coding method with the help of a diagram.	5	CO1	BT1,BT2	2.1.1
	1(B)	Differentiate among the following: a. Hub and repeater b. Bridges and switches c. Routers and gateways	5	CO1	BT2	2.3.1
PART B	2(A)	Explain the hierarchy of Multiple Access technique with the help of diagram.	5	CO2	BT3	2.1.1
	2(B)	Assume that (a) data is 10110. (b) code generator is x^3+x^2+1 Calculate CRC Bits: Also check the data is received correctly or not?	5	CO2	BT3	2.4.1
PART C	3(A)	An IPv4 packet has arrived with the first few hexadecimal digits as: 0x 47000028000100000102... a. How many hops can the packet travel? b. What is the actual data size? c. What is the size of the option field? d. What is the type of service? e. Are there some more fragments?	10	CO3	BT3	2.4.1

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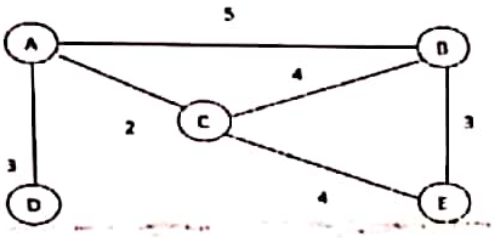
	3(B)	An organization is granted the block 130.34.12.64/26. The organization needs to have four subnets. What are the subnet addresses and the range of addresses for each subnet with the help of a diagram?	10	CO3	BT3	2.4.1
	4(A)	Differentiate the Interdomain and intradomain routing protocol. Consider the image given below and show the Routing table for node A using Link State Routing Protocol. 	10	CO3	BT3	2.3.1
	4(B)	Write short notes on any two: a. ARP b. NAT c. Mobile IP	10	CO3	BT2	1.2.1
PART D	5(A)	Compare TCP and UDP in detail.	10	CO4	BT4	2.1.2
	5(B)	What do you mean by name space in DNS? Explain different top level domains in detail with the help of examples.	10	CO5	BT2	2.1.3
	6(A)	How a firewall can monitor the incoming and outgoing traffic? Explain the different types of firewalls.	10	CO4,CO5	BT2	1.3.1
	6(B)	Write short notes on any two: a. E-mail system b. VPN c. POP3 vs IMAP	10	CO5	BT1,BT2	1.4.1

********** END **********

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DEPARTMENT OF Computer Science and Technology

ODD SEMESTER (JUL-DEC-2021)

T3 QUESTION PAPER

FACULTY NAME:Ms. Mamta Arora			NAME OF COURSE COORDINATOR: Ms. Mamta Arora		
COURSE NAME: Version Control and Automation	COURSE CODE:CSH321 B-T	CREDIT :5	MAX. MARKS: 100	TIME DURATION: 180 minutes	DATE OF EXAM:2 Dec 2021
PROGRAM:B.Tech CSE (DTE)		SEMESTER:V Session - II			

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A & B	1(A)	Outline any 10 practices of the Continuous Integration.	5	CO1	BT2	2.2.5
	1(B)	Analyze the ways through which teams can implement the version control.	10	CO1	BT4	2.3.1
	2(A)	Write detailed note on : (1). Continuous Deployment Process. (2). Benefits of Continuous Deployment.	10	CO1	BT2	2.3.1
	2(B)	Explain the stages of delivering a customized software to the client along with diagram.	5	CO2	BT2	2.1.1
PART-C	3(A)	Identify the unix commands for the following: (1). To display a welcome message on the console (2). append the contents in a file named test.txt (3). delete the file (4). List the contents of the home directory (5). display the number of users currently logged in (6). list all the hidden files and directories present in a home directory. (7). switch to the home directory. (8). display the current date and time (9). give the execute permission on the file Welcome.c (10). To check the file permisions.	10	CO2	BT3	3.1.1
	3(B)	Explain the Benefits of adopting DevOps over classical software development models in detail.	5	CO3	BT2	2.3.1
		Identify the git commands for the following cases: (1). To install the git (2). To set the name and email id in global configuration (3). To create a Git repository (4). To sych the local repository to the public repository (5). To view the commit history in reverse chronological order (6). To display the last n commits (7). To create annotated tag. (8). To track the untracked files present in the working directory (9). To update the tag informations on remote repository. (10). To list the working branch.	10	CO3	BT3	2.3.1
	4(A)	What is Test Suite? Write the assert methods for validating the pincode and Aadhar number of a customer.	5	CO3	BT3	2.1.1
	4(B)	List any 5 scenarios where automation testing is not suitable. Give comparision table of JUnit and Selenium automated testing tools.	5	CO3	BT4	2.2.3

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PART D	5(A)	Create a script to check whether the number entered by user is of 3 digit or not.	5	CO3	BT3	2.1.1
	5(B)	Create a script with while loop priniting first 10 odd numbers.	5	CO3	BT3	2.1.1
	6	Design a Test case document along with Requirement tracability matrix (RTM) for online Hotel Booking System for alleast 5 business requirements (BR).	10	CO4	BT6	2.3.1
	7	Explain the following: (1). Automated Build (2). Code Generation (3). Model Driven Architecture	15	CO4	BT2	2.3.1
********** END **********						

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, December -2021"

Semester: 5

Date of Exam: 02/12/21

Subject: Introduction to Database Management Systems

Subject Code: CSH321B-T

Branch: CSE

Session: II

Course Type: Core

Course Nature: Hard

Time: 3 Hours

Max.Marks:100

Program: BSc. Mathematics

Signature: HOD/Associate HOD:

Note: All questions are compulsory.

PART -A

[10 marks]

S. No	Questions	Marks	Course Outcomes	Bloom's Taxonomy Level	Performance Indicator
Q1	Define database management system and its applications?	5	CO1	1	1.4.1
Q2	What are database models? Compare and contrast the advantages and disadvantages of DBMS?	5	CO1	1	1.4.1
	PART B *[10 marks]*				
Q3	Explain relation and their properties in details?	5	CO2	BT2	1.4.1
Q4	Consider the following schema: customer (c_name, street, city) Branch (B_name, city) Loan (loanno,b_name, amount) Account(account_no,B_name,balance)	5	CO2	BT3	1.4.1

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	Borrower (c_name, loanno) Depositor (c_name, accountno) Write the queries in tuple calculus a. Find the loan number, branch, amount of loans of greater than or equal to 10000 amounts b. Find the loan number for each loan of an amount greater or equal to 10000. c. Find the names of all customers who have a loan and an account at the bank				

PART – C

[40 marks]

S. No	Questions	Marks	Course Outcomes	Blooms Taxonomy Level	Performance Indicator
Q5	Explain the difference between super key, candidate and primary keys with example?	10	CO3	BT3	1.4.1
Q6	List the uses of functional dependencies also what are various functional dependencies rules?	10	CO3	BT3	1.4.1
Q7	List the decomposition properties. What are multivalued properties?	10	CO3	BT3	1.4.1
Q8	What is different type of Attributes and their representation?	10	CO3	BT3	1.4.1
	PART D ***[40 marks]***				
Q9	What is closed and frequent item sets in data mining?	10	CO5	BT5	1.4.1
Q10	What is preprocessing in data mining? Explain different data mining techniques?	10	CO4	BT4	1.4.1
Q11	What is Data Mining explain KDD process?	10	CO4	BT4	1.4.1
Q12	What is market basket Analysis? Explain Apriori algorithm?	10	CO5	BT5	1.4.1

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, Dec-2021"

SEMESTER	5		
SUBJECT NAME	Neural Networks and Fuzzy Logic	DATE OF EXAM	06/12/2021
		SUBJECT CODE	CSH305B-T
BRANCH	CSE		
TIME	3 hours	SESSION	II
PROGRAM	B Tech	MAX. MARKS	100
		CREDITS	4
NAME OF FACULTY	Dr. Sachin Lakra	NAME OF COURSE COORDINATOR	Dr. Sachin Lakra

Note: Part A : All questions are compulsory.

Part B : Attempt any four questions out of Q2 to Q9.

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Name 2 applications of fuzzy theory.	2	CO2	BT1	1.2.1
	1(B)	Name any 2 learning rules used in an artificial neural network.	2	CO1	BT1	1.2.1
	1(C)	Give 2 differences between the Widrow-Hoff Learning Rule and the Winner-Take All Learning Rule.	2	CO3	BT2	1.2.1
	1(D)	Give the mathematical expression for the new weight calculation in the Widrow Hoff Learning Rule.	2	CO3	BT2	1.2.1
	1(E)	Give 2 differences between supervised and unsupervised learning.	2	CO3	BT2	1.2.1
	1(F)	Give 2 differences between unipolar and bipolar activation functions in artificial neural networks.	2	CO1	BT2	1.2.1
	1(G)	Define the property of linear separability.	2	CO3	BT2	1.2.1
	1(H)	Explain the concept of a decision boundary in linearly separable problems briefly.	2	CO3	BT2	1.2.1
	1(I)	Why is a bias input required in an artificial neural network?	2	CO3	BT1	1.2.1
	1(J)	Explain the concept of features of a given problem with the help of an example.	2	CO1	BT2	1.2.1

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PART-B (*Attempt any four questions out of Q2 to Q7.*)

Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
Q2(A)	For the following fuzzy relations P and Q, find $\bar{P}$, $P \cup Q$ and $P \cap Q$: M_P: a (0.5, 0.0, 0.9); b (0.7, 0.3, 0.8) M_Q: a (0.2, 0.5, 0.9); b (1.0, 0.3, 0.5) Here, X={a,b} and Y = {1,2,3}. $P = X \times Y$ *and* $Q = X \times Y$	8	CO4	BT3	1.3.1
2(B)	Explain the differences between supervised, unsupervised and recurrent learning with the help of diagrams.	12	CO3	BT2	1.2.1
Q3(A)	Explain the Widrow-Hoff Learning rule. Which type of artificial neural network architecture uses this learning rule? Give the mathematical expressions for the learning signal and the incremental weight vector for the rule.	12	CO3	BT3	1.2.1
3(B)	Obtain the output of neuron Y using the binary sigmoidal activation function for the network using inputs as [0.3 0.7 0.8] with weights as [0.1 0.5 0.3], where lambda=0.5.	8	CO3	BT3	1.3.1
Q4(A)	Given a single layer perceptron neural network with inputs x1, x2 [0.3 0.9], desired output d1 = +1 and weights w11, w12 [0.5 0.7], calculate the value of the increment in weights at the end of iteration 1. Also, the learning rate is given as 0.25. The activation function has a threshold of 0.75.	10	CO3	BT3	1.3.1
4(B)	Explain how classification can be performed by a single layer perceptron neural network with the help of an example.	10	CO3	BT2	1.2.1
Q5(A)	Give the similarities and differences between a biological neuron and an artificial neuron.	8	CO1	BT2	1.2.1
5(B)	Define a pattern. Differentiate between a spatial pattern and a temporal pattern with examples.	12	CO1	BT2	1.2.1
Q6(A)	Differentiate between linear activation functions and continuous activation functions with the help of diagrams.	8	CO3	BT2	1.2.1
6(B)	Explain the Perceptron Learning rule. Which type of artificial neural network architecture uses this learning rule? Give the mathematical expressions for the learning signal and the incremental weight vector for the rule.	12	CO3	BT3	1.2.1
Q7(A)	Give the differences between the Perceptron Learning rule and the Winner-Take-All learning rule.	12	CO3	BT2	1.2.1
7(B)	Carry out the operations of fuzzy union and fuzzy intersection on the following fuzzy sets: A = 0.1/3 + 0.5/7 + 0.3/12 + 1.0/19 B = 0.3/7 + 1.0/12 + 0.5/19 + 0/23	8	CO4	BT3	1.3.1

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Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
Q8(A)	Explain the concept of gradient descent minimization used in the delta learning rule.	10	CO3	BT2	1.2.1
8(B)	Given a single layer perceptron neural network with inputs x1, x2, x3. The training patterns are p1=[+1 -1 -1] and p2=[+1 +1 -1], desired output for p1 = -1 and for p2= +1. Carry out the calculations for training the perceptron and obtain the final weights. Also, the learning rate is given as 0.32. The activation function is the hardlims( ) function. Test the neural network on the inputs t1= [+1 -1 -1] , t2=[+1 +1 -1]and t3=[+1 +1 +1]. Further, give your comments on the outputs obtained in testing.	10	CO3	BT3	1.3.1
Q9(A)	Give 5 applications of artificial neural networks and explain the role of ANNs in each application.	8	CO4	BT1	1.2.1
9(B)	Explain the architecture of a single layer perceptron neural network with the help of a diagram.	12	CO3	BT2	1.2.1

********** END **********

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, Dec. -2021"

SEMESTER	5th	DATE OF EXAM	6/12/2021
SUBJECT NAME	System & N/w Admin.	SUBJECT CODE	CSH306B-T
BRANCH	Comp. Sc. & Engg.	SESSION	II
TIME	3 hr.	MAX. MARKS	100
PROGRAM	B. Tech.	CREDITS	4
NAME OF FACULTY	Narender	NAME OF COURSE COORDINATOR	Narender

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART A	1(A)	What is the difference between System administrator and Network administrator? What are their responsibilities?	5	CO1	BT1	1.1.1
	1(B)	Explain functions and management of different components of human computer system.	5	CO1	BT1,BT2	1.1.2
PART B	2(A)	What is process? Explain various stages and their uses?	5	CO2	BT1,BT2	1.3.1
	2(B)	Differentiate between GUI and CLI with appropriate examples	5	CO2	BT2	1.4.1
PART C	3(A)	What do you mean by VLAN. Creating a VLAN can be beneficial for reducing traffic, enhancing security, improving bandwidth performance, save workspace disruption. Explain how?	10	CO3	BT2	2.1.1
	3(B)	Explain the different protocol associated with different layers of TCP/IP model with the help of diagram.	10	CO3	BT2	1.1.2
	4(A)	Suppose a network with IP Address 192.16.0.0 is divided into 2 subnets, find number of hosts per subnet. Also for the first subnet, find- 1. Subnet Address 2. First Host ID 3. Last Host ID 4. Broadcast Address	5	CO3	BT3	2.3.2

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	4(B)	An organization is granted an address with beginning address 14.24.74.0/24. The organization need to have 10 subnets as shown below. 1. Two subnets, each with 64 addresses. 2. Two subnets, each with 32 addresses. 3. Two subnet, each with 16 addresses. 4. Four subnets, each with 4 addresses. Also find the number of addresses that are not used.	15	CO3	BT3	2.3.1
PART D	5(A)	Security is a major concern today. How can a system or Network administrator can help in this. Explain different backup methods also.	10	CO4	BT2	2.1.1
	5(B)	Explain system tools and GUI tools in detail.	10	CO4	BT2	1.4.1
	6(A)	Discuss performance monitoring and optimization tools in detail.	10	CO5	BT2	2.1.1
	6(B)	Write short notes on any two: a. Scripts b. Patches c. TCP wrappers	10	CO4	BT2	2.1.1
********** END **********						

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, December-2021"

SEMESTER	5th	DATE OF EXAM	6/12/2021
SUBJECT NAME	Advance Database Management System	SUBJECT CODE	CSH304B-T
BRANCH	CSE	SESSION	II
TIME	1:00 to 4:00 PM	MAX. MARKS	100
PROGRAM	B.Tech	CREDITS	3
NAME OF FACULTY	Dr. Hardeo Kumar Thakur	NAME OF COURSE COORDINATOR	Dr. Hardeo Kumar Thakur
		AUTHORIZED SIGNATORY	

Note: Part A, B : All questions are compulsory. Questions are of short answer type (10 Marks).
Part C, D: Questions are of descriptive/programming type.
Each question is of 20 marks. Attempt all questions.

Q.NO.		QUESTIONS	MARKS	CO	BLOOM'S LEVEL	PI
	Q1.					
PART-A	1(A)	Why did object oriented databases fail?	2	CO1	BT3	1.4.1
	1(B)	Differentiate total participation and partial participation in ERD.	2	CO1	BT2	1.4.1
	1(C)	Differentiate between ORDBMS and ODBMS.	2	CO1	BT2	1.4.1
	1(D)	Differentiate between Materialization and Pipelining in context of query optimization.	2	CO1	BT2	1.4.1
	1(E)	"In a schema with attributes A, B, C, D and E following set of functional dependencies are given A B, A C, C E, B D, E A Check whether we can make ABC as primary Key?	2	CO1	BT3	1.4.1
PART-B	Q2(A)	Discuss How do you implement Atomicity and Durability?	5	CO3	BT4	1.4.1
	2(B)	Write advantages and disadvantages of 2-Tier and 3-Tier Client Server Systems.	5	CO3	BT2	1.4.1
PART-C	Q3(A)	What is the need of Fragmentation in Distributed DBMS? Compare the difference between fragmentation and Replication in Distributed DBMS.	10	CO4	BT2	1.4.1
	3(B)	What problem can occur in a distributed system due to the failure of link and partitioning of the network? What are the ways	10	CO4	BT2	1.4.1

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T-C		by which recovery can take place?				
	Q4(A)	What is deductive database . Explain application of deductive database with suitable application example.	10	CO4	BT3	1.4.1
	4(B)	Explain the advantages and disadvantages of the web-DBMS approach.	10	CO4	BT2	1.4.1
PART-D	Q5(A)	What is the significance of GIS, and how it relates to geographic information systems?	10	CO4	BT3	1.4.1
	5(B)	What is mobile database? Explain the mobile database with neat sketch.	10	CO4	BT2	1.4.1
	Q6(A)	What you understand by Multimedia database? Discuss the challenges of Multimedia database in context of different types of queries with example.	15	CO4	BT3	1.4.1
	6(B)	Describe importance of versioning in context of temporal database with suitable example.	5	CO4	BT3	1.4.1

********** END **********

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination,Dec-2021"

SEMESTER	**Vth**	**DATE OF EXAM**	**6.12.2021**
SUBJECT NAME	**SOFTWARE PROJECT MANAGEMENT**	**SUBJECT CODE**	**CSH307B-T**
BRANCH	**CSE**	**SESSION**	**1PM-4PM**
TIME	**3Hrs**	**MAX. MARKS**	**100**
PROGRAM	**CSE**	**CREDITS**	**4**
NAME OF FACULTY	**Mr. Agha Imran**	**NAME OF COURSE COORDINATOR**	**Mr. Agha Imran**

Note: Part A: All questions are compulsory. Questions will be of short answer type (Marks Given).
Part B: Questions are descriptive type or numerical. For Each question Marks are given. Attempt all questions.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Mention some of the major activities covered by software project management	5	CO1	BT1	2.2.2
	1(B)	Define work breakdown structure and prepare it for "Railway Reservation System". Include all the modules in it.	5	CO1	BT1	2.2.2
PART-B	Q2(A)	Draw the Activity Diagram for Online Shopping Model.	5	CO2	BT3	2.4.2
	Q2(B)	Compare the Advantages and disadvantages of V model vs Water fall model while doing the Project Management.	5	CO1	BT2	2.2.1
PART-C	Q3 (A)	A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 20000 lines of code. The company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.2 for the software development on embedded	20	CO2	BT3	4.2.2

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		systems. while the exponentiation factor is given as 1.50. What is the estimated effort in person-months?				
	Q3 (B)	Explain about understanding behavior. organizational behavior: a back ground. selecting the right person for the job. motivation for working in groups. becoming a team. decision making. leadership. organizational structures.	20	CO1	BT1	3.2.4
PART -D	Q4 (A)	Define the Categories of Quality Model. Explain the metrics used in Six Sigma and CMM Model.	20	CO3	BT2	4.1.2
	Q4 (B)	What are the six quality characteristics of quality requirements defined by ISO Standard 9126?	20	CO3	BT2	4.2.2

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DEPARTMENT OF COMPUTER ENGINEERING

"T3 Examination, Dec-2021"

SEMESTER	**5th**	**DATE OF EXAM**	**8 Dec 2021**
SUBJECT NAME	**Green Computing**	**SUBJECT CODE**	**CSS-325T**
BRANCH	**CSE/DS ML/DTG**	**SESSION**	**Evening**
TIME	**1:00 pm - 2:30 pm**	**MAX. MARKS**	**50**
PROGRAM	**B.Tech**	**CREDITS**	**1**
NAME OF FACULTY	Dr. Sachin Lakra, Mr. Sanjay Kumar, Ms. Agha Imran Husain, Ms. Anu Priya Sharma	**NAME OF COURSE COORDINATOR**	**Ms. Anu Priya Sharma**

Please go through the following instructions before the start of the exam:

a. All questions are compulsory. Explain with diagrams wherever required. More weightage will be given to answers supported with examples and diagrams.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	
PART-A	1(A)	How has the internet helped to reduce carbon footprints up to some extent?	3	CO3	BT4	5.
	1(B)	How many ways the power usage can be minimized in terms of computing?	3	CO2	BT2	5.
	1(C)	What do you mean by Green Supply Chain? Give some examples.	3	CO1	BT2	5.
PART-B	Q2	What are the Global initiatives taken towards reducing carbon footprints?	5	CO2	BT4	5.
	Q3	Which equipment consumes most energy in Data Centers ? How can we make the Datacenter sustainable?	2+3	CO1	BT2	1.

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Q4	Which operating system is the most green? And why? What happens to old computers when they die?	3+2= 5	CO4	BT1	5.
Q5	Being a responsible citizen and an IT professional, how can you contribute to the environment in order to make it carbon neutral. Support your answer with technical reasons.	6	CO3	BT2	5.
Q6(a)	Answer the following: A. Does using a screensaver conserve energy when your computer is idle? B. Does the average laptop consume less energy than a desktop PC? C.) Does constantly shutting down and restarting your computer during the day consume more energy than just leaving it running? D.) How cloud computing contributed to making computing Green? E.) What are virtual machines?	2*5=10	CO4,CO2	BT2	5.
Q6(b)	Discuss a case study: How did companies like Coca-Cola, Adidas, Uber and Amazon embark on a green IT strategy?	10	CO4,CO2	BT2	5.

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DEPARTMENT OF COMPUTER ENGINEERING

"T3 Examination, Dec-2021"

SEMESTER	7th	DATE OF EXAM	2nd Dec 2021
SUBJECT NAME	VIRTUALIZATION - CONTAINERS/CLOUD	SUBJECT CODE	CSH422B-T
BRANCH	CSE-DTE	SESSION	Morning
TIME	9:00am-10:30 am	MAX. MARKS	50
PROGRAM	B.Tech	CREDITS	5
NAME OF FACULTY	Ms. Anu Priya Sharma	NAME OF COURSE COORDINATOR	Ms. Anu Priya Sharma

Please go through the following instructions before the start of the exam:

a. *All questions are compulsory. Explain with diagrams wherever required. More weightage will be given to answers supported with examples and diagrams.*

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	
PART-A	1(A)	Differentiate among the following: What are the main differences between Microservices and Monolithic Architecture?	3	CO3	BT4	5.1
	1(B)	LXC and Docker Containers	3	CO2	BT2	5.1
	1(C)	SDN AND OPENFLOW	3	CO1	BT2	5.1
PART-B	Q2	How can you make two containers to communicate with each other while keeping that connection hidden from external traffic.	5	CO2	BT4	5.2

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Q3	What is the advantage of central intelligence over distributed intelligence in SDN?	5	CO1	BT1	5.1
Q4	Explain the following commands 1. kubectl get pod 2. docker images 3. docker pull 4. docker volume ls 5. docker run	5	CO4	BT1	5.2
Q5	How SDN is different from a normal network setup? Explain it with a suitable diagram.	6	CO3	BT3	5.12
Q6	Global companies, like Amazon, Coca Cola or Zalando are transforming their IT infrastructures into microservice architecture. What's the reason behind this? Discuss any one case study.	20	CO4,CO2	BT1	5.1

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"T3 Examination, Dec-2021"

SEMESTER	SEVENTH	DATE OF EXAM	3.12.2021
SUBJECT NAME	BIOLOGY FOR ENGINEERS	SUBJECT CODE	EDH422
BRANCH	CSE (DSML-DTE)	SESSION	Morning
TIME	9.00AM-10.30AM	MAX. MARKS	40
PROGRAM	Bachelor of Technology	CREDITS	2
NAME OF FACULTY	Ms. Vandana Nandal	NAME OF COURSE COORDINATOR	Ms.Vandana Nandal

Note: All questions are compulsory

Part A: 10*1=10 Marks

Part B: 3*4=12 Marks

Part C: 1*8=8 marks

Part D:1*10=10 marks

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What do you mean by allele?	1	CO3	BT1	
	1(B)	Draw a comparison between flying bird and aircraft.	1	CO1	BT2	
	1(C)	What do you understand by the term multicellularity?	1	CO2	BT2	
	1(D)	What is a catalyst?	1	CO4	BT1	
	1(E)	What are the four bases of RNA?	1	CO5	BT1	
	1(F)	Who is the father Biology?	1	CO4	BT1	
	1(G)	Which cell organelle is known as power house of cell ?	1	CO2	BT1	

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	1(H)	Who is the father of microbiology?	1	CO1	BT2	
	1(I)	Is COVID-19 caused by a virus or bacteria?	1	CO2	BT2	
	1(J)	What do you mean by trait in biology?	1	CO3	BT2	
PART-B	Q2(A)	How changes in pH affect the enzyme activity?	2	CO4	BT3	
	2(B)	Define Genotype and Phenotypes.	2	CO3	BT1	
	Q3(A)	What are the four main classes of enzymes?	2	CO4	BT2	
	3(B)	Where is endoplasmic reticulum located in cell and what are its functions?	2	CO3	BT2	
	Q4(A)	What is the difference between homozygous and heterozygous give an example?	2	CO3	BT1	
	4(B)	Differentiate between living and non living.	2	CO1	BT4	
PART-C	Q5(A)	Briefly explain the Structure of DNA and semi-conservative replication with colored Diagram.	4	CO5	BT3,BT4	
	5(B)	Outline the contribution of George Mendel and name the laws proposed by him.	4	CO3	BT2,BT3	
PART-D	Q6(A)	Why engineers need to study biology. Explain with few examples.	5	CO1	BT3	
	6(B)	Draw a well labeled Diagram of animal cell.	5	CO2	BT2	

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, December-2021"

Semester: CSE 7th (DTE)
Subject: Artificial Intelligence
Branch: CSE
Course Type: CORE
Time: 3.hrs
Program: B.Tech.

Date of Exam: 04-12-2021
Subject Code: CSH 205 B - T
Session: MORNING
Course Nature: Hard
Max. Marks : 100
Signature: HOD/Associate HOD:

Note: All questions are compulsory from part A and B.

PART -A

S. No	Questions	Marks	Course Outcomes	Blooms Taxonomy Level	Performance Indicator
Q.1 (a)	Convert the formula ((A → B) → C) into CNF.	2	CO2	L2	1.2.1
(b)	Given that P(A)=0.3 , P(A|B)=0.4 , and (B)=0.5. Compute P(B|A).	2	CO2	L2	1.2.1
(c)	Explain One point and two point cross over in Genetic Algorithm..	2	CO2	L3	2.1.2
(d)	"Human reasoning is not monotonic", Justify the statement.	2	CO3	L5	2.1.2
(e)	Explain Fuzzy reasoning with examples.	2	CO3	L5	2.1.2

PART – B

S. No	Questions	Marks	Course Outcomes	Blooms Taxonomy Level	Performance Indicator
Q1	Identify the problems encountered during hill climbing and list the ways available to deal with these problems? Write down the algorithm for Best First Search?	10	CO4	L5	1.2.1

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Q2	Explain production system. Solve water jug problem using production rule system	10	CO3	L5	2.1.2
Q3	Explain the components of the planning system. Discuss total order plan and partial order plan. Create a total order plan and partial order plan for cleaning a ceiling fan problem.	10	CO3	L5	2.1.2
Q4	With neat sketch explain the architecture, characteristic features and roles of expert system. Discuss various limitations and its applications.	10	CO3,CO4	L5	2.1.4
Q5	Discuss the Dempster-Shafer Theory with an appropriate example.	10	CO3	L5	2.1.2
Q6	What are the Steps in natural Language processing? List and explain them briefly.	10	CO3	L4	1.4.1
Q7	Explain inductive learning briefly. Why do we still use it even though it is not a valid form of learning?	10	CO4	L4	1.4.2
Q8	Write a description on DENDRAL expert system.	10	CO3	L4	1.4.1
Q9	Consider the following set of sentences: 1. John likes all kind of food. 2. Apple are food. 3. Chickens are food 4. Anything anyone eats and isn't killed by is food. 5. Bill eats peanuts and is still alive. 6. Sue eats everything Bill eats. Convert the sentences into predicate logic. Convert the predicate logic into clause form. Prove " John likes peanuts" by resolution method.	20	CO5	L4	1.2.3

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY
"T3 Examination, Dec 2021"

Semester: 5th / 7th
Subject: Theory of Automata & Compiler Design
Branch: CSE (DTE/ DSML)
Course Type: Domain Core
Time: 3 Hour
Max.Marks: 100

Date of Exam:06/12/2021
Subject Code: CSH 311 BT
Session: Morning
Course Nature: Hard
Program: B.Tech
Signature: HOD/Associate HOD

***Note:** All questions are compulsory in Part A, part B, Part C & Part D.*

PART-A [10]

S. No	Questions	Marks	CO	BT Level	PI
1(a)	Consider a grammar having production rules: {S ⇒ S + S | S * S | S / S | S - S | (S) | 1 | 2 | 3} validate the string 1 + 2 * 3 * (1 / 2) - 2 by using parse tree.	5	CO1	L3	1.4.1
1(b)	Consider a language L= {w ∈ { +, *} | where number of +'s are divisible by 4 and number of *'s are divisible by 5 }. To design a DFA that accepts L.	5	CO1	L3	1.4.1

PART-B [10]

S.No	Questions	Marks	CO	BT Level	PI
2 (a)	Consider a language L= {$0^n 1^n$ | n >0} over input alphabet Σ = {0, 1}. To design a Turing Machine that accepts this language in term of transition equations.	6	CO2	L3,L4	1.4.1
2(b)	Design and explain the hierarchy structure of different types of automaton	4	CO2	L1,L2	1.4.1

PART-C [40]

S.No	Questions	Marks	CO	BT Level	PI
3(a)	Construct SLR parsing table for given grammar G = {S→ aSa| bSb | c}	10	CO4	L3,L4	1.4.1

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3(b)	Consider a grammar G having production rules: **Statement → x** **Statement → (Expression)** **Expression → Expression , Statement** **Expression → Statement** Where non-terminals are **Statement, Expression** and terminals are **(,) , x** and **,** (i) To find left recursion free grammar G' (ii) To find FIRST set and FOLLOW set of grammar symbol of G'. (iii) To Design LL (1) Parsing table by using FIRST set and FOLLOW set.	10	CO3	L3,L4	1.4.1
3(c)	Consider a grammar G having production rules: **Q → PP** **P → 0P | 1** (i) To find LR (1) items. (ii) To design CLR (1) Parsing table (iii) To design LALR (1) Parsing table	[10+5 +5]	CO4	L3,L4	1.4.1

PART-D [40]

S.No	Questions	Marks	CO	BT Level	PI
.4(a)	(i). Explain the concept of synthesis and inherited attribute with example. (ii) Explain the structure of compiler.	10	CO5	L1,L2	1.4.1
4(b)	Consider a string of an assignment statement: **a = b * - (c - d) + b*- (c - d)** (i) To design a parse tree for this string (ii) Design the table for 3-address code, quadruple	10	CO5	L3,L4	1.4.1
4(c)	What are the common techniques for improving the intermediate code? Explain any four of them	10	CO5	L1,L2	1.4.1
4(d)	Consider a source program that contains the assignment statement: **Position = initial + rate * 8** Where **Position, initial** and **rate** are identifiers, **=, +** and ***** are operators and **8** is a number. To shows the translation process of this assignment statement. During translation to show the output of each phase.	10	CO3	L2,L3	1.4.1

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DEPARTMENT OF .....CST.....

"T3 Examination, November- December -2021"

SEMESTER	**7TH**	**DATE OF EXAM**	**08.12.2021**
SUBJECT NAME	**Information Retrieval**	**SUBJECT CODE**	**CSH 414B-T**
BRANCH	**CSE/CSHL/CTE/ME**	**SESSION**	**I**
TIME	**3 hrs**	**MAX. MARKS**	**100**
PROGRAM	**B tech**	**CREDITS**	**5**
NAME OF FACULTY	**Priyanka Gupta, Meena, Agha Imran, Sanjay Kumar**	**NAME OF COURSE COORDINATOR**	**Priyanka Gupta**

Note: All questions are compulsory.

Part A

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
	Q 1(a)	Create a semantic net to represent the objects and relations stated in the sentence: • Charlie is the bird. • Bird can Fly • Charlie is green in color	5	CO1	BT2	2.2.4
	Q 1(b)	Design a frame representation for 1. "Pikachu is a yellow bird having wings to fly" 2. "Riya Sharma is a professor who teaches computer in Manav Rachna University"	5	CO1	BT2	2.4.1
	Q1(c)	Consider the following axioms: • Sohani likes all kind of food. • banana and Cucumber are food • Anything anyone eats and not killed is food. • Ayush eats peanuts and still alive • Amit eats everything that Ayush eats. Prove by resolution that: • Sohani likes peanuts. Show all the Steps of resolution • Conversion of facts into first-order logic. • Convert FOL statements into CNF • Negate the statement which needs to prove (proof by contradiction)	10	CO2	BT2	2.4.1

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		• Draw resolution graph (unification).				
Part B	Q2(a)	What is an inversion in the indexing process and how is it employed in the Blocked sort-based indexing process?	10	CO3	BT3	2.4.3
	Q2(b)	Explain the Heap's Law for Estimating the Number of Terms, along with the mathematical model that behind it.	10	CO3	BT3	2.3.2
	Q3(a)	With an example, explain the difference between dictionary compression and postings file compression.	10	CO3	BT3	2.3.2
	Q3(b)	Talk about how Zipf's Law can be used to model the distribution of words. Is there any other application where this law can be applied?	10	CO3	BT2	2.2.3
	Q4(a)	What is a language model, and how does it work? Create a one-state finite automaton that may be used as a model for the unigram language.	10	CO4	BT3	2.4.1
	Q4(b)	With the help of an example, distinguish between Flat Clustering and Hierarchical Clustering.	10	CO4	BT2	2.2.3
	Q5(a)	Explain the hypothesis used in vector space model for classification. How document are represented Using Naïve Bayes	10	CO4	BT2	2.2.3
	Q5(b)	Assume that the document collection comprises the following two documents: ➢ d1: Xyzzy reports a profit but revenue is down ➢ d2: Quorus narrows quarter loss but revenue decreases further The model will be MLE unigram models from the documents and collection, mixed with $\lambda = 1/2$. Suppose the query is revenue down. Then: find 1. P(q|d1) 2. P(q|d2) 3. What is the final result?	10	CO4	BT3	4.2.1

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DEPARTMENT OF COMPUTER ENGINEERING

"T3 Examination, Dec-2021"

SEMESTER	VII	DATE OF EXAM	9/12/2021
SUBJECT NAME	Big Data	SUBJECT CODE	CSH402B-T
BRANCH	CSE / DSML	SESSION	I
TIME	9.00 AM - 12.00 Noon	MAX. MARKS	100
PROGRAM	B.Tech	CREDITS	4
NAME OF FACULTY	Dr. Parneeta Dhaliwal	NAME OF COURSE COORDINATOR	Dr. Parneeta Dhaliwal

Please go through the following instructions before the start of the exam:

a. All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Briefly discuss the various compression formats in Hadoop.	3	CO2	BT4	5.2.2
	1(B)	Explore what is Erasure Coding in HDFS, and why this feature is introduced in Hadoop 3.0	3	CO1	BT1	1.4.1
	1(C)	What is the need for Disk Balancer in Hadoop HDFS ?	2	CO4	BT3	5.2.2
	1(D)	Explain NameNode and DataNode in HDFS?	2	CO1	BT2	5.2.1
	1(E)	Which is better between Hadoop 2 and Hadoop 3?	3	CO2	BT1	5.1.1
	1(F)	A single database engine is inefficient and insufficient for all data searches. Discuss.	2	CO3	BT3	5.1.1
PART-B	Q2(A)	What is Apache Zookeeper Meant For?	5	CO4	BT4	5.3.1
	2(B)	MapReduce on YARN Job Execution.	5	CO2	BT3	5.1

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	Discuss.				.1
Q3(A)	Explain the way to execute Apache Pig scripts.	3	CO3	BT4	5.3.1
3(B)	List 4 Hbase Commands in each category: a)DDL b)DML	8	CO2	BT2	5.1.1
3(C)	How is Big Data Different? Discuss the various Issues being faced by Big Data Applications.	4	CO1	BT2	5.1.1
Q4(A)	How does Hadoop Ecosystem work?	5	CO4	BT1	5.1.2
4(B)	Discuss any two tools for building Data Visualization Dashboards in Big Data Stack.	10	CO4	BT4	5.2.2
Q5	Write short notes on any 3 of the following: 1)Structure of Big Data 2) Amazon DynamoDB 3) Hadoop Framework Tools 4) Workflow Orchestration in Hadoop	15	CO4,CO2	BT1	5.2.1
Q6(A)	**Empirically explain the architecture of Hive.**	7	CO2	BT1	5.2.1
Q6(B)	Briefly discuss the Journey of Analytics.	8	CO3	BT1,BT3, BT4	5.3.2, 5.2.1
Q7	Differentiate between the following (Any 3): 1) Performance of NoSQL Databases 2) NoSQL and SQL 3) Hive Hadoop Workflow 4) BI and Big Data	15	CO4	BT2	5.1.1

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DEPARTMENT OF COMPUTER ENGINEERING

"T3 Examination, Dec-2021"

SEMESTER	7th	DATE OF EXAM	09/12/2021
SUBJECT NAME	Progressive Web App	SUBJECT CODE	CSH401B-T
BRANCH	CSE	SESSION	Morning
TIME	09.00AM-12.00NOON	MAX. MARKS	100
PROGRAM	B.Tech	CREDITS	4
NAME OF FACULTY	Ankur Kumar Aggarwal	NAME OF COURSE COORDINATOR	Ankur Kumar Aggarwal

Note: All questions are compulsory.
Question 1 is of short answer type and Question 2 & 3 is of descriptive type write only required code snippet were ever asked in question.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What is Service worker in PWA? Explain how the Service worker helps the developer to improve the performance of application for user?	5	CO1	BT1	1.3.1
	1(B)	Write code snippet to explain the lifecycle of Service worker for registration, installation and activation stages.	5	CO3	BT2	3.2.1
	1(C)	Differentiate all the strategies which can be used to serve the files from the cache with the example code snippet.	5	CO2	BT4	2.2.4
	1(D)	Write a JavaScript code to read response of an animal.json file using Fetch api, also handle the error and display of JSON content.	5	CO4	BT4	3.1.2
	1(E)	What are the benefit of using CORS over XMLHttpRequest and JSONP?	5	CO3	BT3	3.3.1

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PART-B	Q2(A)	Explain with code to create and use IndexDB to perform opening and creating object stores. Give example of CRUD operation in IndexDB with code snippets.	5+10	CO3	BT2	3.2.1
	2(B)	What all strategies are available to make a PWA application work offline and which of the strategy is best?	10+5	CO4	BT3	4.2.1
	Q3(A)	What are the different strategies that can be used to have responsive design and images in PWA applications?	15	CO5	BT5	4.3.4
	3(B)	How to implement Promise using simple way, chaining of promise and sync base promise, explain with example of each.	15	CO5	BT3	4.3.2
	3(C)	Explain Application shell with features and benefits. How PWA architecture helps in migration of simple application to PWA application? .	5+10	CO6	BT5	3.4.2

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"T3 Examination, Dec-2021"

SEMESTER	VIIth	DATE OF EXAM	09.12.2021
SUBJECT NAME	N/W SECURITY & CRYPTOGRAPHY	SUBJECT CODE	CSH312B-T
BRANCH	DSML, DTE	SESSION	Morning
TIME	09.00AM-12.00NOON	MAX. MARKS	100
PROGRAM	CSE	CREDITS	4
NAME OF FACULTY	Priyanka Gupta	NAME OF COURSE COORDINATOR	Priyanka Gupta

Note: Part A: All questions are compulsory. Questions will be of short answer type (Marks Given). Part B & C: Questions are descriptive type or numerical. For Each question Marks are given. Attempt any 4 questions from part B & C.

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What Are the Most Common Types of Cyber Attacks?	2	CO3	BT2	2.2.4
	1(B)	DDoS attacks can be segregated by which layer of the Open Systems Interconnection (OSI) model they attack	2	CO3	BT2	2.2.2
	1(C)	Write the names of four different types of firewalls.	2	CO3	BT2	2.2.2
	1(D)	Write the minimum two limitation of proxy firewalls	2	CO4	BT2	2.2.1
	1(E)	Distinguish the primary distinctions between DES and AES.	2	CO2	BT2	2.2.1
	1(F)	Discuss the concept electronic money	2	CO4	BT2	2.2.1
	1(G)	What is single sign-on?	2	CO4	BT2	2.2.1
	1(H)	Which algorithm is used to create a message digest?	2	CO3	BT1	2.2.1
	1(I)	How is message digest generated?	2	CO4	BT1	2.2.1

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	1(j)	Is Single sign-on (SSO) an authentication method that enables users to securely authenticate, If yes then justify your answer	2	CO4	BT1	2.3.1
PART-B	Q2(a)	how https is more secure than http explains?	5	CO2	BT2	2.2.1
	Q2(b)	what is cybercrime and discuss cybercrime that happened during this pandemic lockdown	15	CO4	BT3	4.2.1
	Q3(a)	How two factor authentication is secure then conventional authentication	10	CO4	BT3	2.2.1
	Q3(b)	Consider knapsack that weighs 23 that has been made from the weights of the super increasing series {1, 2, 4, 9, 20, and 38}. Find the Public Key, Private Key, 'binary code' and coded message.	10	CO2	BT3	4.2.1
PART-C	Q4	VPNs and firewalls are two of the most important tools used to keep your computer safe, though they work differently. Explain there working in detail with the help diagram.	20	CO2	BT3	4.2.3
	Q5(a)	what are botnets why are they used in ddos attacks	10	CO4	BT3	2.2.1
	Q5(b)	What are the properties and feature of hash function	10	CO3	BT3	4.2.1
	Q6	COVID's inception transformed a paper-based culture into an entirely digital one. This transition resulted in increased productivity, electronic document tracking, and the ability to move more quickly through internal procedures. The government of ABC Country wishes to conduct this procedure entirely online. Is there a way to secure documents in the virtual mode? Whether it is a digital signature or the MD5 or SHA algorithms, which algorithm should be used to increase the safety of documents, or how do they contribute in protection? Explain any one of them in detail using a diagram and illustrate how that algorithm contributed to the above study.	20	CO5	BT4	4.2.1

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Name : _____

Roll No : _____

Class/Sec : _____

DEPARTMENT OF FOREIGN LANGUAGE

T3 Examination, December 2021"

Paper ID:.....

Semester: 3rd & 7th
Subject: Spanish - I
Time: 90 Minutes
Program: B.Tech / B.ed / Law / B.Sc / BBA
Invigilator Signature:

Date of Exam: 7/12/2021
Subject Code: FLS101
Max.Marks: 40 Session - I
Signature: HOD/Associate HOD: Meg

Note: All questions are compulsory.

Ques. 1 **Escribe diez líneas sobre ti mismo, tu familia, tu clase etcétera usando nombre/ adjetivo/ nacionalidad/ profesión/ edad etcétera.** **(8)**
Write 10 sentences about yourself, your family, your class etc. using name/adjective/nationality / profession/ age/ etc..)

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Ques. 2 Lee el texto y responde las preguntas. **(6)**
Read the text and respond to the questions.

¡Hola! ¡Buenas tardes! Me llamo Rahul, soy indio pero vivo en Francia con mis amigos. Yo tengo 34 años y soy profesor de matemáticas en la escuela Mi número de teléfono es 9393939. Tengo (I have) un amiga en Francia que se llama Eva. Ella es de China, es china, Eva tiene 20 años y es doctora. Tengo otros amigos que son jugadores, Ingenieros y profesores. Nosotros vivimos en una casa muy grande. Gracias, ¡chao!

a. ¿Es Rahul de Francia? Verdadero o falso- _____
b. ¿Cuántos años tiene la amiga de Rahul?
_____
c. ¿Cuál es la profesión de Eva?
_____
d. ¿Dónde vive Eva?
_____
e. ¿Cuáles las profesiónes de otros amigos de Raúl?
_____
f. Escribe el contrario (opposite) de grande. _____.

Ques.3 Completa las frases con adjetivo posesivo. **(4)**
Complete the phrases with adjective possessive.

e.g. (Ellas)_____ coche es pequeño. Su coche es pequeño.

a. (Yo) _____ casa es nueva.
b. (Nosotros) _____ universidad es grande.
c. (Usted) _____ ordenador es pequeño.
d. (Ellas) _____ televisión es vieja.
e. (Vosotras) _____ hijas son inteligentes.
f. (Ustedes) _____ libros son interesantes.
g. (Él) _____ profesora de español es simpática.
h. (Tú) _____ perro es muy activo.

Ques. 4 Traduce (translate):- **(6)**

Escribe en inglés o español. Write in English or Spanish.

a. Este es mi hermano, es australiano.
_____.
b. Hay 4 ventanas en la clase.
_____.

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c. Tengo clases de español los lunes, los miércoles y los domingos.

_____.

d. That book is blue and red.

_____.

e. Her cousin sister is a lawyer.

_____.

f. My father's car is black and grey

_____.

Ques. 5 Completa con la forma adecuada de los verbos. **(4)**
Complete with the appropriate form of AR, ER and IR ending verbs.

a. Ustedes _____(hablar) español.

b. Ella _____ (vivir) en España.

c. Vosotros _____ (leer) la conjugación.

d. Nosotros _____ (escribir) una carta.

e. Yo _____ (aprender) lingua extranjera.

f. Usted _____ (escuchar) canción.

g. Tú _____ (comer) hamburguesa.

h. Ellas _____(trabajar) en colegio.

Ques. 6 Escribe los números en español. **(4)**
Write numbers in Spanish.

a. 56-

b. 23-

c. 11

d. 100-

e. 57-

f. 93-

g. 16-

h. 44

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Ques. 7 Relaciona los meses, días y estaciones a inglés. (4)
Match months, days and seasons.

a. Invierno	October
b. Octubre	January
c. Miercoles	Autumn
d. Jueves	Winter
e. Otoño	Wednesday
f. Domingo	Spring
g. Primavera	Thursday
h. Enero	Sunday

Ques. 8 Elige la opción correcta: (4)
Choose the correct option

a.	i. Un coche	ii. Una coche	iii. Uno coche	iv. Unas coches
b.	i. Unas casos	ii. Unas casas	iii. Unos cacos	iv. Uno casa
c.	i. El perra	ii. La perro	iii. El perro	iv. El perros
d.	i. Las silas	ii. Las cilas	iii. Las sillas	iv. Los sillas
e.	i. La ordenador	ii. Las ordenadores	iii. Lo ordenadore	iv. El ordenador
f.	i. Una planta	ii. Un planta	iii. Las planta	iv. Los plantes
g.	i. Un madre	ii. Una madre	iii. Los madres	iv. El madre
h.	i. Unos niños	ii. Unas niños	iii. Los niño	iv. Las niños

Buena Suerte

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DEPARTMENT OF FOREIGN LANGUAGES
T3 EXAMINATION, DECEMBER 2021
Paper ID:……

Semester: 3rd & 7th
Subject: German - I
Time: 90 Minutes
Program: All
Invigilator Signature:

Date of Exam: 07/12/2021
Subject Code: FLS102
Max.Marks: 40 Session-I
Signature: HOD/Associate HOD:

Note: All questions are compulsory.

Roll number:_____ Name : _____

Class / Sec _____

I. Schreiben Sie das Datum auf Deutsch. **[5]**
(Write the date in German.)

a) 25.04 _____
b) 01.02 _____
c) 31.12 _____
d) 24.09 _____
e) 03.05 _____

II. Schreiben Sie richtig. **[5]**
(Frame the correct sentences.)

a) spielt - Er - gern - Tennis. _____
b) Ich - gehe - in das Theater - . _____
c) heißen - Sie - Maria – . _____
d) kommen - Woher - Sie - ? _____
e) spielen - Wir - jeden Tag - . _____

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III. **Schreiben Sie 5 Sätze über Ihr Lieblingshobby.** **[5]**
Write 5 sentences about your favourite hobby.

_____.

_____.

_____.

_____.

_____.

IV. **Konjugieren Sie die Verben.** **[5]**
Conjugate the verbs.

a) Ben _____ ins Theater. (gehen, geht, gehe)

b) Karin _____ mit meinem Hund. (spielen, spielt, spiele)

c) _____ ihr um 8.00 Uhr nach Italien? (fliegen, fliegt, fliege)

d) Wir _____ sehr gut Deutsch. (sprechen, sprichst, spricht)

e) _____ Anna und Mark „Secret of Life''? (lesen, lest, lese)

f) _____ du Taj Mahal? (sehen, siehst, sehe)

g) _____ Sie bei Microsoft, Herr Meier? (arbeitet, arbeiten, arbeite)

h) Ich _____ in Tokyo. (wohnen, wohne, wohnt)

i) Meine Mutter _____ 50 Jahre alt. (ist, seid, bin)

j) Er _____ Martin. (heiβt, heiβen, heiβe)

V. **Schreiben Sie den bestimmten Artikeln 'der', 'die' oder 'das'.**
Write the definite articles 'der', 'die' or 'das'. **[5]**

a) _____ Stift

b) _____ Sofa

c) _____ Stuhl

d) _____ Tasse

e) _____ Brille

f) _____ Computer

g) _____ Buch

h) _____ Kaffee

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i) _____ Bett

j) _____ Ventilator

VI. **Wie spät ist es? (Offizielle Zeit)**
What time is it? (Write in the official format) **[5]**

a) 04.00 Uhr _____

b) 5.10 Uhr _____

c) 12.45 Uhr _____

d) 15.00 Uhr _____

e) 7.33 Uhr _____

VII. **Übersetzen Sie ins Deutsch!**
Translate the given sentences into German! **[5]**

a) I play football.

_____.

b) She is a teacher.

_____.

c) He drinks coffee.

_____.

d) I speak English.

_____.

e) We belong to Delhi.

_____.

VIII. **Ergänzen Sie!**
Translate the given words accordingly! **[5]**

Englisch	Deutsch
Italy	
	Spanien

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Boxing	
Volleyball	
	Mittwoch
	Guten Tag
Winter	
	Herbst
January	
	Juli

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Name : _____

Roll No : _____

Class/ Sec : _____

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DEPARTMENT OF FOREIGN LANGUAGES
T3 EXAMINATION, December 2021
Paper ID:.....

Semester: 3rd & 7th
Subject: French - I
Time: 90 Minutes
Program: B.Tech / B.ed / Law / B.Sc / BBA
Invigilator Signature:

Date of Exam: 7/12/2021
Subject Code: FLS103
Max.Marks: 40 Session - I
Signature: HOD/Associate HOD:

Note: *All questions are compulsory.*

Section-A
(COMPRÉHENSION ÉCRITE)

I. Lisez le passage et répondez aux questions
(Read the passage and answer to the questions)

Aujourd'hui c'est le premier jour de l'école ! Les élèves de l'école sont contents. Voilà la petite Caroline dans le cours de français. Elle est anglaise. Elle a quatorze ans. Elle est très belle. Son(Her) amie de la classe c'est Martha, elle est belge et elle a treize ans. Elle est grande et aussi belle. Elle joue au badminton avec Caroline. Elles aiment beaucoup la France. Le garçon s'appelle Jean-Pierre. Il est français. Il a quinze ans. Il habite à Strasbourg en Alsace. Il est sympathique. Il donne des bonbons à Caroline et Martha. Il parle en anglais et en français avec elles. Les trois sont bons amis.

1. Dites vrai ou faux : **(3)**
(True or False)

a) Martha est japonaise. _____
b) Caroline a 14 ans. _____
c) Les filles jouent au tennis. _____
d) Martha donne les bonbons. _____
e) Caroline est jolie. _____
f) Jean-Pierre parle anglais et français avec les filles. _____

2. Répondez aux questions : **(2)**
(Answer to the questions)

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a) Où habite Jean-Pierre ?

_____

b) Quel âge a Martha ?

_____

Section B
Expression Écrite

II. **Présentez – vous (Present yourself)** **(5)**
Ou (Or)
Décrivez votre ami(e) (Describe your friend)

_____

_____

_____

_____

_____

_____

Section - C
Grammaire

III. **Complétez avec les articles définis** **(2.5)**
(Complete with definite articles)
(le /la/l'/les)

a) Ce sont _____ stylos de Pierre.
b) C'est _____ pupitre de cette classe.
c) _____ garçon est bon.
d) _____ hôtel est beau.
e) _____ femme est belle.

IV. **Complétez avec les articles indéfinis** **(2.5)**
(Complete with indefinite articles)
(un/une/des)

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a) C'est _____ crayon.
b) Ce sont _____ trousses.
c) C'est _____ cravate.
d) J'ai _____ pantalon.
e) Il a _____ livre.

V. Répondez aux questions : (2)
(Answer to the questions)

a) Quel est le sixième jour de la semaine?

_____

b) Quel est le mois entre septembre et décembre ?

_____

VI. Traduisez en français- (5)
(Translate in French)

a) Good evening! _____
b) She watches television. _____
c) Thank you very much! _____
d) See you tomorrow! _____
e) He lives in Paris. _____

VII. Complétez avec les verbes: (6)
(Complete with the verbs)

a) Vous _____ (aller) à Delhi.
b) Nous _____ (avoir) une maison.
c) Elle _____ (jouer) avec le chat.
d) Ils _____ (parler) français.
e) Tu _____ (chanter) bien.
f) Ce _____ (être) des gommes

VIII. Traduisez en francais:- (5)
(Translate in French)

a) It's beautiful! _____

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b) It's sunny! _____

c) It's cold! _____

d) It's hot! _____

e) It snows! _____

IX. Quelle heure est-il ? (2)
(What time is it ?)

a) 8 : 25

_____

b) 5 : 45

_____

Section-D
Culture and Civilisation

X. Complétez les phrases : (5)
(Complete the sentences)

a) _____ est une ville française.
b) _____ est une fleuve française.
c) _____ est un fromage français.
d) _____ est une montagne française.
e) _____ est un vin français.

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DEPARTMENT OF ENGINEERING

"T3, December-2021"

SET-A

SEMESTER	**Fifth**	**DATE OF EXAM**	**09.12.2021**
SUBJECT NAME	**Cyber Laws**	**SUBJECT CODE**	**LWS323**
BRANCH	**Law**	**SESSION**	**II**
TIME	**01:00-02:30 PM**	**MAX. MARKS**	**40 marks**
PROGRAM	**B.Tech CSE/DSML/DTE**	**CREDITS**	**2.**
NAME OF FACULTY	**Ms. Simran Singh Ms. Nidhi Mr. Shivam**	**NAME OF COURSE COORDINATOR**	**Ms. Simran Singh Ms. Nidhi Mr. Shivam**

Note: All the questions are compulsory.

Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL
Q.1	Explain the purpose and objective of studying cyber law in 21st century.	10	C01	L2
Q.2	Why the right to 'freedom of speech and expression' has become a debatable issue in cyber space?	10	C02	L4
Q.3	What is cyber-crime? How do you classify different types of cyber-crimes? Briefly explain each.	10	C03	L4
Q.4	Briefly analyze the aims and objectives of the IT Act, 2000. Also, being a student in the area of technology, write down your suggestions which can be brought in by the Indian law-maker to enhance the cyber security in India.	10	C04	L5

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DEPARTMENT OF LAW

"T3 Examination, Dec-2021"

SEMESTER	**V**	**DATE OF EXAM**	9/12/2021
SUBJECT NAME	**LAW RELATING INTELLECTUAL PROPERTY RIGHTS**	**SUBJECT CODE**	**LWS325**
BRANCH	~~LAW~~ B.Tech : CSE/ECE/EE	**SESSION**	**2021-22 (II)**
TIME	**1.5 hrs**	**MAX. MARKS**	**50**
PROGRAM	**B.TECH/[redacted]**	**CREDITS**	**2**
NAME OF FACULTY	**AMIT KUMAR**	**NAME OF COURSE COORDINATOR**	**AMIT KUMAR** 2/12/2021

Part A - Attempt any ONE question.
Part B- Attempt any TWO questions.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL
PART-A	Q1	What do you understand by the term "intellectual property"? Mention different categories of "intellectual property" and also provide suitable examples for each category.	10	CO3	BT1
	Q2	Bring out the socio- economic importance of "intellectual property rights".	10	CO2	BT2
PART-B	Q3	Who is a "patent holder"? Explain the rights enjoyed by a "patent holder" and limitations on those rights?	20	CO2	BT4
	Q4	What is the objective behind granting 'patent'? List few merits and demerits of Patent system.	20	CO2	BT1
	Q5	Explain "trademark infringement". What remedy is available to the owner of trademark in case of infringement?	20	CO4	BT4
	Q6	Define 'Cyber crime'. What are the different ways by which 'cyber crime' is committed? Explain with the help of suitable example.	20	C03	BT4

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DEPARTMENT OF ELECTRONICS & COMMUNICATION

"T3 Examination, December-2021"

SEMESTER	**V**	**DATE OF EXAM**	**04/12/2021**
SUBJECT NAME	**DIGITAL ELECTRONICS & MICROCONTROLLERS**	**SUBJECT CODE**	**ECH308B-T**
BRANCH	**B.Tech CSE/DSML/DTE**	**SESSION**	**II**
TIME	**3 Hours**	**MAX. MARKS**	**100**
PROGRAM	**B.Tech.**	**CREDITS**	**4**
NAME OF FACULTY	**Vijay Kumar Gill**	**NAME OF COURSE COORDINATOR**	**Vijay Kumar Gill**

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Convert $(9B2.1A)_H$ to its decimal equivalent.	2	CO1, CO2	BT3	1.1.1, 1.3.1
	1(B)	Perform BCD addition of (125) and (376).	2	CO1, CO2	BT3	1.1.1, 1.3.1
	1(C)	Prove that $(x_1 + x_2)(\overline{x_1}\ \overline{x_3} + x_3)\overline{(\overline{x_2} + x_1x_3)} = (\overline{x_1}\ x_2)$	2	CO1, CO2	BT3	1.1.1, 1.3.1
	1(D)	Minimize the Boolean expression using K-map for SOP function. $F(A,B,C,D,E) = \sum m(0,1,9,15,24,29,30) + d(8,11,31)$	4	CO1, CO2	BT4	1.1.1, 1.3.1
PART-B	2(A)	Design a combinational logic circuit whose output is high only when majority of inputs (A, B, C) are high?	3	CO1, CO2	BT3	1.1.1, 1.3.1
	2(B)	Convert a JK Flip Flop to SR Flip Flop using characteristic and excitation table.	7	CO3	BT3	1.1.1, 1.3.1
PART-C	Q3(A	Design and explain 3 bit R-2 R ladder type Digital to Analog Convertor and calculate the output voltage for a 6 bit ladder DAC if a digital input of 101001 is applied. ($V_{MAX} = 10\ Volts$)	10	CO3	BT4	1.1.1, 1.3.1
	Q3(B)	Design and Explain the working of a 3- Bit Bidirectional Register using the JK Flip Flop	10	CO3	BT4	1.1.1, 1.3.1

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	Q4(A)	Design MOD 7 synchronous counter using JK Flip Flop and implement it. Also construct a timing diagram.	10	CO3	BT4	1.1.1, 1.3.1
	Q4(B)	Design and explain the working of 4 Bit Ripple UP counter with the help of waveform diagram	10	CO3	BT3	1.1.1, 1.3.1
PART-D	Q5(A)	Describe the architecture of 8051 microcontroller with the help of neat diagram.	8	CO4	BT2	1.1.1, 1.3.1
	Q5(B)	Write an assembly language program of 8051 microcontroller to find the sum of 10 numbers stored in an array. Draw the flow chart to specify the steps of the design flow.	7	CO4	BT3	1.1.1, 1.3.1
	Q6(A)	Explain the following instructions giving proper format and example of each i) DAA ii) SWAP iii) CALL & RET iv) PUSH & POP	8	CO4	BT2	1.1.1, 1.3.1
	Q6(B)	What value do we need to load the timer's register if we want to have a time delay of 5 milliseconds? Show the program for timer 0 to create pulse width of 5 milliseconds on P2.3. (Assume that XTAL = 11.0592 MHz)	7	CO4	BT3	1.1.1, 1.3.1
	Q7(A)	Write an assembly language program for the 8051 to transfer "ABCD" serially at 9600 baud, 8-bit data, 1 stop bit, do this continuously.	5	CO4	BT3	1.1.1, 1.3.1
	Q7(B)	Define and explain the addressing modes of 8051 microcontroller.	5	CO4	BT2	1.1.1, 1.3.1

********** END **********

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