Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-105	**Subject Title**	Python Programming
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	HarpreetKaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	20/3/2022	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	What is platform independence in python?	CO1, L1	2
Q2	What are the Mutable data types in python?	CO2, L2	2
Q3	Write a program to explain the concept of isdecimal(), isdigit() and isnumeric() string function.	CO3, L3	4
Q4	Write a program to accept a number from a user and calculate the product of all the digits of the given number.(e.g. if n=56, Output= 30)	CO2, L4	4
Q5	Why Python is becoming popular day by day? Compare it with other programming languages.	CO4, L5	4
Q6	1) Write short note on Operator Precedence vs. Operator Associativity 2) How to Read and Write into a Text file in Python	CO3, L6	8(4+4)

Course Outcomes (CO)

Students will be able to

1	Use primitive data types, operators and control statements to write programs
2	Discuss methods and arrays along-with basic object oriented principles.
3	Implement Exception handling, multithreading, string handling, event handling, packages and interfaces
4	Create an event handling techniques for interaction of the user with a GUI.
5	Design client/server applications using socket programming and database connectivity.
6	Identify and solve complex problems in the environment of Java programming.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-105	**Subject Title**	Python Programming
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	HarpreetKaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	20/3/2022	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	What is platform independence in python?	CO1, L1	2
Q2	What are the immutable data types in python?	CO2, L2	2
Q3	Write a program to explain the concept of index() and find() string function.	CO3, L3	4
Q4	Write a program to accept a number from a user and calculate the sum of all numbers from 1 to the given number.	CO2, L4	4
Q5	Why Python is becoming popular day by day? Compare it with other programming languages.	CO4, L5	4
Q6	1) Write short note on Operator Precedence vs. Operator Associativity 2) How to Read and Write into a Text files in Python	CO3, L6	8(4+4)

Course Outcomes (CO) *Students will be able to*	
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Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-105	**Subject Title**	Python Programming
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Harpreet Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	20/3/2022	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	What is difference between count() and length() function in List?	CO1, L1	2
Q2	Output? List = ['a', 'b', 'c', 'd',' D'] List.sort(reverse=True) print(List)	CO2, L2	2
Q3	Write a program to find LCM of two numbers using function.	CO3, L3	4
Q4	Write a program using function to multiply all the numbers in a list. *Sample List* : [8, 2, 3, -1, 7] *Expected Output* : -336	CO2, L4	4
Q5	Write short note on following with suitable synatx: a) Constructor in Python b) Multilevel inheritance	CO4, L5	4
Q6	Design GUI using Tkinter to order a Pizza from Domino's. Choose data and widgets accordingly.	CO3, L6	8

Course Outcomes (CO)
Students will be able to

1	Use primitive data types, operators and control statements to write programs
2	Discuss methods and arrays along-with basic object oriented principles.
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RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

a C b a D

Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

MORNING

16 JUN 2023

Program: B.Tech. (Batch 2018 onward)
Semester: 4
Name of Subject: Python Programming
Subject Code: PCIT-105
Paper ID: 16234.

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part C has Two Questions Q8 and Q9. Both are compulsory but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) What are the advantages of using Python as a programming language?

b) What is the purpose of setting up path and environment variables for Python?

c) Explain the difference between a string and a numeric data type in Python.

d) How can syntax errors be detected and corrected in Python?

e) What is the purpose of a command button in a graphical user interface (GUI)?

f) What is the difference between a class and an object in Python?

Part – B **[Marks: 04 each]**

Q2. Elaborate on the difference between a list and a dictionary in Python. Discuss their respective characteristics, use cases, and how they are accessed and manipulated in Python.

Q3. Write a Python code to calculate income tax based on the user's input.

Q4. What are the different types of loops and selection statements available in Python?

Q5. Write a Python program to approximate the square root of a given number using a while loop.

Q6. Explain the concept of recursive functions in Python and provide an example that demonstrates their usage. Discuss the key elements required for designing recursive functions and highlight the importance of defining base cases.

Q7. How to analyze a given text file and perform a text analysis using Python.

Part – C **[Marks: 12 each]**

Q8. Discuss the importance and applications of loops and selection statements in programming. Explain the differences between definite iteration and conditional iteration using suitable examples. Furthermore, explain how loops and selection statements can be used in conjunction with strings and text file manipulation, highlighting their significance in real-world scenarios. Provide code snippets to support your explanations.

OR

Imagine you are designing a task management application in Python. Discuss the design considerations and implementation strategies for efficiently storing and managing tasks using lists, dictionaries, functions, and classes. Explain how you would design and implement a function that adds new tasks to the task list, a function that sorts and displays tasks based on priority, and a class that represents a task with various attributes and methods. Provide code snippets and examples to support your explanations

Q9. Design a graphical user interface (GUI) program in Python that allows users to input a series of numbers and calculate their average. The program should include windows, input fields, and buttons for user interaction. Discuss the steps involved in designing and implementing this GUI program, including the use of instance variables, event handling, and data validation. Provide a detailed explanation of the code and highlight the key features and functionalities of the program.

OR

Design a program in Python to accomplish the following tasks:

i. Read a text file containing a paragraph of text.
ii. Implement a loop to iterate over each word in the paragraph to count the occurrences of each unique word and store the word count in a dictionary.
iii. Use selection statements to filter out common words and exclude them from the word count.
iv. Write the updated word count dictionary to a new text file, with each word and its count on a separate line.

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Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4
Name of Subject: Python Programming
Subject Code: PCIT-105
Paper ID: 16234

Time Allowed: 03 Hours EVENING 12 JAN 2023 **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Suppose your script attempts to print the value of a variable that has not yet been assigned a value. How does the Python interpreter react?

b) Discuss four string manipulation methods.

c) In Python, what is the distinction between a list and a tuple?

d) In what way is a recursive design different from a top-down design?

e) What is object instantiation? What are the options at the programmer's disposal during this process?

f) Describe two fundamental differences between terminal-based user interfaces and GUIs.

Part – B **[Marks: 04 each]**

Q2. Assume that the variable data refers to the list [5, 3, 7]. Write the values of the following expressions:

a. data [2]	b. data [-1]	c. len (data)	d. data [0:2]	e. 0 in data	f. data + [2, 10, 5]

Q3. Write a while loop in python that computes the factorial of a given integer N.

Q4. A student complains that defining functions to use in his programs is a lot of extra work. He says he can finish her programs much more quickly if he just writes them using the basic operators and control statements. State three reasons why his views is shortsighted.

Q5. Why is it a good idea to write and test the code for laying out a window's components before you add the methods that perform computations in response to events.

Q6. Class B extends class A. Class B defines an __str__ method that returns the string representation of its instance variables. Class B defines a single instance variable named age, which is an integer. Write the code to define the __str__ method for class B. This method should return the combined string information from both classes. Label the data for age with the string "Age: ".

Q7. What are the different ways to generate random numbers in Python? With Example

Part – C **[Marks: 12 each]**

Q8. Elaborate various operators available in Python with proper code. EVENING

12 JAN 2023

OR

Write a GUI-based program that allows the user to convert temperature values between degrees Fahrenheit and degrees Celsius. The interface should have labelled entry fields for these two values. These components should be arranged in a grid where the labels occupy the first row and the corresponding fields occupy the second row. At start-up, the Fahrenheit field should contain 32.0, and the Celsius field should contain 0.0. The third row in the window contains two command buttons, labeled >>>> and <<<<. When the user presses the first button, the program should use the data in the Fahrenheit field to compute the Celsius value, which should then be output to the Celsius field. The second button should perform the inverse function.

Q9. Write a script named dif.py. This script should prompt the user for the names of two text files and compare the contents of the two files to see if they are the same. If they are, the script should simply output "Yes". If they are not, the script should output "No", followed by the first lines of each file that differ from each other. The input loop should read and compare lines from each file. The loop should break as soon as a pair of different lines is found.

OR

Define and test a function myRange. This function should behave like Python's standard range function, with the required and optional arguments, but it should return a list. Do not use the range function in your implementation

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Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 04
Name of Subject: Python Programming
Subject Code: PCIT-105
Paper ID: 16234
Scientific calculator is NotAllowed

Detail of allowed codes/charts/tables etc. **NIL**

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) What are the features of python?

b) Write a Python program that prints (displays) your name, address, and telephone number.

c) Explain the relationship between a function and its arguments.

d) What happens when the print function prints a string literal with embedded newline characters?

e) How can you open a file in python?

f) When would you make a data field read-only, and how would you do this?

Part – B **[Marks: 04 each]**

Q2. With a suitable program, elaborate compilation and linking process in python.

Q3. Write a program to print the multiplication table of a given number entered by the user.

Q4. Write a program to accept a number from 1 to 12 and display the name of the month and days in that month like 1 for January and the number of days 31 and so on.

Q5. Write a Python program to search a specific part of a string for a substring.

Q6. What roles do the parameters and the return statement play in a function definition?

Q7. What are the benefits of inheritance? Create a child class ***Bus*** that will inherit all of the variables and methods of the ***Vehicle*** class.

Part – C **[Marks: 12 each]**

Q8. Elaborate the concept of Dictionaries in python. How will you add and access elements to a Dictionary? Write a Python program to concatenate the following dictionaries to create a new one.

Sample Dictionary :

dic1={1:10, 2:20}

dic2={3:30, 4:40}

dic3={5:50,6:60}

Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}

OR

What is meant by the state of an object, and how does the programmer access and manipulate it? Explain the differences between instance variables and temporary variables. Focus on their visibility in a class definition, and on their roles in managing data for an object of that class.

Q9. Write a Python program that accepts a string and calculate the number of digits and letters.

Sample Data*: Python 3.2*

Expected Output *:*

Letters 6

Digits 2

OR

Define what is a class? How to create a class? Define what is a method, how to do object instantiation? Describe how to create instance attributes in Python. Also elaborate structure of basic python program.

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MORNING

20 SEP 2022

Please check that this question paper contains_____ questions and _____ printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4
Name of Subject: Python Programming
Subject Code: PCIT-105
Paper ID: 16234

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) What is slicing in Python? Explain with example.

b) Why is the "pass" keyword used for in Python?

c) What are iterators in Python?

d) How do you write comments in python?

e) What is the scope of a variable? Give an example.

f) Why do we use join() function in Python?

Part – B **[Marks: 04 each]**

Q2. What is the difference between list and tuple?

Q3. How are classes created in Python? Explain with coding example.

Q4. Describe the costs and benefits of defining and using a recursive function.

Q5. What is the usage of help() and dir() function in Python? Give progarming example.

Q6. Assume that a file contains integers separated by newlines. Write a code segment that opens the file and prints the average value of the integers.

Q7. Write a program that computes and prints the average of the numbers in a text file. You should make use of two higher-order functions to simplify the design.

P.T.O.

Part – C **[Marks: 12 each]**

Q8. Describe the basic phases of software development : analysis, design, coding, and testing with example.

OR

Explain the Loops and Selection Statements used in Python with coding examples.

Q9. Write a Python program using classes and objects to simulate result preparation system for 20 students. The data available for each student includes: Name, Rollno, and Marks in 3 subjects. The percentage marks and grade are to be calculated from the following information:

Marks Precentage	**Grade**
80 to 100	A
60 to 80	B
45 to 60	C
Less than 45	D

OR

Write a program that allows the user to obtain information about the file system. You must follow the software development process.

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Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech (IT)	**Semester**	4th
Subject Code	PCIT-108	**Subject Title**	Computer Architecture and Microprocessor
MST No	2	**Course Coordinator(s)**	Dr. Amit Kamra / Er. Gitanjali
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	22nd May 2023	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Explain how the parallel processing improves the performance of multiprocessing environment.	CO4, L2	2
Q2	Support the statement "The use of microprocessor makes daily life easier" with the help of real time applications.	CO6, L5	2
Q3	a) Illustrate the need and significance of memory hierarchy. b) Discuss the main objective of multiprocessor.	CO1, L3 CO1, L2	4
Q4	a) Calculate the total number of cells in 64 Kb*8 memory chip. b) How many 256MB memory chips are required to build the memory capacity of 4GB RAM?	CO3, L3 CO1, L5	4
Q5	Differentiate a) Microprocessor and microcontroller b) Virtual Memory and Cache Memory	CO6, L4 CO1, L4	4
Q6	Draw the pin diagram of 8051 microcontroller and explain the functionality of each pin.	CO6, L6	8

Course Outcomes (CO)

Students will be able to

1	Identify computer systems, memory organization, Microprocessor and assembly language programming.
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes.
3	Solve basic binary math operations by using the instructions of microprocessor.
4	Compare between pipelining and parallelism.
5	Design structured, well commented, understandable assembly language programs to provide solutions to real world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana
Department of Information Technology

Program	B.Tech (IT)	**Semester**	4th
Subject Code	PCIT-108	**Subject Title**	Computer Architecture and Microprocessor
MST No	2	**Course Coordinator(s)**	Dr. Amit Kamra / Er. Gitanjali
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	22nd May 2023	**Roll Number**	

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RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech. (IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Microprocessors
MST No.	1	**Course Coordinator(s)**	Dr. Amit Kamra / Er. Gitanjali
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24 March 2023	**Roll Number**	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Ma
Q1	Demonstrate the execution of the following instructions (i) LDA addr ii) ADC r ii)CMA iii) PUSH rp.	CO3, L3	2
Q2	Differentiate microprocessor and microcontroller.	CO1,L4	2
Q3	Discuss the different ways in which the location of the operand is specified in an instruction of Intel 8085? Explain them with the help of examples.	CO2,L2	4
Q4	Describe the different steps of instruction cycle with the help of flow chart.	CO1,L2	
Q5	Write an assembly language program to add two 8-bit numbers without the carry.	CO5,L6	
Q6	Draw and explain the architecture of the 8085 microprocessor.	CO1,L6	

Course Outcomes (CO) *Students will be able to:*

	Identify computer systems, memory organization, Microprocessor and assembly language programming
	Clarify instruction formats, RISC and CISC architecture and different addressing modes
	Solve basic binary math operations by using the instructions of microprocessor
	Compare between pipelining and parallelism
	Design structured, well commented, understandable assembly language programs to provide solutions to world problems
	Classify the trends and developments of microprocessor technology

RBT ification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HO**		
Level	L1	L2	L3	L4	L5	L
		ling	Applying	Analyzing	Evaluating	Cre

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech. (IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Mic
MST No.	1	**Course Coordinator(s)**	Dr. Amit Kamra / Er. Gitanjal
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24 March 2023	**Roll Number**	2104551

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level
Q1	Demonstrate the execution of the following instructions (i) LDA addr ii) ADC r ii)CMA iii) PUSH rp.	CO3, L3
Q2	Differentiate microprocessor and microcontroller.	CO1,L4
Q3	Discuss the different ways in which the location of the operand is specified in an instruction of Intel 8085? Explain them with the help of examples.	CO2,L2
Q4	Describe the different steps of instruction cycle with the help of flow chart.	CO1,L2
Q5	Write an assembly language program to add two 8-bit numbers without the carry.	CO5,L6
Q6	Draw and explain the architecture of the 8085 microprocessor.	CO1,L6

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RBT Level No.	L1	L2	L3	L4	L5	L
RBT Level	Remembering	Understanding	Applying	Analyzing	Evaluating	Crea

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Microprocessors
MST No.	1	**Course Coordinator(s)**	Er. Yadvir Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	25 March 2022	**Roll Number**	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	What is the main purpose of assembly language? What are the advantages of assembly language over machine language?	CO1, L1	2
Q2	Convert the following numerical arithmetic expression into reverse Polish notation and show the stack operations for evaluating the numerical result. (((3+4) * 10 + 2) * 8 + 6) * 4	CO1, L3	2
Q3	A computer register T of 8-bits is having hexadecimal 72 as its initial value. What will be the values of status bits C, S, Z, and V after substracting the immediate operand hexadecimal C9 from T.	CO1, L5	4
Q4	What are Addressing Modes. An instruction is stored at location 400 with its address field at location 401. The address field has the value 500. A processor register R contains the number 100. Evaluate the effective address if the addressing mode of the instruction is (a) direct; (b) immediate; (c) relative; (d) register indirect (e) index with R as the index register.	CO2, L5	4
Q5	Write 1-address and zero address instructions for: (A*B)+(C*D)+ (E*F).	CO2, L5	4
Q6	If the value of R flip flop is 1, this means that control will go through an interrupt cycle. In such cases, explicate the sequence of micro-operations that would occur. Also draw the Flowchart for Interrupt Cycle.	CO1, L2	8

Course Outcomes (CO) *Students will be able to:*

1	Identify computer systems, memory organization, Microprocessor and assembly language programming
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3	Solve basic binary math operations by using the instructions of microprocessor
4	Compare between pipelining and parallelism
5	Design structured, well commented, understandable assembly language programs to provide solutions to real-world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Microprocessors
MST No.	2	**Course Coordinator(s)**	Er. Yadvir Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	30th May, 2022	**Roll Number**	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	What do you understand by Cache coherence Problem? Give an example.	CO1, L1	2
Q2	Discuss the difference between tightly coupled and loosely coupled multiprocessors.	CO1, L3	2
Q3	A non-pipeline system takes 50ns to process a task. The same task can be processed in a six-segment pipeline with a clock cycle of 10ns. Calculate the speedup of the pipeline for 10 tasks and again for 100 tasks. What Is the maximum speedup that can be achieved?	CO4, L5	4
Q4	What is the need and significance of memory hierarchy? Also illustrate the memory hierarchy in order of their features with their comparative analysis	CO1, L5	4
Q5	Explain with the help of block diagram architecture of 8051.	CO6, L5	4
Q6	What is the need of cache memory? Explain different types of cache mapping using diagrams.	CO1, L2	8

Course Outcomes (CO) *Students will be able to:*

1	Identify computer systems, memory organization, Microprocessor and assembly language programming
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes
3	Solve basic binary math operations by using the instructions of microprocessor
4	Compare between pipelining and parallelism
5	Design structured, well commented, understandable assembly language programs to provide solutions to real-world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

16 - 3.33
100 4.76

6

MORNING

[Total No. of Questions: 09]
Uni. Roll No. .....

[Total No. of Pages: 02] 22 SEP 2022

Program: B.Tech. (Batch 2018)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessor
Subject Code: PCIT-108
Paper ID: 16237

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1. Parts A and B are compulsory
2. Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3. Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

1.

a. What is an instruction code?

b. Explain the role of control unit in memory.

c. Define pipelining with suitable example.

d. Differentiate software and hardware interrupt.

e. Mention what are the basic components of a Microprocessor.

f. Determine the number of clock cycles that it takes to process 200 tasks in a 6-segment pipeline.

Part – B **[Marks: 04 each]**

2. Differentiate Direct Addressing and Indirect Addressing.

3. Illustrate applications of Microprocessor.

4. Compare Hardwired and Microprogrammed Control Unit.

5. Explain Status bit Register conditions in detail.

6. Non pipelined system takes 130ns to process an instruction. A program of 1000 instructions is executed in non-pipelined system. Then same program is processed with processor with 5 segment pipelines with clock cycle of 30 ns/stage. Determine speed up ratio of pipeline.

7. Explain Reduced Instruction Set Computer (RISC) and Complex Instruction Set Computer (CISC).

P.T.O.

Part – C **[Marks: 12 each]**

8. Explain different types of mapping processes

OR

Draw and explain microcontroller- 8051 architecture.

9. Explain various Addressing modes with suitable example of each.

OR

Demonstrate the flowchart of Instruction Pipeline.

****

MORNING

27 JUN 2023

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessors
Subject Code: PCIT-108
Paper ID: 16237

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1. Parts A and B are compulsory
2. Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3. Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a. Compare microcontroller with microprocessor.

b. How many 128 Kb RAM chips are required to build 1Mb RAM?

c. Differentiate direct and indirect address instructions.

d. Elaborate LDA AC and Store AC instructions with syntax.

e. Compare and contrast RISC and CISC architecture.

f. Write 1-address and zero address instruction for the given expression (A+B)*(C+D).

Part – B [Marks: 04 each]

Q2. Compare different types of instruction formats.

Q3. Write a short note on High-End-High- Performance Processors.

Q4. What is the need and significance of memory hierarchy? Also illustrate the memory hierarchy in order of their comparative analysis.

Q5. Illustrate Inter processor Communication in a shared multiprocessor environment.

Q6. If the value of R flip flop is 1, this means that the control will go through and an interrupt cycle. In such cases explicate the sequence of micro-operations that would occur. Draw the flow chart for interrupt cycle.

Q7. With the help of pin diagram, elaborate the functionality of each pin of 8051 microcontroller.

P.T.O.

MORNING

27 JUN 2023

Part – C **[Marks: 12 each]**

Q8. Define microprocessor. Explain with the help of block diagram architecture of 8085 microprocessor in detail.

OR

Consider a pipeline having 4 phases with duration 60, 50, 90 and 80 ns. Given latch delay is 10 ns. Calculate-

1. Pipeline cycle time
2. Non-pipeline execution time
3. Speed up ratio
4. Pipeline time for 1000 tasks
5. Sequential time for 1000 tasks
6. Throughput

Q9.a) Write a program to perform subtraction operation for two 8-bit numbers.

b) Write a program to find 1's complement of 8-bit number.

OR

Elaborate the different types of addressing modes with help of examples.

****

MORNING

05 OCT 2023

Please check that this question paper contains_ 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09]
Uni. Roll No. .....

[Total No. of Pages: 02]

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessors
Subject Code: PCIT-108
Paper ID: 16237

Detail of allowed codes/charts/tables etc. Nil
Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Distinguish between register and memory.
b) How many bits are required for 4096 words of memory?
c) Point out the purpose of program counter.
d) What do you meant by cycle stealing mode in DMA.
e) List the advantages of assembly language.
f) Write the meaning of LDA and LXI instructions.

Part – B **[Marks: 04 each]**

Q2. What is the need of control unit in computer? Draw the control unit of a basic computer. Discuss how fetch and decode phases are carried out.

Q3. Write a program to exchange the data at 5000M and 6000M locations.

Q4. Elaborate the various types of flag registers in 8085.

Q5. Specify the applications of microprocessor in household, consumer/electronics and in medical sciences.

Q6. Discuss the various types of interrupts in 8085 with an example of each.

Q7. How parallel processing works? Discuss the various types of parallel processors.

Part – C **[Marks: 12 each]**

Q8. Discuss the architecture of 8085 with the help of labelled diagram.

OR

Write the meaning and explanation of following instructions a) SIM b) CMP c) XRI d) JC e) STA

Q9. Write an assembly language program to find maximum of two 8 bit numbers in 8085 microprocessor.

OR

Write an assembly language program to swap two 8-bit numbers stored in an 8085 microprocessor.

****

EVENING

20 JAN 2023

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessor
Subject Code: PCIT-108
Paper ID: 16237

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1. Parts A and B are compulsory
2. Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3. Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a. Compare operation code and operand with suitable example.

b. Determine the number of clock cycles that it takes to process 300 tasks in a 6-segment pipeline.

c. Differentiate software and hardware interrupt.

d. Elaborate MOV and MVI instructions with suitable example of both.

e. Define Embedded Systems.

f. What do you mean by Cache Coherence?

Part B **[Marks: 04 each]**

Q2. Compare 1-byte, 2-byte and 3-byte instructions.

Q3. Write an assembly language program to swap two numbers.

Q4. Differentiate Hardwired and Microprogrammed Control Unit

Q5. Elaborate the different phases of Instruction Cycle.

Q6. Explain Auxiliary Memory and its devices.

Q7. Discuss the various Memory Reference Instructions.

P.T.O.

Part – C **[Marks: 12 each]**

Q8. Explain how RISC and CISC architectures differ. Describe some major characteristics of RISC architecture.

OR

What is micro controller? Discuss the architecture of 8051 microcontroller.

Q9. Explain various Addressing modes with suitable example of each.

OR

Consider a pipeline having 4 phases with duration 60, 50, 90 and 80 ns. Given latch delay is 10 ns. Calculate-

1. Pipeline cycle time
2. Non-pipeline execution time
3. Speed up ratio
4. Pipeline time for 1000 tasks
5. Sequential time for 1000 tasks
6. Throughput

****

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessors
Subject Code: PCIT-108
Paper ID: 16237

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Differentiate between register and memory.
b) What do you mean by cache coherence?
c) What do you understand by programmed I/O?
d) What is Interrupt?
e) How RISC is different from CISC?
f) How auxiliary memory is different from associative memory?

Part – B **[Marks: 04 each]**

Q2. Discuss the different characteristics of multiprocessors.

Q3. Elaborate the function of timing and control unit in a basic computer.

Q4. Briefly discuss the steps followed in designing a CPU.

Q5. How pipelining improves performance of a microprocessor?

Q6. What is the need of microprocessor? How microprocessor is different from microcontroller?

Q7. Evaluate the different phases of instruction cycle.

Part – C

[Marks: 12 each]

Q8. Question Write a short note on

a) Embedded System

b) Virtual Memory

OR

Explain the architecture of 8051 with the help of labelled diagram.

Q9. Write a program in assembly language to find larger of two 8 bit numbers stored at different memory locations.

OR

What is the difference between a direct and an indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register?

****

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No.

Program: B.Tech. (Batch 2018)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessors
Subject Code: PCIT-108
Paper ID: 16237

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1. Parts A and B are compulsory
2. Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3. Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a. Compare microcontroller with microprocessor.

b. How many 128 Kb RAM chips are required to build 1Mb RAM?

c. Differentiate direct and indirect address instructions.

d. Elaborate LDA AC and Store AC instructions with syntax.

e. Compare and contrast RISC and CISC architecture.

f. Write 1-address and zero address instruction for the given expression (A+B)*(C+D).

Part – B [Marks: 04 each]

Q2. Compare different types of instruction formats.

Q3. Write a short note on High-End-High- Performance Processors.

Q4. What is the need and significance of memory hierarchy? Also illustrate the memory hierarchy in order of their comparative analysis.

Q5. Illustrate Inter processor Communication in a shared multiprocessor environment.

Q6. If the value of R flip flop is 1, this means that the control will go through and an interrupt cycle. In such cases explicate the sequence of micro-operations that would occur. Draw the flow chart for interrupt cycle.

Q7. With the help of pin diagram, elaborate the functionality of each pin of 8051 microcontroller.

P.T.O.

Part – C

[Marks: 12 each]

Q8. Define microprocessor. Explain with the help of block diagram architecture of 8085 microprocessor in detail.

OR

Consider a pipeline having 4 phases with duration 60, 50, 90 and 80 ns. Given latch delay is 10 ns. Calculate-

1. Pipeline cycle time
2. Non-pipeline execution time
3. Speed up ratio
4. Pipeline time for 1000 tasks
5. Sequential time for 1000 tasks
6. Throughput

Q9.a) Write a program to perform subtraction operation for two 8-bit numbers.

b) Write a program to find 1's complement of 8-bit number.

OR

Elaborate the different types of addressing modes with help of examples.

****

QUESTION BANK OF COMPUTER ARCHITECTURE AND MICROPROCESSOR (CAM)

SECTION-B SYLLABUS

1) Differentiate between the basic architectures which microprocessor and microcontroller follows.
2) Elaborate the architecture of 8051 microcontroller with the help of block diagram.
3) With the help of pin diagram, elaborate the functionality of each pin of 8051 microcontroller.
4) What is the size of the internal memory in 8051 microcontroller? Can we interface external memory in microcontroller? If yes, what is its size?
5) How $\overline{PSEN}$ pin differs in functionality from $\overline{RD}/\overline{WR}$ pins of microcontroller?
6) State the function of ALE pin.
7) Differentiate between microprocessor and microcontroller.
8) List the features of 8051.
9) Show and explain the interfacing of stepper motor with 8085 microprocessor.
10) Draw the block diagram of the architecture of the 8051. Explain the function of each block.
11) Draw the circuit for interfacing external memory to 8051 and explain it.
12) Find the total number of cells in 64 Kb*8 memory chip?
13) Write a short note on
    a. Main Memory
    b. Auxiliary Memory
    c. Cache Memory
14) Differentiate between Virtual Memory and Cache Memory.
15) With the help of applications, State how the use of microprocessor makes daily life easier.
16) Elaborate the Basic structure of an Embedded system. Also state the advantages and disadvantages of the embedded system.
17) Write a short note on High-End-High-Performance Processors.
18) Brief about the characteristics of Multiprocessor.
19) Differentiate between multiprocessor and multicomputer.
20) Explain the memory Hierarchy with the help of diagram.
21) Write short note on
    a. ADC
    b. DAC
22) How many 128*8 memory chips are required for the memory capacity of 4096*16?
23) Write a short note on interfacing of 8051 to LCD.
24) What do uh understand by cache coherence Problem? Give an example.
25) State Word size with the help of an example.
26) How many 256MB RAM chips are required to build 4GB RAM?
27) Discuss the Memory Hierarchy in computer System with respect to Speed, Size and Cost?
28) Write about the Auxiliary memory devices.
29) Explain the mechanism involved in Magnetic Disks and Magnetic Tapes.
30) List out the importance for interfacing.
31) Explain Inter processor Communication in a shared multiprocessor Environment.

32) Explain in detail about
    a. Crossbar Switching
    b. Multistage Switching network
    c. Hypercube System
33) Explain how the parallel processing improves the performance of multiprocessing environment.
34) Classify the organization of computers using Flynn's Criteria.
35) Write about
    a. Time shared Common Bus
    b. Multiport Memory

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-107	**Subject Title**	Web Technologies
Mid Semester Test (MST) No.	I	**Course Coordinator(s)**	Er. Hanit Karwal
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	21 March 2022	**Roll Number**	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	What is the difference between HTML & XHTML?	CO1, L1	2
Q2	Differentiate between GET and POST methods	CO1, L3	2
Q3	How tables are created in HTML? What are the various tags used during table?	CO1, L6	4
Q4	List the applications of AJAX.	CO3, L2	4
Q5	What is HTML DOM? Support your answer with a Flowchart.	CO2, L6	4
Q6	Discuss various selectors in jQuery with examples.	CO4, L5	8

Course Outcomes (CO) *Students will be able to:*

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyze the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	Semester	4
Subject Code	PCIT-107	Subject Title	Web Technologies
Mid Semester Test (MST) No.	2	Course Coordinator(s)	Er. Hanit Karwal
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	1 June, 2022	Roll Number	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	Explain the concept of web storage in HTML5	CO2, L2	2
Q2	Explain 3D Transforms in CSS3	CO2, L3	2
Q3	How to deploy HTML5 and CSS3 using Bootstrap Framework?	CO2, L4	4
Q4	List the features of Code Igniter Framework.	CO6, L4	4
Q5	Elaborate CSS3 Borders and Multicolumn Layout	CO2, L3	4
Q6	Write code snippets to demonstrate asort, ksort, arsort and, krsort PHP functions.	CO5, L5	8

Course Outcomes (CO) Students will be able to:

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyze the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. ....

Program: B.Tech (Batch 2018 onward)

Semester: 4th

Name of Subject: Web Technologies

Subject Code: PCIT-107

Paper ID: 16236

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Define CELLPADDING and CELLSPACING attributes of <table>.

b) Differentiate between XML and HTML.

c) List Features of Codeigniter framework .

d) What method can you use to extract data from a canvas into an image?

e) How will you embed images in a web document?

f) Compare and contrast .empty() , .remove() and .detach() in jQuery.

Part – B **[Marks: 04 each]**

Q2. Explain working mechanism of AJAX with suitable example.

Q3. Discuss in detail different methods of creating style sheets with the help of suitable examples.

Q4. Design a jQuery to get the selected value and currently selected text of a dropdown box.

Q5. Create a HTML document that displays a table of basketball scores at national games in which the team names have their respective team colors. The score of the leading/winning team should appear larger and in a different font than the losing team. Use CSS

Q6. Create a PHP program to find whether a given number is Armstrong Number or not.

P.T.O.

Q7. Design a Tagline " Welcome To You" of Red and Blue linear gradient in 200× 200 HTML5 canvas using fill method.

Part – C **[Marks: 12 each]**

Q8. Explain events handling in jQuery along with jQuery syntax and selectors in detail.

OR

Explain the following in detail with example:

a) Geolocation and GPS services

b) Cascading Style Sheets in HTML5

Q9. Write class declarations and member function definitions for following employee(code, name, designation). Design derived classes as emp_account(account_no, joining_date) from employee and emp_sal(basic_pay, earnings, deduction) from emp_account. Write a PHP Script to create 5 objects (pass details using parameterized constructor) and Display details of Employees who having Maximum and Minimum Salary.

OR

Create a sample form that collects the first name, last name, email, user id, password and confirms password from the user. All the inputs are mandatory and email address entered should be in correct format. Also, the values entered in the password and confirm password textboxes should be the same. Design a javascript code to validate and output display proper error messages in red color just next to the textbox where there is an error.

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Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech (IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Microprocessors
MST No.	1	**Course Coordinator(s)**	Er. Yadvir Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	25 March 2022	**Roll Number**	

Note: 1. Attempt all the questions in serial order

Q. No.	Question	COs, RBT level	Marks
Q1	What is the main purpose of assembly language? What are the advantages of assembly language over machine language?	CO1, L1	2
Q2	Convert the following numerical arithmetic expression into reverse Polish notation and show the stack operations for evaluating the numerical result. ((3+4) * 10 + 2) * 8 + 6) * 4	CO1, L3	2
Q3	A computer register T of 8-bits is having hexadecimal 72 as its initial value. What will be the values of status bits C, S, Z, and V after substracting the immediate operand hexadecimal C9 from T.	CO1, L5	4
Q4	What are Addressing Modes. An instruction is stored at location 400 with its address field at location 401. The address field has the value 500. A processor register R contains the number 100. Evaluate the effective address if the addressing mode of the instruction is (a) direct; (b) immediate; (c) relative; (d) register indirect (e) index with R as the index register.	CO2, L5	4
Q5	Write 1-address and zero address instructions for: (A*B)+(C*D)+ (E*F).	CO2, L5	4
Q6	If the value of R flip flop is 1, this means that control will go through an interrupt cycle. In such cases, explicate the sequence of micro-operations that would occur. Also draw the Flowchart for Interrupt Cycle.	CO1, L2	8

Course Outcomes (CO) *Students will be able to:*

1	Identify computer systems, memory organization, Microprocessor and assembly language programming
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes
3	Solve basic binary math operations by using the instructions of microprocessor
4	Compare between pipelining and parallelism
5	Design structured, well commented, understandable assembly language programs to provide solutions to real-world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech (IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Microprocessors
MST No.	2	**Course Coordinator(s)**	Er. Yadvir Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	30th May, 2022	**Roll Number**	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	What do you understand by Cache coherence Problem? Give an example.	CO1, L1	2
Q2	Discuss the difference between tightly coupled and loosely coupled multiprocessors.	CO1, L3	2
Q3	A non-pipeline system takes 50ns to process a task. The same task can be processed in a six-segment pipeline with a clock cycle of 10ns. Calculate the speedup of the pipeline for 10 tasks and again for 100 tasks. What Is the maximum speedup that can be achieved?	CO4, L5	4
Q4	What is the need and significance of memory hierarchy? Also illustrate the memory hierarchy in order of their features with their comparative analysis	CO1, L5	4
Q5	Explain with the help of block diagram architecture of 8051.	CO6, L5	4
Q6	What is the need of cache memory? Explain different types of cache mapping using diagrams.	CO1, L2	8

Course Outcomes (CO) *Students will be able to*

1	Identify computer systems, memory organization, Microprocessor and assembly language programming
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes
3	Solve basic binary math operations by using the instructions of microprocessor
4	Compare between pipelining and parallelism
5	Design structured, well commented, understandable assembly language programs to provide solutions to real-world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Computer Architecture and Microprocessors
Subject Code: PCIT-108
Paper ID: 16237

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Differentiate between register and memory.
b) What do you mean by cache coherence?
c) What do you understand by programmed I/O?
d) What is Interrupt?
e) How RISC is different from CISC?
f) How auxiliary memory is different from associative memory?

Part – B **[Marks: 04 each]**

Q2. Discuss the different characteristics of multiprocessors.

Q3. Elaborate the function of timing and control unit in a basic computer.

Q4. Briefly discuss the steps followed in designing a CPU.

Q5. How pipelining improves performance of a microprocessor?

Q6. What is the need of microprocessor? How microprocessor is different from microcontroller?

Q7. Evaluate the different phases of instruction cycle.

Part – C

[Marks: 12 each]

Q8. Question Write a short note on

a) Embedded System

b) Virtual Memory

OR

Explain the architecture of 8051 with the help of labelled diagram.

Q9. Write a program in assembly language to find larger of two 8 bit numbers stored at different memory locations.

OR

What is the difference between a direct and an indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register?

****

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID: 16233

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Describe the types of keys used in SQL database.
b) Define different types of Relational Calculus.
c) How Data Marts are used for creating Data Warehouse?
d) Differentiate between Inner join and Outer join.
e) Where NoSQL database is preferable over a relational database?
f) Write a syntax of table creation and insertion command in SQL.

Part – B **[Marks: 04 each]**

Q2. What is Data Warehousing? Explain the advantages of Data Warehousing.

Q3. Write a short note on applications of spatial and multimedia databases.

Q4. Elaborate the significance of ACID properties of database management system with the help of some examples.

Q5. Define the term NoSQL with example? Analyze why NoSQL database is used by facebook and google applications.

Q6. Design an ER diagram for student enrollment system. Take student, teacher and subjects as entities.

P.T.O.

Q7. Consider the insurance database as mentioned below, where the primary keys are underlined. Construct the following SQL queries for this relational database.

Note: The participated relation relates drivers, cars, and accidents.

person (driver_id, name, address)

car (license, model, year)

accident (report_number, date, location)

owns (driver_id, license)

*participated (driver_id, **license**, report_number, damage_amount)*

a. Find the total number of people who owned cars that were involved in accidents in 2009.

b. Add a new accident to the database; assume any values for required attributes.

c. Delete the Mazda (*car model*) belonging to "John Smith" (*person name*) .

Part – C **[Marks: 12 each]**

Q8. Define normalization. Why we need to normalize a database in SQL? Briefly discuss the insert, delete and update anomalies, if relations are not in 2NF.

OR

Compare different types of data models used in database management systems.

Q9. Analyze various recovery techniques used in database management system. How to implement these techniques in SQL Databases?

OR

a) Suppose that we have a relation marks(ID, score) and we wish to assign grades to students based on the score as follows: grade F if score < 40, grade C if 40 ≤ score < 60, grade B if 60 ≤ score < 80, and grade A if 80 ≤ score. Write SQL queries to do the following;

i. Display the grade for each student, based on the marks relation. **(3 marks)**

ii. Find the number of students with each grade. **(3 marks)**

b) Design a database Schema for "E-Commerce website" using SQL queries and ER diagram. **(6 marks)**

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Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B Tech.	**Semester**	6
Subject Code	PCIT-104	**Subject Title**	Database Management System
(MST) No.	1	**Course Coordinator**	Mohanjit Kaur Kang
Max. Marks	24	**Time Duration**	1hr 30 mins
Date of MST		**Roll Number**	2021056

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Define database management system and mention its applications.	CO1, L1	2
Q2	Analyze primary, candidate and super key with example.	CO1, L4	2
Q3	Discuss schemas with difference between external, logical and physical level schemas. Also explain architecture of dbms.	CO1, L2,L3	4
Q4	Discuss CODD rule for DBMS.	CO1, L3	4
Q5	What do you mean by Entity Relationship diagram and why it is useful? Draw E-R diagram for hospital with the set of patient and medical doctors.	CO2, L4	4
Q6	Describe Relational Algebra. Consider the relational database: Student (person_name, street, city) Works (person _name, college name, fees) College (college_name, city) Teachers(person_name, teacher name) a) Find the names of the students and college name for all students. b) Find the names of students who are from Ludhiana and whose fees is more than 5000 c) Give the info for teachers who belong to city Ludhiana. d) Give the info for students who do not belong to Ludhiana.	CO2, L4	8

Course Outcomes (CO)

Students will be able to

1	Apply knowledge of database system, No Sql database, data mining and SQL structure.
2	Identify, formulate database design, Functional dependencies and recovery techniques
3	Use the techniques, skills and tools such as query handling, normalized relations
4	Design Physical and object relational database
5	Investigate various case studies using NoSql.
6	Apply the Applications of spatial and multimedia databases for real world.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Create

b) The info

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.(IT)	**Semester**	4
Subject Code	BSIT-101	**Subject Title**	Probability and Statistics
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	Rupinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24th March, 2022	**Roll Number**	

Note: Attempt all questions

Q. No.	**Question**	**COs, RBT level**	**Marks**
Q1	Distinguish Primary Data and Secondary Data	CO1, L2	2
Q2	In a moderately asymmetrical distribution, the mode and mean are 32.1 and 35.4.Find the value of Median.	CO1, L5	2
Q3	**From the following data solve the value of median** **Marks**: Less than 5 | Less than 10 | Less than 15 | Less than 20 | Less than 25 | Less than 30 | Less than 35 | Less than 40 | Less than 45 **No of students**: 29 | 224 | 465 | 582 | 634 | 644 | 650 | 653 | 655	CO1, L3	4
Q4	The mean and standard deviation of 200 items are found to be 60 and 20 respectively. If at the time of calculations, two items were wrongly taken as 3 and 67 instead of 13 and 17, detect the correct mean and standard deviation. Verify the correct coefficient of variation.	CO1, L4	4
Q5	**Generate Karl Pearson's coefficient of skewness from the following data** **Profit (Rs. Lakhs)**: 70-80 | 80-90 | 90-100 | 100-110 | 110-120 | 120-130 | 130-140 | 140-150 **No of Cos**: 12 | 18 | 35 | 42 | 50 | 45 | 30 | 8	CO5, L5	4
Q6	A. Calculate mode from the following data **Value:**: 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 **Frequency:**: 1 | 2 | 10 | 4 | 10 | 9 | 2 B. Elaborate positive and negative Correlation with suitable examples and Scatter diagram	CO1, L5	6+2=8

Course Outcomes (CO)

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.(IT)	**Semester**	4
Subject Code	BSIT-101	**Subject Title**	Probability and Statistics
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Rupinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	6 June, 2022	**Roll Number**	

Note: Attempt all questions

Q. No.	**Question**	**COs, RBT level**	**Marks**
Q1	DistinguishType I and Type II error.	CO1, L4	2
Q2	Write properties of Binomial Distribution.	CO1, L3	2
Q3	The means of two large sample of sizes 1000 and 2000 are 168.75 cms and 170 cms respectively. Can the samples be regarded as drawn from a population with same mean and S.D 6.25 cms.	CO1, L4	4
Q4	The following are the intermediate results of two series X and Y: Mean of X=90, Mean of Y=70, N=10, $\sum x^2$=6360, $\sum y^2 = 2860, \sum xy =$ 3600 (where x and y are deviations from the respective means). Find two regression equations.	CO1, L5	4
Q5	The number of defects per unit in a sample of 330 units of a manufactured product was found as follow: **No of defect:** 0 | 1 | 2 | 3 | 4 **No of units:** 214 | 92 | 20 | 3 | 1 Fit a Poisson Distribution to the data and test goodness of fit.	CO3, L3	4
Q6	A, B and C are three candidates for the post of Director in a company. Their respective chances of selection are in the ratio of 4:5:3. The probability that A, if selected will introduce the internet trading in the company is 0.30. Similarly, the probability of B and C are 0.50 and 0.60 respectively. Find the probability that the company will introduce internet trading. Also find the probability that Director B introduced the internet trading in the company.	CO1, L6	8

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. 2004933

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Probability and Statistics
Subject Code: BSIT-101
Paper ID: 16232

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately
4) Scientific Calculator is allowed.

Part – A **[Marks: 02 each]**

Q1.

a) What is the difference between skewness and kurtosis?

b) What is Type I and Type II error?

c) What is the difference between correlation and regression?

d) What is sampling distribution?

e) What is mean and variance of poison distribution?

f) A bag contains 4 red balls, 3 white balls and 5 green balls. A ball is drawn from the bag at random. What is the probability of getting a non red ball?

Part – B **[Marks: 04 each]**

Q2. Calculate the coefficient of correlation between X and Y for the following data.

X:	5	9	13	17	21
Y:	12	20	25	33	35

Q3. Obtain the two regression equations from the following data.

Sales:	91	97	108	121	67	124	51	73	111	57
Purchases:	71	75	69	97	70	91	39	61	80	47

Q4. What is Sampling? What is the difference between Probability and Non-Probabilty Sampling?

P.T.O.

Q5. A pack of 50 tickets numbered 1 to 50 is shuffled and then two tickets are drawn. Find the probability that:

a. Both the tickets drawn have prime numbers.

b. None of the tickets drawn has prime numbers.

Q6. What is the difference between frequency and probability distribution? Explain in detail.

Q7. Calculate Median and Mode for the following distribution.

Production per day (in Tons)	21-22	23-24	25-26	27-28	29-30
No. of days	7	13	22	10	8

Part – C **[Marks: 12 each]**

Q8. Fit a straight line for the following data.

X:	10	20	30	40	50
Y:	22	23	27	28	30

OR

A dice is tossed 120 times with the following results:

Number turned up:	1	2	3	4	5	6	Total
Frequency:	30	25	18	10	22	15	120

Test the hypothesis that the dice is unbiased.

[Note: The table value of $\psi^2_{5\%,5} = 11.070$]

Q9. Three similar boxes have white and black balls. Box I has 1 white and 2 Black, Box II has 2 white and 1 black, Box III has 2 white and 2 black. One of the boxes is selected and a ball is chosen at random from it, which turns out to be white. Find the probability that the third box is chosen using Bayes' Theorem?

OR

a) What is the difference between Probability Distribution and Sampling Distribution?

b) Explain classical, relative and subjective approaches of Probability with example.

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2004933

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-105	**Subject Title**	Python Programming
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	HarpreetKaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	20/3/2022	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs. RBT level	Marks
Q1	What is platform independence in python?	CO1, L1	2
Q2	What are the immutable data types in python?	CO2, L2	2
Q3	Write a program to explain the concept of index() and find() string function.	CO3, L3	4
Q4	Write a program to accept a number from a user and calculate the sum of all numbers from 1 to the given number.	CO2, L4	4
Q5	Why Python is becoming popular day by day? Compare it with other programming languages.	CO4, L5	4
Q6	1) Write short note on Operator Precedence vs. Operator Associativity 2) How to Read and Write into a Text files in Python	CO3, L6	8(4+4)

Course Outcomes (CO)

Students will be able to

1	Use primitive data types, operators and control statements to write programs
2	Discuss methods and arrays along-with basic object oriented principles.
3	Implement Exception handling, multithreading, string handling, event handling, packages and interfaces
4	Create an event handling techniques for interaction of the user with a GUI.
5	Design client/server applications using socket programming and database connectivity.
6	Identify and solve complex problems in the environment of Java programming.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech (IT)	**Semester**	4
Subject Code	PCIT-105	**Subject Title**	Python Programming
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Harpreet Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	20/3/2022	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	What is difference between count() and length() function in List?	CO1, L1	2
Q2	Output? List = [`a`, `b`, `c`, `d`,` D`] List.sort(reverse=True) print(List)	CO2, L2	2
Q3	Write a program to find LCM of two numbers using function.	CO3, L3	4
Q4	Write a program using function to multiply all the numbers in a list. *Sample List* : [8, 2, 3, -1, 7] *Expected Output* : -336	CO2, L4	4
Q5	Write short note on following with suitable synatx: a) Constructor in Python b) Multilevel inheritance	CO4, L5	4
Q6	Design GUI using Tkinter to order a Pizza from Domino's. Choose data and widgets accordingly.	CO3, L6	8

Course Outcomes (CO)

Students will be able to

1	Use primitive data types, operators and control statements to write programs
2	Discuss methods and arrays along-with basic object oriented principles.
3	Implement Exception handling, multithreading, string handling, event handling, packages and interfaces
4	Create an event handling techniques for interaction of the user with a GUI.
5	Design client/server applications using socket programming and database connectivity.
6	Identify and solve complex problems in the environment of Java programming.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

[Total No. of Questions: 09]
Uni. Roll No. .....

[Total No. of Pages: 02]

Program: B.Tech. (Batch 2018 onward)
Semester: 04
Name of Subject: Python Programming
Subject Code: PCIT-105
Paper ID: 16234
Scientific calculator is NotAllowed

Detail of allowed codes/charts/tables etc. **NIL**

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) What are the features of python?

b) Write a Python program that prints (displays) your name, address, and telephone number.

c) Explain the relationship between a function and its arguments.

d) What happens when the print function prints a string literal with embedded newline characters?

e) How can you open a file in python?

f) When would you make a data field read-only, and how would you do this?

Part – B **[Marks: 04 each]**

Q2. With a suitable program, elaborate compilation and linking process in python.

Q3. Write a program to print the multiplication table of a given number entered by the user.

Q4. Write a program to accept a number from 1 to 12 and display the name of the month and days in that month like 1 for January and the number of days 31 and so on.

Q5. Write a Python program to search a specific part of a string for a substring.

Q6. What roles do the parameters and the return statement play in a function definition?

P.T.O.

Q7. What are the benefits of inheritance? Create a child class ***Bus*** that will inherit all of the variables and methods of the ***Vehicle*** class.

Part – C **[Marks: 12 each]**

Q8. Elaborate the concept of Dictionaries in python. How will you add and access elements to a Dictionary? Write a Python program to concatenate the following dictionaries to create a new one.

Sample Dictionary :

dic1={1:10, 2:20}

dic2={3:30, 4:40}

dic3={5:50,6:60}

Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}

OR

What is meant by the state of an object, and how does the programmer access and manipulate it? Explain the differences between instance variables and temporary variables. Focus on their visibility in a class definition, and on their roles in managing data for an object of that class.

Q9. Write a Python program that accepts a string and calculate the number of digits and letters.

Sample Data*: Python 3.2*

Expected Output *:*

Letters 6

Digits 2

OR

Define what is a class? How to create a class? Define what is a method, how to do object instantiation? Describe how to create instance attributes in Python. Also elaborate structure of basic python program.

Department of Information Technology

Program	B.Tech (IT)	**Semester/ Section**	4th A
Subject Code	PCIT-106	**Subject Title**	Operating System
Mid Semester Test (MST) No.	1st	**Course Coordinator**	Pankaj Bhambri
Max. Marks	24	**Time Duration**	01pm 02.30pm
Date of MST	22nd March 2022	**University Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs. RBT level	Marks
Q1	Classify at-least four major differences between shell and kernel	CO6, L2	2
Q2	Consider the following set of four processes. Their arrival time and time required to complete the execution (CPU burst time) are given in the following table Process / Arrival Time / CPU Burst Time P_0 / 0 / 10 P_1 / 1 / 6 P_2 / 3 / 2 P_3 / 5 / 4 Consider all time values in milliseconds. Evaluate the Average Waiting Time using First Come First Serve Scheduling algorithm	CO1, L5	2
Q3	What is a Process? Describe the different states of a process with their detailed elaboration	CO1, L2	4
Q4	Demonstrate the usage of stack, heap, data and code as a part of various sections in a process, through appropriate example	CO3, L1	4
Q5	Interpret the roles of process synchronization, critical section and mutual exclusion. How semaphores resolve the issue of process synchronization?	CO1, L4	4
Q6	Compare and contrast the various features, pros/cons and applications of different types of operating systems	CO1, L4	8

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	Use different disk scheduling algorithm for better utilization of external memory.
6	Examine the case studies of different Operating Systems to recapitulate the concepts of Operating System.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech (IT)	**Semester/ Section**	4th/ A
Subject Code	PCIT-106	**Subject Title**	Operating System
Mid Semester Examination (MSE) No.	2nd	**Course Coordinator**	Pankaj Bhambri
Max. Marks	24	**Time Duration**	10.30am – 12pm
Date of MSE	31st May 2022 (Tuesday)	**University Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Describe the four necessary conditions for Deadlock.	CO2, L1	2
Q2	Illustrate UNIX and LINUX.	CO6, L5	2
Q3	Elaborate the File Management with detailed requirement and implementation issues of Contiguous, Linked and Indexed allocation methods.	CO3, L3	4
Q4	Explain Overlays, Internal and External Fragmentation, Virtual Memory and Thrashing, in details.	CO3, L2	4
Q5	Discuss the Belady's Anomaly. Consider the page references 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, with 4 page frame. Find number of page fault using Optimal page replacement and Least recently used algorithms.	CO4, L5	4
Q6	Suppose the order of request is 82,170,43,140,24,16,190 and current position of Read/Write head is 50. Enlist the Advantages, Disadvantages along-with the total seek time using FCFS, SSTF, CSCAN and LOOK Disk Scheduling algorithms.	CO5, L5	8

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	Use different disk scheduling algorithm for better utilization of external memory.
6	Examine the case studies of different Operating Systems to recapitulate the concepts of Operating System.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 04
Name of Subject: Operating System
Subject Code: PCIT-106
Paper ID: 16235

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) What is an Operating System?
b) What is the difference between deadlock and starvation?
c) Define Virtual Memory and what are its advantages?
d) What is thrashing?
e) Explain Inter Process Communication.
f) What do you mean by PCB? What are its contents?

Part – B **[Marks: 04 each]**

Q2. What is a process? Explain and draw Process State Diagram.

Q3. Write a brief note on Layered Architecture in reference to device management.

Q4. What is a deadlock and what are the conditions to prevent it?

Q5. What are the different access methods of files? How are they implemented?

Q6. What are semaphores and its advantages? Explain two primitive semaphore operations.

Q7. What is fragmentation? Explain its types and disadvantages.

P.T.O.

Part – C **[Marks: 12 each]**

Q8. Consider the following set of processes, with the length of the CPU burst given in ms:

Process	Burst Time	Priority
P1	2	2
P2	1	1
P3	8	4
P4	4	2
P5	5	3

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 at time 0

a. Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, non pre-emptive priority (a larger priority number implies a higher priority), and RR (quantum= 2)

b. What is the turnaround time of each process for each of the scheduling algorithms in part a?

c. What is the waiting time of each process for each of these scheduling algorithms?

d. Which of the algorithms results in the minimum average waiting time?

OR

Explain different types of operating systems in detail.

Q9. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order, is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130

Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk-scheduling algorithms?

a. FCFS b. SSTF c. SCAN d. LOOK e. C-SCAN f. C-LOOK

OR

Given page reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. Compare the number of page faults for LRU, FIFO and Optimal page replacement algorithm with frame size 4.

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-107	**Subject Title**	Web Technologies
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	Er. Hanit Karwal
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	21 March 2022	**Roll Number**	202022

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	What is the difference between HTML & XHTML?	CO1, L1	2
Q2	Differentiate between GET and POST methods	CO1, L3	2
Q3	How tables are created in HTML? What are the various tags used during table?	CO1, L6	4
Q4	List the applications of AJAX.	CO3, L2	4
Q5	What is HTML DOM? Support your answer with a Flowchart.	CO2, L6	4
Q6	Discuss various selectors in jQuery with examples.	CO4, L5	8

Course Outcomes (CO) *Students will be able to:*

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyze the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-107	**Subject Title**	Web Technologies
Mid Semester Examination (MSE) No.	1	**Course Coordinator(s)**	Er. Navdeep Kaur Deol
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MSE	24th March,2023	**Roll Number**	2121056

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Differentiate between HTML and XHTML.	CO1, L2	2
Q2	What are the empty elements in HTML? Briefly explain it with an example.	CO1, L4	2
Q3	In how many ways can you integrate CSS on a web page? Discuss with the help of programming examples.	CO1, L2	4
Q4	Explain the various event handling methods in jQuery.	CO4, L2	4
Q5	Briefly explain the ordered and unordered lists in HTML with suitable example. Also, explain how can you change the type of list and control the list counting?	CO1, L4	4
Q6	Create a feedback form in HTML and demonstrate the use of various form elements like text fields, radio buttons, checkboxes, text area and submit button. Also apply form validation on any two fields using JavaScript.	CO4, L6	8

Course Outcomes (CO)

Students will be able to

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyze the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

2004899

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	Semester	4
Subject Code	PCIT-107	Subject Title	Web Technologies
Mid Semester Test (MST) No.	2	Course Coordinator(s)	Er. Hanit Karwal
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	1 June, 2022	Roll Number	2004899

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	Explain the concept of web storage in HTML5	CO2, L2	2
Q2	Explain 3D Transforms in CSS3	CO2, L3	2
Q3	How to deploy HTML5 and CSS3 using Bootstrap Framework?	CO2, L4	4
Q4	List the features of Code Igniter Framework.	CO6, L4	4
Q5	Elaborate CSS3 Borders and Multicolumn Layout	CO2, L3	4
Q6	Write code snippets to demonstrate asort, ksort, arsort and, krsort PHP functions.	CO5, L5	8

Course Outcomes (CO) Students will be able to:

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyze the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.(IT)	**Semester**	4th
Subject Code	PCIT-107	**Subject Title**	Web Technologies
Mid Semester Examination (MSE) No.	2	**Course Coordinator(s)**	Er. Navdeep Kaur Deol
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MSE	24th May, 2023	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Differentiate between localStorage and sessionStorage.	CO2, L2	2
Q2	What are the different fade methods in jQuery?	CO2, L4	2
Q3	How to set content with the jQuery text(), html(), val() and attr() methods. Explain with suitable examples.	CO4, L3	4
Q4	Write code snippets to demonstrate asort, ksort, arsort and krsort PHP functions.	CO5, L3	4
Q5	Create a multi-column layout in html using CSS3(just like newspaper with some headings, text and image). Also, diagrammatically represent the layout.	CO2, L6	4
Q6	How to connect PHP with MySQL database. Also, write PHP script to update the Address and Dept. No. of Jack William to United States and 5 respectively in the following table:	CO5, L5	8

EmployeeDetails

EmpID	EmpName	Address	Dept. No.
1	Mary Doe	Germany	2
2	Cindy Smith	Mexico	3
3	Jack William	England	4

Course Outcomes (CO) *Students will be able to:*

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyse the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward) MORNING

Semester: 4th

Name of Subject: Web Technologies 23 JUN 2023

Subject Code: PCIT-107

Paper ID: 16236

Scientific calculator is Allowed/NotAllowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Compare XML amd HTML
b) Is java and javascript differs? Reason.
c) List the CMS used in companies.
d) Write the code to hide the paragraph to use jQuery selector.
e) CSS plays as important role in designing web pages. Elaborate.
f) List the advantages of AJAX and where it is used?

Part – B **[Marks: 04 each]**

Q2. How AJAX works? Explain Request and Response Method.

Q3. Explain the structure of DOM and levels of DOM.

Q4. Implement the following:-
a) Blink text b) detect whether the user has pressed 'Enter Key' using jQuery.

Q5. a) With the transform property, rotate the ** ** element 90deg around its Z-axis.

```
<body>  <div>This is a div</div>  </body>
```

b) Set the color of all **<p>** **<h1>** elements to red for the follwong code:

```
< body>
<h1>This is a heading</h1>
<p >This is a paragraph</p>
</body>
```

Q6. List the different versions of bootstrap. Write a code to use canvas.

Q7. Write a code to show CSS Flexbox.

Part – C **[Marks: 12 each]**

Q8. Write the code for the followings:
a) Create a database called testDB and delete a database named testDB in PHP.

P.T.O.

b) Create a new table called Persons and delete all data inside a table.

c) Add a column of type DATE called Birthday and Delete the column Birthday from the Persons table.

OR

a) Discuss absolute and relative links. Design a page to add a table row with two table headers named "Name" and "Age".

b) Use the correct HTML attribute to make the first TH element span two columns and to make the second TH element span two rows. Use CSS styles to make the table 300 pixels wide.

Q9. Create a simple web page showing the usage of following HTML tags

a) <a href> b) <img src> c) <hr>

d) ordered and unordered e) colspan and rowrpan

f) Add background colour to your tables, with perhaps a different colour for the "header" cells (<th>)

OR

a) Discuss the PHP basix syntax, variable declaration and expressions.

b) Elaborate the implementation of inheritance and advantages of PHP framework.

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Please check that this question paper contains_ 09 questions and 02 printed pages within first ten minutes.

EVENING

18 JAN 2023

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Web Technologies
Subject Code: PCIT-107
Paper ID: 16236

Detail of allowed codes/charts/tables etc. Nil

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Write HTML code to create a nested page.
b) Distinguish between absolute and relative link.
c) How does Document Object Model works?
d) Is CodeIgniter loosely or hardly coupled? Justify your choice.
e) Is flexbox better than a CSS grid? Comment.
f) Why are PHP and MySql used together?

Part – B **[Marks: 04 each]**

Q2. Write a HTML code for creating a registration form by covering all the input elements of form.

Q3. Explain how to insert CSS in an HTML Document.

Q4. Write a Simple Java script program for login form validation.

Q5. How HTML elements are used in jQuery? Explain with some example.

Q6. Elaborate built-in string functions of PHP with example of each.

Q7. Write the structure of PHP script. Design a PHP code to swap any two numbers.

P.T.O.

Part – C [Marks: 12 each]

Q8. Write short notes on the following a) Customization of jQuery b) DOM. C) HTTP-GET and POST requests

OR

Define Frameset, Frame Tag. Write a HTML code that divide the web page into four equal parts each individual part that displays different web page.

Q9. Explain the various Interactive elements in HTML5. Elaborate CSS selectors in HTML5.

OR

How can we embed PHP code in HTML file? Explain database connectivity in PHP with reference to MYSQL.

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MORNING

2 0 SEP 2022

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: .2]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Web Technologies
Subject Code: PCIT-107
Paper ID: 16236

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Differentiate Local storage and session storage.

b) Which two HTML element tags are used to insert audio and video files into an HTML5 document? Give Example.

c) How can you import a file in PHP?

d) Discuss new markup elements in HTML5 (at least any two elements).

e) With the transform property, rotate the element 90deg around its Z-axis.

```
<body>
<div>This is a div</div>
</body>
```

f) Set the color of all <p> <h1> elements to red for the follwong code:

```
<body>
 <h1>This is a heading</h1>
 <p id="para1">This is a paragraph</p>
</body>
```

Part – B **[Marks: 04 each]**

Q2. What are the features of CodeIgniter Framework ?

Q3. Using MySQL with PHP, perform database related operations like create table, insert,

delete, select and update.

Q4. Use the selector to hide all odd table rows in a table. Use the selector to hide all elements with an href attribute.

Q5. What is the role of Apache web server in web application? Explain the concept of accessing functions using objects in php with the help of an example.

Q6. How can you perform text wrap using CSS3? Name the property used to apply multiple backgrounds in CSS3?

Q7. Write jQuery for slider design. Why do we need jQuery.

Part – C **[Marks: 12 each]**

Q8. a) Write a program using AJAX to send and receive data using GET and POST methods.

b)Explain the request and response method of web server and web browser with an example. (both static and dynamic)

OR

a) State the various features of wordpress. Expalin how themes and modules can be installed in wordpress?

b) What is the difference between require and include in php? Write their syntax.

Q9. a) Using concept of DOM in jQuery, Design validation for Sign-In form for registration.

b) List the various event handling events in jQuery.

OR

a) Discuss HTML, XML and XHTML.

b) Discuss absolute and relative links, and design a page to show ordered and unordered lists.

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Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09] EVENING [Total No. of Pages: 2.]

Uni. Roll No. ..... 27 JUN 2022

Program: B.Tech. (Batch 2018 onward)

Semester: 4th

Name of Subject: **Web Technologies**

Subject Code: **PCIT-107**

Paper ID: **16236**

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Define CELLPADDING and CELLSPACING attributes of <table>.

b) Differentiate between XML and HTML.

c) List Features of Codeigniter framework .

d) What method can you use to extract data from a canvas into an image?

e) How will you embed images in a web document?

f) Compare and contrast .empty() , .remove() and .detach() in jQuery.

Part – B **[Marks: 04 each]**

Q2. Explain working mechanism of AJAX with suitable example.

Q3. Discuss in detail different methods of creating style sheets with the help of suitable examples.

Q4. Design a jQuery to get the selected value and currently selected text of a dropdown box.

Q5. Create a HTML document that displays a table of basketball scores at national games in which the team names have their respective team colors. The score of the leading/winning team should appear larger and in a different font than the losing team. Use CSS

Q6. Create a PHP program to find whether a given number is Armstrong Number or not.

EVENING

27 JUN 2022

Q7. Design a Tagline " Welcome To You" of Red and Blue linear gradient in 200× 200 HTML5 canvas using fill method.

Part – C **[Marks: 12 each]**

Q8. Explain events handling in jQuery along with jQuery syntax and selectors in detail.

OR

Explain the following in detail with example:

a) Geolocation and GPS services

b) Cascading Style Sheets in HTML5

Q9. Write class declarations and member function definitions for following employee(code, name, designation). Design derived classes as emp_account(account_no, joining_date) from employee and emp_sal(basic_pay, earnings, deduction) from emp account.

Write a PHP Script to create 5 objects (pass details using parameterized constructor) and Display details of Employees who having Maximum and Minimum Salary.

OR

Create a sample form that collects the first name, last name, email, user id, password and confirms password from the user. All the inputs are mandatory and email address entered should be in correct format. Also, the values entered in the password and confirm password textboxes should be the same. Design a javascript code to validate and output display proper error messages in red color just next to the textbox where there is an error.

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MORNING

16 MAY 2018

[Total No. of Questions: 09]

[Total No. of Pages: 02]

Uni. Roll No. .....

Program/ Course: B.Tech. (Sem. 4th)
Name of Subject: Web Technologies
Subject Code: IT-14404
Paper ID: 15335

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

1) **Section-A** is **compulsory**
2) Attempt any **four** questions from **Section-B** and any **two** questions from **Section-C**
3) Any missing data may be assumed appropriately

Section – A

Q1. **[Marks: 02 each]**

a) What are the applications of Web technology in day to day life?
b) Write about jQuery syntax.
c) What are various control flow statements in PHP?
d) Define ISP and WWW.
e) How will you embed images in a web document?
f) List down basic advantages of PHP framework.
g) What is the purpose of namespace?
h) Why client side scripting is important? Explain
i) Define Java script DOM.
j) Differentiate between AJAX and JavaScript.

Section – B

[Marks: 05 each]

Q2. What are various components of Apache server configuration file?

Q3. Write a short note on AJAX server script.

Q4. How sessions are created in PHP? How to set a value in session?

Q5. How tables are created in HTML? What are the various tags used during table?

Q6. Write a short note on tools for Website creation.

Section – C

[Marks: 10 each (05 for each sub-part, if any)]

Q7. Write a short note on the following:

a) PHP & MySQL.
b) Advanced features of CSS3

Q8. How Form handling is done in Java script? Explain. Also create and validate registration form using Java script.

Q9. Explain about the setup of Word press CMS. Also write about various CMS variants.

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.	Semester	6
Subject Code	PCIT-104	Subject Title	Database Management System
(MST) No.	1	Course Coordinator	Mohanjit Kaur Kang
Max. Marks	24	Time Duration	1hr 30 mins
Date of MST 15/feb/2024		Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Define integrity constraints.	CO1, L1	2
Q2	Analyze primary and candidate with appropriate example.	CO1, L4	2
Q3	Identify the schemas in DBMS along with at least four differences between external, logical and physical level schemas. Also explain architecture of DBMS.	CO1, L2,L3	4
Q4	Discuss CODD rule in brief for DBMS.	CO1, L3	4
Q5	Elaborate how Entity Relationship diagram can be effectively applied in DBMS. Draw E-R diagram for online shopping system.	CO2, L4	4
Q6	A) Evaluate Relational Algebra. Consider the following relational database schema consisting of the four relation schemas: passenger (pid, pname, pgender, pcity) agency (aid, aname, acity) flight (fid, fdate, time, src, dest) booking (pid, aid, fid, fdate) Answer the following questions using relational algebra queries: a) Get the complete details of all flights to New Delhi. b) Get the details about all flights from Chennai to New Delhi. c) Find only the flight numbers for passenger with pid 123 for flights to Chennai before 06/11/2020. d) Find the passenger names for passengers who have bookings on at least one flight. B) Analyze and evaluate the four Applications of Spatial and Multimedia Databases.	CO2, L4	8

Course Outcomes (CO) *Students will be able to*	
1	Apply knowledge of database system, No Sql database, data mining and SQL structure.
2	Identify, formulate database design, Functional dependencies and recovery techniques
3	Use the techniques, skills and tools such as query handling, normalized relations
4	Design Physical and object relational database.
5	Investigate various case studies using NoSql.
6	Apply the Applications of spatial and multimedia databases for real world.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Create

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.	Semester	6
Subject Code	PCIT-104	Subject Title	Database Management System
(MST) No.	1	Course Coordinator	Mohanjit Kaur Kang
Max. Marks	24	Time Duration	1hr 30 mins
Date of MST	15/feb/2024	Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Define integrity constraints.	CO1, L1	2
Q2	Analyze primary and candidate with appropriate example.	CO1, L4	2
Q3	Identify the schemas in DBMS along with at least four differences between external, logical and physical level schemas. Also explain architecture of DBMS.	CO1, L2,L3	4
Q4	Discuss CODD rule in brief for DBMS.	CO1, L3	4
Q5	Elaborate how Entity Relationship diagram can be effectively applied in DBMS. Draw E-R diagram for online shopping system.	CO2, L4	4
Q6	A) Evaluate Relational Algebra. Consider the following relational database schema consisting of the four relation schemas: passenger (pid, pname, pgender, pcity) agency (aid, aname, acity) flight (fid, fdate, time, src, dest) booking (pid, aid, fid, fdate) Answer the following questions using relational algebra queries: a) Get the complete details of all flights to New Delhi. b) Get the details about all flights from Chennai to New Delhi. c) Find only the flight numbers for passenger with pid 123 for flights to Chennai before 06/11/2020. d) Find the passenger names for passengers who have bookings on at least one flight. B) Analyze and evaluate the four Applications of Spatial and Multimedia Databases.	CO2, L4	8

Course Outcomes (CO) *Students will be able to*	
1	Apply knowledge of database system, No Sql database, data mining and SQL structure.
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5	Investigate various case studies using NoSql.
6	Apply the Applications of spatial and multimedia databases for real world.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Create

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.(IT)	Semester	4
Subject Code	BSIT-101	Subject Title	Probability and Statistics
Mid Semester Test (MST) No.	1	Course Coordinator(s)	Rupinder Kaur
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	13th Feb, 2024	Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	State Type I and Type II error with suitable example.	CO4, L1	2
Q2	Contrast Primary and Secondary data with four valid points of each.	CO1, L4	2
Q3		CO1, L3	4

Marks	Less than 5	Less than 10	Less than 15	Less than 20	Less than 25	Less than 30	Less than 35	Less than 40	Less than 45
No of students	29	224	465	582	634	644	650	653	655

From the following data solve the value of median.

Q4	Determine first four central moments from the following:					
	Sales	40-50	50-60	60-70	70-80	80-90
	No of companies	10	25	30	23	12
					CO1, L3	4
Q5	Investigate Karl Pearson's coefficient of skewness from the following data				CO5, L6	4

Profit (Rs. Lakhs)	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150
No of Cos	12	18	35	42	50	45	30	8

Q6	A sample analysis of examination results of 500 students were made. It was found that 220 students had failed, 170 had secured a third class, 90 were placed in second class and 20 got a first class. Test are these figures commensurate with the general examination result which is in the ratio of 4:3:2:1 for various categories respectively? (Table value of Chi- Square for 3 d.f at 5% level of significance is 7.81)	CO4, L5	

Course Outcomes (CO)

Students will be able to

1	Demonstrate the measures of central tendency to analyze the given data set
2	Create the histogram for a given data set

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech. (IT)	**Semester**	4th
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Microprocessors
MSE No.	1	**Course Coordinator(s)**	Er. Gitanjali
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MSE	12th Feb 2024	**Roll Number**	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Marks
Q1	Describe the main purpose of assembly language? What are the advantages of assembly language over machine language?	CO3, L2	2
Q2	A computer register T of 8-bits is having hexadecimal **CB** as its initial value. What will be the value of status bits CY, S, Z , P and AC after adding the immediate operand hexadecimal **E9** to T.	CO1 , L4	2
Q3	With the help of flowchart, Illustrate the different phases of instruction cycle.	CO2, L2	4
Q4	An instruction is stored at location 300 with its address field at location 301. The address field has the value 400. A processor register R1 contains the number 200. **Evaluate the effective address and operand** that must be loaded into accumulator if the addressing mode of the instruction is: (a) Direct (b) Immediate (c) Relative (d) Register Indirect (e) Index with R1 as the Index register	CO2, L3	4
Q5	Suppose we have input 1st as 84 Hexadecimal number and input 2nd as 75 Hexadecimal number. Using these inputs, write an assembly language program that performs addition operation on the given inputs and show the **output generated is a 16-bit number.** Also provide the complete representation of the hexadecimal inputs into binary form.	CO5, L6	4
Q6	Sketch out the architecture of the 8085 microprocessor. Elucidate the following (a) General purpose and Specific purpose registers, Register pairs (b) Address Buffer , Address/Data Buffer (c) Instruction Decoder (d) Increment/Decrement Address latch (e) Timing and Control Circuitry and its pins (f) ALU (g) Status Flags (h) Interrupt Control and its pins	CO1, L6	8

Course Outcomes (CO) *Students will be able to:*

1	Identify computer systems, memory organization, Microprocessor and assembly language programming
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes
3	Solve basic binary math operations by using the instructions of microprocessor
4	Compare between pipelining and parallelism
5	Design structured, well commented, understandable assembly language programs to provide solutions to real world problems
6	Classify the trends and developments of microprocessor technology

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-105	**Subject Title**	Python Programming
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	Harpreet Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST		**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	"Python is Platform Neutral". Comment.	CO1, L2	2
Q2	What are the Immutable data types in Python?	CO1, L2	2
Q3	Write a program to explain the concept of a) isdecimal() , b) isdigit(), c) partition(), d) rfind() String methods.	CO3, L3	4
Q4	Write a program to print the following pattern: 4 3 2 1 3 2 1 2 1 1	CO3, L4	4
Q5	Write a Python program that prints all the numbers from 0 to 9 except 3, 5 and 6.	CO3, L4	4
Q6	1) Give and Explain the Outputs of following code fragments with input a= -7 and b= 5: a) Print(a/4) and print(a//4) b) Print(~a) c) Print(a>>3) d) Print(a and b) 2) How to Read and Write into a Text file in Python	CO1,C06 L4	8(4+4)

Course Outcomes (CO)

Students will be able to

1	Familiar with Python environment, data types, operators used in Python
2	Compare and contrast Python with other programming languages..
3	Learn the use of control structures and numerous native data types with their methods.
4	Design user defined functions, modules, and packages.
5	Investigate and implement Graphical User Interfaces based programming
6	Create and handle files in Python
7	Identify the need of object oriented programming features and implement the same to meet real time requirements.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-107	**Subject Title**	Web Technologies
Mid Semester Exam (MSE) No.	1	**Course Coordinator(s)**	Akshay Girdhar, Harjot Kaur Gill
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MSE	19th February 2024	**Roll Number**	

Note: Attempt all questions. All assumptions must be clearly stated.

Q. No.	Question	COs, RBT level	Marks
Q1	Apply CSS to change text color of paragraph as red and heading (H1) as blue of a webpage making use of the concept of classes.	CO2, L3	2
Q2	Differentiate between 'class' and 'id' attributes of HTML elements.	CO2, L2	2
Q3	Convert the below data into Tabular format in HTML and CSS: S.No., Language, Mostly used for 1, HTML, Front End 2, CSS, Front End 3, Python, Back End [Minimum Expectations: dotted border of red color, horizontal table header- with content aligned at center, caption, cell padding and cell spacing, hoverable table in terms of background color etc.]	CO2, L3	4
Q4	"A tribute page is an overview of someone whom we admire in our life." Create a static tribute webpage using HTML and CSS. [Minimum Expectations: class, id, div, img, ordered and unordered lists etc.]	CO2, L6	4
Q5	Build HTML form that includes various input types and use CSS to style the form elements.	CO2, L3	4
Q6	Develop a simple game using HTML for structure and JavaScript for interactivity. Apply CSS for styling to enhance the visual presentation.	CO2, L6	8

Course Outcomes (CO)

Students will be able to

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyze the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech (IT)	**Semester/ Section**	4th/ B
Subject Code	PCIT-106	**Subject Title**	Operating System
Mid Semester Exam (MSE) No.	1st	**Course Coordinator**	Pankaj Bhambri
Max. Marks	24	**Time Duration**	09.00AM – 10.30AM
Date of MSE	14th February 2024 (Wednesday)	**University Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Discuss the importance of system calls, processes and threads.	CO1, L2	2
Q2	Appraise and evaluate the significance of Inter Process Communication.	CO1, L5	2
Q3	Distinguish between shell and kernel with two major differences. Analyze the deadlock avoidance and prevention mechanisms alongwith the significance of resource allocation graphs.	CO1, L4	4
Q4	Demonstrate the four criterias required for the process synchronization. How two types of semaphores resolve the issue of process synchronization? Demonstrate through appropriate examples.	CO1, L3	4
Q5	Categories Preemptive and Non-Preemptive Scheduling. There are six processes named as P1, P2, P3, P4, P5 and P6. Their arrival time and burst time are given below in the table. The time quantum of the system is 2 units. Calculate the Average Turn Around Time, Average Waiting Time and Average Response Time using the Round Robin Scheduling.	CO1, L5	4
Q6	a. Compare and contrast the various features, pros/cons and applications of different types of operating systems. b. Classify the operating system services. Evaluate the roles of process control block structure and process states.	CO1, L4 CO1, L4	8

Process	Arrival Time	Burst Time
P_1	0	5
P_2	1	6
P_3	2	3
P_4	3	1
P_5	4	3
P_6	6	4

14.5
10.66
3.33

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	Use different disk scheduling algorithm for better utilization of external memory.
6	Examine the case studies of different Operating Systems to recapitulate the concepts of Operating System.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech. (IT)	**Semester/ Section**	4th/ A&B
Subject Code	PCIT-106	**Subject Title**	Operating System
Mid Semester Examination (MSE) No.	2nd	**Course Coordinator(s)**	Dr. K.S. Mann and Dr. Pankaj Bhambri
Max. Marks	24	**Time Duration**	09AM to10.30AM
Date of MSE	24th April 2024 (Wednesday)	**University Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Share the causes of thrashing and overlays.	CO2, L1	2
Q2	Illustrate any four major differences between UNIX, LINUX and Windows.	CO6, L5	2
Q3	Discuss the File Attributes and Operations. Elaborate the File Management with detailed requirement and implementation issues of Contiguous, Linked and Indexed allocation methods.	CO3, L3	4
Q4	Explain the need of virtual memory. Illustrate bad blocks, fragmentation types and file system layered architecture.	CO3, L2	4
Q5	Discuss the Belady's Anomaly and Segmentation. Consider the page reference sequence 1, 2, 3, 7, 6, 1, 2, 5, 3, 7, 0, 4, 2, 3, 6, 0, 3, 2. Compare the number of page faults for LRU, FIFO and Optimal Page Replacement Algorithm with frame size 4.	CO4, L5	4
Q6	Suppose a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 149, and the previous request was at cylinder 99. The queue of pending requests, in FIFO order, is, 86, 1470, 913, 1774, 948, 1500, 1000, 1750, 130. Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk scheduling algorithms? a. FCFS b. SSTF c. SCAN d. LOOK e. C-SCAN f. C-LOOK (Direction of Movement is towards the smaller value).	CO5, L5	8

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	Use different disk scheduling algorithm for better utilization of external memory.
6	Examine the case studies of different Operating Systems to recapitulate the concepts of Operating System.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Note: Students are advised to check each question thoroughly before attempting for the appropriate responses. It will be helpful for proper understanding of the problem-set and step-marking.

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.	**Semester**	6
Subject Code	PCIT-104	**Subject Title**	Database Management System
(MST) No.	2	**Course Coordinator**	Mohanjit Kaur Kang
Max. Marks	24	**Time Duration**	1hr 30 mins
Date of MST		**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Elucidate timestamp and validation protocol.	CO3, L1	2 2
Q2	Interpret the role of concurrency and serializability in DBMS.	CO2, L5	2 2
Q3	List down at least ten SQL Queries in DBMS with syntax.	CO3, L1	4 4
Q4	How does a database maintain data integrity during transactions with ACID properties.Ellobrate ACID properties?	CO3, L3	4 3
Q5	Contrast and compare log based recovery and cascading rollback or shadow paging.	CO2, L4	4 3
Q6	Illustrate functional Dependency? Explain its use in DBMS. Explain BOYCEE-CODD normal forms and how does it differ from 3NF. OR How you will proceed to evaluate NOSQL. Demonstrate NOSQL databases including instances from Google, Face book, and MetLife case studies.	CO2, CO5,L4,L5	8 6

Course Outcomes (CO)
Students will be able to

1	Apply knowledge of database system, No Sql database, data mining and SQL structure.
2	Identify, formulate database design, Functional dependencies and recovery techniques
3	Use the techniques, skills and tools such as query handling, normalized relations
4	Design Physical and object relational database.
5	Investigate various case studies using NoSql.
6	Apply the Applications of spatial and multimedia databases for real world.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Create

2
2
4
4
3
6

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech (IT)	**Semester**	4th
Subject Code	PCIT-108	**Subject Title**	Computer Architecture and Microprocessor
MSE No	2	**Course Coordinator(s)**	Er. Gitanjali
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	22nd April 2024	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Elucidate how the performance of a multiprocessing environment is enhanced by parallel processing.	CO4, L2	2
Q2	Provide evidence for the claim that "The use of microprocessors makes daily life easier" by using real-time applications.	CO6, L5	2
Q3	Illustrate the need and significance of memory hierarchy. Also elaborate the memory hierarchy in order of their features with their comparative analysis.	CO1, L3	4
Q4	Discuss the purpose of each pin in the **8051 microcontroller** pin diagram.	CO6, L2	4
Q5	(a) Compare and contrast RISC and CISC architecture (b) Write an assembly language program to compute the 2's complement of an 8-bit number by taking input as 22Hex.	CO2, L4 CO5, L6	4
Q6	Consider a system where clock is triggering at the speed of 1MHz (1 clock = 1us). In a pipelined processor, there are 4 stages and each stage takes only 1 clock. If a program has 100 instructions, then calculate a) Time without pipeline b) Time with pipeline c) Speed Up and Max Speed Up d) Efficiency	CO4, L6	8

Course Outcomes (CO)
Students will be able to

1	Identify computer systems, memory organization, Microprocessor and assembly language programming.
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes.
3	Solve basic binary math operations by using the instructions of microprocessor.
4	Compare between pipelining and parallelism.
5	Design structured, well commented, understandable assembly language programs to provide solutions to real world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

URN: 2203218

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-107	**Subject Title**	Web Technologies
Mid Semester Test (MSE) No.	2	**Course Coordinator(s)**	Dr. Akshay Girdhar and Prof. Harjot Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MSE	25th April, 2024	**Roll Number**	

Note: Attempt all questions. All assumptions must be clearly stated.

Q. No.	Question	COs, RBT level	Marks
Q1	Differentiate between **const** and **define ()** in PHP.	CO1, L2	2
Q2	Explain the features of CodeIgniter framework.	CO1, L2	2
Q3	Write a JavaScript program to create that changes the displayed image when a button is clicked.	CO6, L6	4
Q4	Explain the differences between **GET** and **POST** methods in PHP. When would you use each method, and what are the implications of using one over the other?	CO5, L4	4
Q5	Write a JavaScript program to demonstrate the working of a user-defined function to perform a mathematical computation by passing parameters.	CO6, L6	4
Q6	Create a simple web application for managing employee records in a company. The application should allow users to perform **Insert**, **Update** and **Delete** operations on an "employees" table in a MySQL database. The "employees" table has the following structure: • **id** (Primary Key, Auto Increment) • **name** (VARCHAR(30), not null) • **email** (VARCHAR(50), not null, unique) • **position** (VARCHAR(50), not null)	CO5, L6	8

Course Outcomes (CO) *Students will be able to*	
CO1	Understand the basic tools required for Web designing and applications
CO2	Build HTML5 and CSS3 for designing interactive web pages.
CO3	Analyze the basic operations of an AJAX application
CO4	Develop an interactive website using jQuery.
CO5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
CO6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

2221139

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	PCIT-105	**Subject Title**	Python Programming
Mid Semester Examination (MSE) No.	2	**Course Coordinator**	Prof. Reema Verma
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date Of MSE	25-04-2024	**Roll Number**	

Note: Attempt all questions

Q.No.	Question	COs,RBT Level	Marks
Q1	How does the **pop()** method differ from **remove()** method ?	CO3, L2	2
Q2	Compare and contrast the difference between Terminal base and GUI Interface.	CO5, L4	2
Q3	State the significance of **__init__** method.	CO4, L2	4
Q4	Demonstrate the various ways arguments can be passed at the time of function call(provide example for any two)	CO4, L3	4
Q5	Construct a program detailing the expansion of the vehicle class hierarchy to incorporate additional vehicle types.Evaluate how each new type can demonstrate unique behaviour while maintaing the advantages of polymorphism.	CO7, L5	4
Q6	a) Using Tkinter construct a simple login form with labels for user name and password along with entry widget for user input.employ grid manager to arrange these widgets in structured layout. b) Analyze the advantages of using ttk widgets over standard Tkinter in terms of appearance and functionality.	CO5, L6	8

Course Outcomes (CO)	
1	Familiar with Python environment, data types, operators used in Python.
2	Compare and contrast Python with other programming languages..
3	Learn the use of control structures and numerous native data types with theirmethods
4	Design user defined functions, modules, and packages
5	Investigate and implement Graphical User Interfaces based programming
6	Create and handle files in Python
7	Identify the need of object oriented programming features and implement thesame to meet real time requirements.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

2	2
2	1
4	3
4	3
2	1
4	4
1	

19

14

max(19, 19)

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.(IT)	**Semester**	4
Subject Code	BSIT-101	**Subject Title**	Probability and Statistics
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Rupinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	23rd April,2024	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Explain dependent events and independent events with suitable example.	CO7, L1	2
Q2	Write properties of Binomial Distribution.	CO3, L4	2
Q3	The following are the intermediate results of two series X and Y: Mean of X=90, Mean of Y=70, N=10, $\sum x^2$=6360, $\sum y^2 = 2860, \sum xy = 3900$ (where x and y are deviations from the respective means). Find two regression equations. $X = -5.2 + 1.36y$ $y = 0.618x + 19.83$	CO5, L3	4
Q4	There are two urns. Urn I contain 1 white and 6 red balls and urn II has 4 white and 3 red balls. One of the urns is selected at random and a ball is drawn from it and found to be white. What is the probability that it is drawn from the 1st urn? 0.2	CO6, L2	4
Q5	The chances of survival after 25 years are 3 out of 10 for a man and 4 out of 10 for a woman. Construct the probability that: • Both will be alive after 25 years. 0.12 • At least one will alive after 25 years 0.7	CO3, L5	4
Q6	The number of defects per unit in a sample of 330 units of a manufactured product was found as follow: **No of defect:** 0 | 1 | 2 | 3 | 4 **No of units:** 214 | 92 | 20 | 3 | 1 215 92 20 3 1 Fit a Poisson Distribution to the data and test goodness of fit.	CO3, L6	8

$\chi^2 = 0.0096$, tabulate val = 0.84

degree of fro = 4 Select Null Hy

$\frac{1}{215} = \frac{1000}{215} = 0.00$

Please check that this question paper contains_ 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .2209751

Program: B.Tech. (Batch 2018 onward)

Semester: 4th

Name of Subject: Computer Architecture and Microprocessors

Subject Code: PCIT-108

Paper ID: 16237

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Define word length of a microprocessor.

b) Draw the block diagram of Stored Program Organization.

c) What is the role of an assembler?

d) Define arithmetic pipeline with suitable example.

e) What is the difference between the microprocessor and microcontroller?

f) What is the difference between cache consistency and cache coherency?

Part – B **[Marks: 04 each]**

Q2. What is DMA? Explain the basic DMA process.

Q3. Write a program to perform 8 bit multiplication in 8085 processor. (Assume data and memory yourself).

Q4. What is flag? What are different flags available in 8085 microprocessor?

Q5. Write a program to add a data byte located at offset 0500H in 2000H segment to another data byte available at 0600H in the same segment and store the result at 0700H in the same segment.

Q6. Write the meaning of ALE, HOLD, HLDA, Logical address and Physical address.

P.T.O.

Q7. Discuss the concept of pipeline and parallel processing?

Part – C **[Marks: 12 each]**

Q8. Discuss the Block diagram of 8085 in detail. Also explain its various applications.

OR

What do you mean by virtual memory? Discuss how paging helps in implementing virtual memory. Discuss any ways of improving the cache performance.

Q9. Explain the different types of instructions available in 8085 microprocessor? Write a program to find smallest element of an array.

OR

a) Discuss the Interfacing 8051 to LCD b) Compare High-End-High-Performance Processors Vs. Embedded Systems

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Please check that this question paper contains ___9___ questions and ___2___ printed pages within first ten

[Total No. of Questions: 09]
Uni. Roll No. 2203745

[Total No. of Pages: 02]

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID: 16233
Scientific calculator is Not Allowed

Detail of allowed codes/charts/tables etc. Nil

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) What's the difference between database systems and files systems?

b) List the four types of databases structures.

c) Write the conditions for every non-trivial function dependency $X \rightarrow Y$ to be in 3NF.

d) Is two-phase locking pessimistic protocol?

e) Assume there is a transaction to modify the city of a student. What are the possible logs written for this transaction?

f) Why are data marts important? Give an example of data marts.

Part – B **[Marks: 04 each]**

Q2. With the help of the block diagram, describe the basic architecture of a database management system.

Q3. Write a SQL statement to find the names and loan numbers of all customers who have a loan at XYZ branch.

Q4. A car-rental company maintains a database for all vehicles in its current fleet. For all vehicles, it includes the vehicle identification number, license number, manufacturer,

vehicle

P.T.O.

model, date of purchase, and color. Special data are included for certain types of vehicles:

- Trucks: cargo capacity.
- Sports cars: horsepower, renter age requirement.
- Vans: number of passengers.
- Off-road vehicles: ground clearance, drive train (four- or two-wheel drive).

Construct an E- R model for all operations.

Q5. Define trigger and explain its three parts? How do you drop triggers?

Q6. Explain Order by, Group by and Having Clauses with example.

Q7. Elaborate the Process of Data Mining. How is data warehouse similar/dissimilar from Data mining?

Part – C **[Marks: 12 each]**

Q8. a) Illustrate different set operations in Relational algebra with an example? **b)** Let E1 and E2 be two entities in an E/R diagram with simple single-valued attributes. R1 and R2 are two relationships between E1 and E2, where R1 is one1 to-many and R2 is many-to-many. R1 and R2 do not have any attributes of their own. Calculate the minimum number of tables required to represent this situation in the relational model?

OR

Consider the employee database, where the primary keys underlined. employee(empname,street,city)works(empname,companyname,salary)company (companyname,city)manages(empname,management)

Give an expression in the relational algebra for each request.

1) Find the names of all employees who work for First Bank Corporation.

2) Find the names, street addresses and cities of residence of all employees who work for First Bank Corporation and earn more than 200000 per annum.

3) Find the names of all employees in this database who live in the same city as the company for which they work

Q9. a) Discuss the case studies of Facebook and Google using NoSQL. b) Elaborate the various applications of Spatial and Multimedia Databases

OR

a) Suppose that there is a database system that never fails. Analyze whether a recovery manager required for this system? b) Discuss the 3 phases of validation based protocol.

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[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester:4th
Name of Subject: Probability and Statistics
Subject Code: BSIT-101
Paper ID: 16232
Scientific calculator is Allowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Explain equally likely events and mutually exclusive events with suitable example of both.
b) Illustrate regression coefficient of Y on X and regression coefficient of X on Y.
c) Write properties of Binomial Distribution.
d) Distinguish Primary Data and Secondary Data
e) Compare Type I and Type II error
f) Five students obtained the following marks in statistics: 20, 35, 25, 30 and 15. Find the Range and coefficient of Range.

Part – B **[Marks: 04 each]**

Q2. One number is drawn from numbers 1 to 150. Find the probability that it is either divisible by 3 or 5.

Q3. Ten competitors in a beauty contest are ranked by three judges in the following order:

Ist Judge	1	6	5	10	3	2	4	9	7	8
2nd Judge	3	5	8	4	7	10	2	1	6	9
3rd Judge	6	4	9	8	1	2	3	10	5	7

Use Rank Correlation Coefficient to determine which pair of judges has the nearest approach to common tastes in beauty.

Q4. Calculate Karl Pearson's coefficient of skewness from the following data:

Wages:	300-400	400-500	500-600	600-700	700-800
No of workers:	5	10	10	3	2

P.T.O.

Q5. Calculate two regression equations from the following data: $\sum X = 30$, $\sum Y = 23$, N=7, $\sum X^2 = 224$, $\sum Y^2 = 175$ *and* $\sum XY = 168$.

Q6. The chance that a ship safely reaches a port is 1/5. Find the probability that out of 5 ships expected at least one would arrive safely.

Q7. In a sample of 500 persons from a village in Haryana, 280 are found to be rice eaters and the rest wheat eaters. Can we assume that both the food articles are equally popular?

Part – C **[Marks: 12 each]**

Q8. In a survey of 200 boys, of which 75 were intelligent, 40 had educated fathers; while 85 of the unintelligent boys had uneducated fathers. Do these figures support the hypothesis that educated fathers have intelligent boys (The value of Chi-Square for 1 degree of freedom at 5% level is 3.84).

OR

An incomplete distribution families according to their expenditure per week is given below. The median and mode for the distribution are Rs. 25 and Rs. 24 respectively. Calculate the missing frequencies:

Expenditure:	0-10	10-20	20-30	30-40	40-50
No of families	14	?	27	?	15

Q9. There, are three machines A, B, C in a factory. Their daily outputs are in the ratio of 2:3:1. Past experience shows that 2% , 4% and 5 % of the item produced by A, B and C respectively are defective. If an item selected at random is found to be defective, find the probability that it was produced by A or B.

OR

Fit a Poisson distribution to the following data. Also find the mean and variance of above distribution.

Deaths:	0	1	2	3	4
Frequency:	109	65	22	3	1

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Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2.]

Uni. Roll No. 2203715 J

Program: B.Tech. (Batch 2018 onward)
Semester: 4
Name of Subject: Python Programming
Subject Code: PCIT-105
Paper ID: 16234

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) List the features of Python.
b) Evaluate an expression to demonstrate the concept of precedence.
c) "Python is Platform Neutral". Comment.
d) Compare python with other languages.
e) Compare pop() and remove() method.
f) Write a code to find the square root of a number.

Part – B **[Marks: 04 each]**

Q2. Describe the detecting and correcting syntax errors with an example.

Q3. Write the code of following:- a) isdigit() b) partition() and rfind().

Q4. Analyze the advantages of widgets of tkinter and tkinter.ttk in terms of appearance and functionality.

Q5. Write a code to print the following pattern:-

```
4 4 4 4
3 3 3
2 2
1
```


P.T.O.

e' – q, n
s' a, 2

Q6. Write a code that prints prime numbers.

Q7. Using Tkinter construct a simple login form with labels i.e Employee id and Employee password with entry widgets for user input, employ grid manager to arrange these widgets in structured layout.

Part – C **[Marks: 12 each]**

Q8. Implement the case study of income tax calculator and an ATM.

OR

Demonstrate the followings:-

a) How to replace an Element in a List

b) Sort an element in a List

c) Traversing a Dictionary

d) Nondirective Psychotherapy (Implementation)

Q9. Design a code to implement the following task of GUI program:-

i. Input the first 10 natural numbers and calculate the sum of odd numbers.

ii. Use input fields and buttons for UI.

OR

Design a code of the following tasks:

4 i. Read a text file containing multiple lines.

ii. Implement a loop to count the occurrences of each unique word.

iii. Write the output to a new file.

B
4

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Please check that this question paper contains 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09] **[Total No. of Pages: 02]**

Uni. Roll No. ..90037S..

Program: B.Tech. (IT)
Semester: 4th
Name of Subject: Operating system
Subject Code: PCIT-106
Paper ID: 16235

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) What is the purpose of system calls?
b) Define inter process communication.
c) What problem is solved by semaphores?
d) How do you limit the effects of thrashing?
e) How can one detect a deadlock in a resource allocation graph?
f) Can we fix bad blocks?

Part – B **[Marks: 04 each]**

Q2. Explain the different functions of an operating system and discuss the various services provided by an operating system.

Q3. Consider 3 processes P1, P2 and P3, which require 5, 7 and 4 time units and arrive at time 0, 1 and 3. Draw the Gant chart, process completion sequence and average waiting time for FCFS.

Q4. What are the criteria for evaluating the CPU scheduling algorithm?

Q5. Distinguish between **a)** Logical and physical address space **b)** demand paging and pure demand paging?

Q6. Explain C-Scan scheduling with some example? Also describe how boot blocks works?

Q7. Elaborate the different types of operation performed on files.

P.T.O.

Part – C **[Marks: 12 each]**

Q8. What is a race condition? Explain how a critical section avoids this condition. What are the properties which a data item should possess to implement a critical section? Describe a solution to the Dining philosopher problem.

OR

Discuss the case study of UNIX and LINUX as an operating system. Compare their pros and cons as operating system.

Q9. Given page reference string: 1,2,3,2,1,5,2,1,6,2,5,6,3,1,3,6,1,2,4,3. Compare the number of page faults for LRU, FIFO and Optimal page replacement algorithm.

OR

Consider the following reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. Assume there are three frames. Apply LRU replacement algorithm to the reference sting above and find out how many page faults are produced. Also Illustrate the LRU page replacement algorithm in detail.

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Please check that this question paper contains_9___ questions and __2__ printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. 2203745.

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Web Technologies
Subject Code: PCIT-107
Paper ID: 16236
Scientific calculator is Not Allowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

(a) How can you describe the syntax and process for declaring and initializing variables in PHP?
(b) How would you explain and evaluate the significance of the <th> and <td> elements in the context of an HTML table?
(c) Identify the fundamental purpose of AJAX in web development.
(d) How can you effectively embed an image in an HTML document?
(e) Discuss the syntax of CSS for inserting borders.
(f) Differentiate between var and let keywords in JavaScript.

Part – B **[Marks: 04 each]**

Q2. Describe the Document Object Model (DOM) and its significance in web development.
Q3. Illustrate the concept of a JavaScript function and demonstrate how to place scripts both within an HTML document and in an external file.
Q4 Explain the concept of GET and POST methods in PHP in detail.
Q5. Create an ordered list in HTML to outline the steps in a recipe. Include appropriate CSS to style the list items with a custom font and color.
Q6. Write a JavaScript program to create a slideshow that changes the displayed image when a next or previous button is clicked.
Q7. Create a static webpage of your choice and also use an internal style specification within an HTML document to change the font size of a paragraph.

P.T.O.

Part – C

[Marks: 12 each]

Q8. Describe the structure of an ordered list and an unordered list in HTML, including the tags used. Provide examples of when each type of list might be appropriate.

OR

Compare and contrast internal and external CSS with respect to their impact on page load times, browser caching, and ease of maintenance. Explain with the help of example.

Q9. Create a fully functional webpage from the ground up that features a login form for existing users, an image gallery. Use HTML and CSS to ensure the design is user-friendly and visually appealing.

OR

Create a simple web application for managing students records in our college. The application should allow users to perform **Insert**, **Update** and **Delete** operations on an "student" table in a MySQL database. The "student" table has the following structure:

- **id** (Primary Key, Auto Increment)
- **name** (VARCHAR(30), not null)
- **university roll no** (VARCHAR(50), not null, unique)
- **class** (VARCHAR(50), not null)

****

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech. (IT)	Semester/ Section	4th A
Subject Code	PCIT-106	Subject Title	Operating System
Mid Semester Examination (MSE) No.	2nd	Course Coordinator(s)	Dr. K.S. Mann
Max. Marks	24	Time Duration	09am – 10.30am
Date of MSE	25th May 2023 (Thursday)	University Roll Number	

Note: Attempt all questions

Q. No.	Question	COs. RBT level	M:
Q1	What is the difference between deadlock and starvation.	CO2, L1	
Q2	Illustrate any four major differences between UNIX, LINUX and Windows.	CO6, L5	
Q3	Explain with diagram Single-Partition allocation and Multiple-partition allocation?	CO3, L3	
Q4	Explain Local and Global Page Replacement, Bad Blocks, File Layered Architecture and Protection Mechanisms.	CO3, L2	
Q5	Discuss the Belady's Anomaly and Segmentation. Consider the page reference sequence 7, 6, 1, 2, 5, 3, 0, 4, 2, 3, 0, 3, 2 with four page frames. Find number of page faults using Optimal and Least recently used page replacement algorithms.	CO4, L5	
Q6	Distinguish between Internal and External Fragmentation. How Virtual Memory is used? Suppose the total numbers of tracks on a single disk are 300 and the order of R/W request is 82, 169, 44, 144, 224, 16, and 190, respectively. Current position of R/W head is at track number 45. Enlist the benefits, limitations along-with the total seek time using FCFS, SSTF, CSCAN and LOOK Disk Scheduling algorithms (Direction of Movement is towards the smaller value).	CO5, L5	

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	[illegible] algorithm for better utilization of external memory.

[illegible] to recapitulate the concepts of Operating System

Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels		
L1	L2	L3	L4	L5	C
[illegible]	Understanding	Applying	Analyzing	Evaluating	

[illegible] thoroughly before attempting for the [illegible]

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech (IT)	**Semester/ Section**	4th/ A
Subject Code	PCIT-106	**Subject Title**	Operating System
Mid Semester Test (MST) No.	1st	**Course Coordinator**	Pankaj Bhambri
Max. Marks	24	**Time Duration**	01pm – 02.30pm
Date of MST	22nd March 2022	**University Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Classify at-least four major differences between shell and kernel.	CO6, L2	2
Q2	Consider the following set of four processes. Their arrival time and time required to complete the execution (CPU burst time) are given in the following table: Process / Arrival Time / CPU Burst Time P_0 / 0 / 10 P_1 / 1 / 6 P_2 / 3 / 2 P_3 / 5 / 4 Consider all time values in milliseconds. Evaluate the Average Waiting Time using First Come First Serve Scheduling algorithm.	CO1, L5	2
Q3	What is a Process? Describe the different states of a process with their detailed elaboration.	CO1, L2	4
Q4	Demonstrate the usage of stack, heap, data and code as a part of various sections in a process, through appropriate example.	CO3, L1	4
Q5	Interpret the roles of process synchronization, critical section and mutual exclusion. How semaphores resolve the issue of process synchronization?	CO1, L4	4
Q6	Compare and contrast the various features, pros/cons and applications of different types of operating systems.	CO1, L4	8

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	Use different disk scheduling algorithm for better utilization of external memory.
6	Examine the case studies of different Operating Systems to recapitulate the concepts of Operating System.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech (IT)	**Semester/ Section**	4th/ A
Subject Code	PCIT-106	**Subject Title**	Operating System
Mid Semester Exam (MSE) No.	1st	**Course Coordinator**	Dr. KS Mann
Max. Marks	24	**Time Duration**	09.00AM – 10.30AM
Date of MSE	31st March 2023 (Friday)	**University Roll Number**	2104514

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Write the Syntax for a)tee b)cut	CO1, L2	2
Q2	What is Interprocess communication? Choose the Correct Answer. a) allows processes to communicate and synchronize their actions when using the same address space b) allows processes to communicate and synchronize their actions c) allows the processes to only synchronize their actions without communication d) none of the mentioned	CO1, L5	2
Q3	Show the mapping and difference between Logical and Physical Address in Operating System by using relevant Examples and diagrams?	CO1, L3	4
Q4	Demonstrate the four criterias required for the process synchronization. How two types of semaphores resolve the issue of process synchronization? Demonstrate through appropriate examples.	CO1, L3	4
Q5	Explain with relevant examples that how An Operating System provides services to both the users and to the programs.	CO1, L5	4
Q6	1. FCFS 2.RR (1ms quantum) 3.Non Preemptive Priority 4. Preemptive Priority. Calculate AWT.	CO1, L4 CO2, L4	8

Process	Arrival Time	Priority	Burst Time
P_1	0	4	8
P_2	2	1	6
P_3	2	2	1
P_4	1	2	9
P5	3	3	3

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	Use different disk scheduling algorithm for better utilization of external memory.
6	Examine the case studies of different Operating Systems to recapitulate the concepts of Operating System.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech (IT)	**Semester/ Section**	4th/ A
Subject Code	PCIT-106	**Subject Title**	Operating System
Mid Semester Examination (MSE) No.	2nd	**Course Coordinator**	Pankaj Bhambri
Max. Marks	24	**Time Duration**	10.30am – 12pm
Date of MSE	31st May 2022 (Tuesday)	**University Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Describe the four necessary conditions for Deadlock.	CO2, L1	2
Q2	Illustrate UNIX and LINUX.	CO6, L5	2
Q3	Elaborate the File Management with detailed requirement and implementation issues of Contiguous, Linked and Indexed allocation methods.	CO3, L3	4
Q4	Explain Overlays, Internal and External Fragmentation, Virtual Memory and Thrashing, in details.	CO3, L2	4
Q5	Discuss the Belady's Anomaly. Consider the page references 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, with 4 page frame. Find number of page fault using Optimal page replacement and Least recently used algorithms.	CO4, L5	4
Q6	Suppose the order of request is 82,170,43,140,24,16,190 and current position of Read/Write head is 50. Enlist the Advantages, Disadvantages along-with the total seek time using FCFS, SSTF, CSCAN and LOOK Disk Scheduling algorithms.	CO5, L5	8

Course Outcomes (CO)

Students will be able

1	Exemplify various types of Operating Systems, deadlocks, Process, File and Memory management.
2	Implement various deadlock scheduling algorithms.
3	Analyze and apply various memory and file management mechanisms.
4	Classify various page replacement algorithms for demand paging.
5	Use different disk scheduling algorithm for better utilization of external memory.
6	Examine the case studies of different Operating Systems to recapitulate the concepts of Operating System.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

F=6

642

208

373

314

120
124
174
127
97
642

Please check that this question paper contains_ 09 questions and 02 printed pages within first ten minutes.

MORNING

[Total No. of Questions: 09] [Total No. of Pages: 02]

Uni. Roll No. ..... 20 JUN 2023

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Operating System
Subject Code: PCIT-106
Paper ID: 16235

Detail of allowed codes/charts/tables etc. Nil
Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Define Inter-process communication.
b) List the services provided by an operating system?
c) Point out the significant differences between UNIX, LINUX and Windows
d) Compare single-partition allocation and multiple-partition allocation.
e) List three major activities of an OS with regard to memory management.
f) What is thrashing? How is it controlled by OS?

Part – B **[Marks: 04 each]**

Q2. Explain process scheduling? Describe the different types of schedulers?

Q3. Some computer systems do not provide a privileged mode of operation in hardware. Is it possible to construct a secure operating system for these computer systems? Justify your reply.

Q4. Elaborate the mapping and difference between logical and physical address.

Q5. Consider the following page reference string. 1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2. How many page faults would occur for the following replacement algorithm, assuming four and six frames respectively **a)** page replacement. **b)** FIFO page replacement.

Q6. Define C-SCAN scheduling. Why rotational latency is not considered in disk scheduling?

Q7. What are points to be consider in file system design? Explain linked list allocation & index allocation in detail.

Part – C **[Marks: 12 each]**

Q8. Differentiate among the following types of OS by defining their essential properties. a) Time sharing system b) Parallel system c) Distributed system d) Real time system

OR

Differentiate between the following a) Paging and Segmentation b) Page table and segment table **c)** tightly coupled systems and loosely coupled systems

Q9. What are critical sections? Why mutual exclusion required? Explain any 2 methods of achieving mutual exclusion in detail.

OR

Distinguish between Internal and External Fragmentation. How Virtual Memory is used? Suppose the total numbers of tracks on a single disk are 300 and the order of R/W request is 82, 169, 44, 144, 224, 16, and 190, respectively. Current position of R/W head is at track number 45. Enlist the benefits, limitations along-with the total seek time using FCFS, SSTF and LOOK Disk Scheduling algorithms (Direction of Movement is towards the smaller value).

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Please check that this question paper contains_ 09 questions and 02 printed pages within first ten minutes.

[Total No. of Questions: 09]
Uni. Roll No. .....

~~MORNING~~ Evening

16 JAN 2023

[Total No. of Pages: 02]

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Operating System
Subject Code: PCIT-106
Paper ID: 16235

Detail of allowed codes/charts/tables etc. Nil
Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

a) List three objectives of an operating system.
b) Distinguish between hard real time systems and soft real time systems.
c) Why page size is always power of 2?
d) Why API's need to be used rather than system call?
e) Is deadlock state more critical than starvation? Justify.
f) What are the three methods for allocating disk space?

Part – B

[Marks: 04 each]

Q2. Discuss the general structure of an operating system.

Q3. State dining philosopher's problem and give a solution using semaphores. Write structure of philosopher.

Q4. Describe necessary conditions for a deadlock situation to arise. Brief about different methods to handle deadlocks.

P.T.O.

MORNING Evening

16 JAN 2023

Q5. The queue of requests in FIFO is 86,147,91,177,94,150,102,175,130 What is the total head movement needed to satisfy the requests for the following Scheduling algorithms FCFS, SJF, SCAN, LOOK, C-SCAN

Q6. Discuss the LINUX operating system as a case study.

Q7. Explain the following i) file types ii) file operation iii) file attributes.

Part – C

[Marks: 12 each]

Q8. What is disk scheduling? Explain FCFS and SCAN disk scheduling algorithms.

OR

Distinguish between i) Process and Program ii) Multiprogramming and multiprocessing iii) Job scheduling and CPU scheduling

Q9. Differentiate between the following a) Paging and Segmentation b) Page table and segment table c) internal and external fragmentation.

OR

What is virtual memory? Assume we have a demand paged memory. The page table is held in registers it takes 8ms to service a page fault if an empty page is available or the replaced page is not modified, and 20ms if the replaced page is modified. Memory access time is 100ns. Assume that the page to be replaced is modified 70% of the time. What is the maximum acceptable page fault rate for an effective access time of no more than 200ns?

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Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]
Uni. Roll No. .....

EVENING

30 JUN 2022

[Total No. of Pages: 2]

Program: B.Tech. (Batch 2018 onward)
Semester: 04
Name of Subject: Operating System
Subject Code: PCIT-106
Paper ID: 16235

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A

Q1. **[Marks: 02 each]**

a) What is an Operating System?
b) What is the difference between deadlock and starvation?
c) Define Virtual Memory and what are its advantages?
d) What is thrashing?
e) Explain Inter Process Communication.
f) What do you mean by PCB? What are its contents?

Part – B

[Marks: 04 each]

Q2. What is a process? Explain and draw Process State Diagram.

Q3. Write a brief note on Layered Architecture in reference to device management.

Q4. What is a deadlock and what are the conditions to prevent it?

Q5. What are the different access methods of files? How are they implemented?

Q6. What are semaphores and its advantages? Explain two primitive semaphore operations.

Q7. What is fragmentation? Explain its types and disadvantages.

P.T.O.

EVENING

Part – C [Marks: 12 each] 30 JUN 2022

Q8. Consider the following set of processes, with the length of the CPU burst given in ms:

Process	Burst Time	Priority
P1	2	2
P2	1	1
P3	8	4
P4	4	2
P5	5	3

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5 at time 0.

a. Draw four Gantt charts that illustrate the execution of these processes using the following scheduling algorithms: FCFS, SJF, non pre-emptive priority (a larger priority number implies a higher priority), and RR (quantum= 2).

b. What is the turnaround time of each process for each of the scheduling algorithms in part a?

c. What is the waiting time of each process for each of these scheduling algorithms?

d. Which of the algorithms results in the minimum average waiting time?

OR

Explain different types of operating systems in detail.

Q9. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order, is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130

Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests, for each of the following disk-scheduling algorithms?

a. FCFS b. SSTF c. SCAN d. LOOK e. C-SCAN f. C-LOOK

OR

Given page reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. Compare the number of page faults for LRU, FIFO and Optimal page replacement algorithm with frame size 4.

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Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.	**Semester**	6
Subject Code	PCIT-104	**Subject Title**	Database Management System
(MST) No.	1	**Course Coordinator**	Mohanjit Kaur Kang
Max. Marks	24	**Time Duration**	1hr 30 mins
Date of MST		**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Define database management system and mention its applications.	CO1, L1	2
Q2	Analyze primary, candidate and super key with example.	CO1, L4	2
Q3	Discuss schemas with difference between external, logical and physical level schemas. Also explain architecture of dbms.	CO1, L2,L3	4
Q4	Discuss CODD rule for DBMS.	CO1, L3	4
Q5	What do you mean by Entity Relationship diagram and why it is useful? Draw E-R diagram for hospital with the set of patient and medical doctors.	CO2, L4	4
Q6	Describe Relational Algebra. Consider the relational database: Student (person_name, street, city) Works (person _name, college name, fees) College (college_name, city) Teachers(person_name, teacher name) a) Find the names of the students and college name for all students. b) Find the names of students who are from Ludhiana and whose fees is more than 5000 c) Give the info for teachers who belong to city Ludhiana. d) Give the info for students who do not belong to Ludhiana.	CO2, L4	8

Course Outcomes (CO)

Students will be able to

1	Apply knowledge of database system, No Sql database, data mining and SQL structure.
2	Identify, formulate database design, Functional dependencies and recovery techniques
3	Use the techniques, skills and tools such as query handling, normalized relations
4	Design Physical and object relational database.
5	Investigate various case studies using NoSql.
6	Apply the Applications of spatial and multimedia databases for real world.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Create

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

MORNING

[Total No. of Questions: 09] 04 OCT 2023 [Total No. of Pages: 2]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID: 16233
Scientific calculator is NotAllowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Differentiate between Inner join and Outer join.

b) How Data Marts are used for creating Data Warehouse?

c) Write a syntax for outer join with example.

d) Explain the different applications of Data Mining.

e) Describe the role of shadow paging in recovery systems.

f) Write a syntax of insert and update command in SQL.

Part – B **[Marks: 04 each]**

Q2. Write a short note on applications of spatial and multimedia databases.

Q3. Explain the ACID properties in the context of transaction management

Q4. Discuss the concept of functional dependencies and their role in database design.

Q5. Analyze various recovery techniques used in database management system.

Q6. Distinguish between Data Definition Language (DDL) and Data Manipulation Language (DML) in the context of database management. Include practical examples to illustrate how each language is used.

Q7. Design a set of database tables that exemplify the principles of Boyce-Codd Normal Form (BCNF), and Fourth Normal Form (4NF) in the context of a DBMS. Provide a

practical example to illustrate the application of these normalization forms in database design

Part – C **[Marks: 12 each]**

Q8. What is Database Recovery? Explain the different types of database failure and types of recovery techniques with advantages and disadvantages.

OR

Examine and contrast various data models utilized within Database Management Systems for effective database design.

Q9. Examine the phenomenon of deadlock in multi-process or multi-threaded systems, delving into the underlying causes and ramifications. Subsequently, present a comprehensive and step-by-step elucidation of the deadlock detection and resolution process, accompanied by a significant real-world example that highlights the practical application of these concepts.

OR

Consider a database for an online bookstore that includes tables for books, authors, and customers. Write SQL commands to perform the following tasks:

1. Create a table named "Books" with columns for book ID, title, author ID, price, and quantity in stock.
2. Insert a new book into the "Books" table. The book is titled "The Great Gatsby" by F. Scott Fitzgerald, with a price of $12.99 and 50 copies in stock.
3. Create a table named "Authors" with columns for author ID, name, and biography.
4. Insert a new author into the "Authors" table. The author is F. Scott Fitzgerald, and his biography should be provided.
5. Create a table named "Customers" with columns for customer ID, name, email, and address.
6. Insert a new customer into the "Customers" table. Include their name, email address, and physical address.
7. Write a SQL query to retrieve the titles & prices of all books in the "Books" table.

Please provide the SQL commands for each of the above tasks, along with a brief explanation of what each command does.

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Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]
Uni. Roll No. .....

[Total No. of Pages: 02]

MORNING

20 SEP 2022

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID: 16233
Scientific calculator is Not Allowed

Detail of allowed codes/charts/tables etc. Nil
Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Write the merits of database compared to a file system.
b) What is data dictionary used for?
c) How many timestamps are associated in validation based protocols?
d) What are the fields used in log based recovery?
e) List the four types of NoSQL Database.
f) Distinguish between database and data marts.

Part – B **[Marks: 04 each]**

Q2. Define foreign key? How does it play a role in the join operation?

Q3. Give example of following relationships : a. Many-to-One b. One-to-One c. One-to-Many d. Many-to-Many

Q4. What is significance of atomicity and consistency? Give an example of each.

Q5. Let E1 and E2 be two entities in an E/R diagram with simple single-valued attributes. R1 and R2 are two relationships between E1 and E2, where R1 is onel to-many and R2 is many-to-many. R1 and R2 do not have any attributes of their own. Calculate the minimum number of tables required to represent this situation in the relational model?

Q6. Suppose that there is a database system that never fails. Analyze whether a recovery manager required for this system

Q7. Elaborate in detail the various steps of data mining.

Part – C **[Marks: 12 each]**

Q8. Differentiate between 1NF and 2NF. Design any 1NF table and convert it into 2NF specifying the required rules

OR

Create a table called "Class that contains six columns: classID, Branch LastName, FirstName, Address, and City. Perform a not null on the class table and also create primary key on the same table.

Q9. Consider the following tables: Employee (Emp_no, Name, Emp_city) Company (Emp_no, Company_name, Salary)

i. Write a SQL query to display Employee name and company name.

ii. ii. Write a SQL query to display employee name, employee city ,company name and salary of all the employees whose salary >10000

iii. Write a query to display all the employees working in 'XYZ' company.

OR

Why Google and Face book Switched to NoSQL? Discuss as a Case Study.

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Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID: 16233

EVENING

25 JUN 2022

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

Q1.

a) Describe the types of keys used in SQL database.
b) Define different types of Relational Calculus.
c) How Data Marts are used for creating Data Warehouse?
d) Differentiate between Inner join and Outer join.
e) Where NoSQL database is preferable over a relational database?
f) Write a syntax of table creation and insertion command in SQL.

Part – B

[Marks: 04 each]

Q2. What is Data Warehousing? Explain the advantages of Data Warehousing.

Q3. Write a short note on applications of spatial and multimedia databases.

Q4. Elaborate the significance of ACID properties of database management system with the help of some examples.

Q5. Define the term NoSQL with example? Analyze why NoSQL database is used by facebook and google applications.

Q6. Design an ER diagram for student enrollment system. Take student, teacher and subjects as entities.

P.T.O.

EVENING

25 JUN 2022

Q7. Consider the insurance database as mentioned below, where the primary keys are underlined. Construct the following SQL queries for this relational database.

Note: The participated relation relates drivers, cars, and accidents.

person (driver_id, name, address)

car (license, model, year)

accident (report_number, date, location)

owns (driver_id, license)

*participated (driver id, **license**, report_number, damage amount)*

a. Find the total number of people who owned cars that were involved in accidents in 2009.

b. Add a new accident to the database; assume any values for required attributes.

c. Delete the Mazda (*car model*) belonging to "John Smith" (*person name*) .

Part – C **[Marks: 12 each]**

Q8. Define normalization. Why we need to normalize a database in SQL? Briefly discuss the insert, delete and update anomalies, if relations are not in 2NF.

OR

Compare different types of data models used in database management systems.

Q9. Analyze various recovery techniques used in database management system. How to implement these techniques in SQL Databases?

OR

a) Suppose that we have a relation marks(ID, score) and we wish to assign grades to students based on the score as follows: grade F if score < 40, grade C if 40 ≤ score < 60, grade B if 60 ≤ score < 80, and grade A if 80 ≤ score. Write SQL queries to do the following:

i. Display the grade for each student, based on the marks relation. **(3 marks)**

ii. Find the number of students with each grade. **(3 marks)**

b) Design a database Schema for "E-Commerce website" using SQL queries and ER diagram. **(6 marks)**

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Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

EVENING

[Total No. of Questions: 09] [Total No. of Pages: 2]

Uni. Roll No. .....

10 JAN 2023

Program: B.Tech. (Batch 2018 onward)
Semester: 4
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID:16233
Scientific calculator is Allowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Elaborate the concept of Logical database Design.

b) Write a short note on data marts?

c) Explain the use of triggers in database management systems.

d) Why functional dependencies are significant in DBMS?

e) Differentiate between super key and primary key.

f) Write a query to get the highest, lowest, sum, and average salary of all employees from *"employee"* table having EMPLOYEE_ID, SALARY, FIRST_NAME columns.

Part – B **[Marks: 04 each]**

Q2. Discuss first three forms of Normalization using relevant examples.

Q3. Elaborate the significance of ACID properties of database management system with the help of some real examples.

Q4. Define Data Mining. Explain different applications of Data Mining.

Q5. Design a database of any case study using NoSQL database terms and terminology.

Q6. Design an ER diagram for Library management system. Take "Books", "Publisher", "Member" and "borrewed by" as entities.

EVENING

10 JAN 2023

Q7. Why do deadlock occurs? Create the complete process of deadlock detection and resolution with significant example.

Part – C **[Marks: 12 each]**

Q8. Compare different types of data models used in database management systems.

OR

What is Database Recovery? Explain the different types of database failure and types of recovery techniques with advantages and disadvantages.

Q9. Design a database tables to demonstrate the 1NF, 2NF, 3NF and BCNF in DBMS with detailed example.

OR

Design the SQL queries for the following: **(3 marks each)**

1. Create a table and Insert 3 rows
2. Create two tables and Select the data from both the tables using joins.
3. Add and drop a primary key, foreign and unique key constraints
4. Update and delete the data from table using where constraints

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Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

MORNING

[Total No. of Questions: 09]
Uni. Roll No. .....

12 JUN 2023

[Total No. of Pages: 2]

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID: 16233
Scientific calculator is Not Allowed

Time Allowed: 03 Hours

NOTE: **Max. Marks: 60**

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A

Q1. **[Marks: 02 each]**

a) How does a trigger work in a database system?
b) Describe the role of shadow paging in recovery systems.
c) Explain the different applications of Data Mining.
d) Differentiate between primary key and super key.
e) Why concurrency control is important in database systems?
f) Write a syntax for Inner join with example.

Part – B

[Marks: 04 each]

Q2. Discuss the concept of functional dependencies and their role in database design.

Q3. Explain the structures of relational databases, including tables, rows, and columns.

Q4. Classify different types of failures that can occur in a database system. Discuss the role of recovery and atomicity in ensuring data consistency.

Q5. Compare and contrast data definition language (DDL) and data manipulation language (DML), and provide examples of their usage.

Q6. Design database tables to demonstrate the 3NF and BCNF in DBMS with example.

Q7. Consider a university database system that stores information about students, courses, and grades. The database has the following tables:

P.T.O.

Students *(student_id, name, email, major, advisor_id)*

Courses *(course_id, title, department, credits)*

Enrollments *(enrollment_id, student_id, course_id, semester, grade)*

Design the process of logical database in the context of the university database system. Discuss the importance of integrity constraints in ensuring data accuracy and consistency.

Part – C

[Marks: 12 each]

Q8. Explain the ACID properties in the context of transaction management. How do they ensure data consistency and reliability?

OR

Explain the concept of data warehousing and its advantages in decision support systems. Discuss the role of data marts in supporting specific business functions.

Q9. Design a database of any case study using NoSQL database terms and terminology. Explain in detail with comments.

OR

Consider a database schema for an online bookstore with the following tables:

Books *(book_id, title, author, price, publication_year)*

Customers *(customer_id, name, email, address)*

Orders *(order_id, customer_id, book_id, order_date, quantity)*

Write SQL queries to perform the following tasks:

1. Retrieve the titles and authors of all books published in the year 2022.
2. Retrieve the names and email addresses of customers who have placed at least one order.
3. Calculate the total price of each order by multiplying the quantity of each book by its price, and display the order_id, customer_id, and total price.
4. Find the customer who has placed the maximum number of orders.

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Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	BSIT-101	**Subject Title**	Probability and Statistics
Mid Semester Test (MST) No.	1	**Course Coordinator(s)**	Rupinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24th March, 2022	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Distinguish Primary Data and Secondary Data	CO1, L2	2
Q2	In a moderately asymmetrical distribution, the mode and mean are 32.1 and 35.4.Find the value of Median.	CO1, L5	2
Q3	**From the following data solve the value of median**	CO1, L3	4
Q4	The mean and standard deviation of 200 items are found to be 60 and 20 respectively. If at the time of calculations, two items were wrongly taken as 3 and 67 instead of 13 and 17, detect the correct mean and standard deviation. Verify the correct coefficient of variation.	CO1, L4	4
Q5	**Generate Karl Pearson's coefficient of skewness from the following data**	CO5, L5	4
Q6	A. Calculate mode from the following data B. Elaborate positive and negative Correlation with suitable examples and Scatter diagram	CO1, L5	6+2=8

Marks	Less than 5	Less than 10	Less than 15	Less than 20	Less than 25	Less than 30	Less than 35	Less than 40	Less than 45
No of students	29	224	465	582	634	644	650	653	655

Profit (Rs. Lakhs)	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150
No of Cos	12	18	35	42	50	45	30	8

Value:	0-5	5-10	10-15	15-20	20-25	25-30	30-35
Frequency:	1	2	10	4	10	9	2

Course Outcomes (CO)

Students will be able to

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	BSIT-101	**Subject Title**	Probability and Statistics
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Rupinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	6 June, 2022	**Roll Number**	

Note: Attempt all questions

Q. No.	**Question**	**COs, RBT level**	**Marks**
Q1	DistinguishType I and Type II error.	CO1, L4	2
Q2	Write properties of Binomial Distribution.	CO1, L3	2
Q3	The means of two large sample of sizes 1000 and 2000 are 168.75 cms and 170 cms respectively. Can the samples be regarded as drawn from a population with same mean and S.D 6.25 cms.	CO1, L4	4
Q4	The following are the intermediate results of two series X and Y: Mean of X=90, Mean of Y=70, N=10, $\sum x^2$=6360, $\sum y^2 = 2860, \sum xy =$ 3900 (where x and y are deviations from the respective means). Find two regression equations.	CO1, L5	4
Q5	The number of defects per unit in a sample of 330 units of a manufactured product was found as follow: **No of defect:** 0 1 2 3 4 **No of units:** 214 92 20 3 1 Fit a Poisson Distribution to the data and test goodness of fit.	CO3, L3	4
Q6	A, B and C are three candidates for the post of Director in a company. Their respective chances of selection are in the ratio of 4:5:3. The probability that A, if selected will introduce the internet trading in the company is 0.30. Similarly, the probability of B and C are 0.50 and 0.60 respectively. Find the probability that the company will introduce internet trading. Also find the probability that Director B introduced the internet trading in the company.	CO1, L6	8

Tokens 0.46
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Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	**Semester**	4
Subject Code	BSIT-101	**Subject Title**	Probability and Statistics
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Rupinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24th May, 2023	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	DistinguishNull Hypothesis and Alternate Hypothesis.	CO1, L4	2
Q2	Write properties of Normal Distribution.	CO3, L1	2
Q3	The means of two large sample of sizes 1000 and 2000 are 168.75 cms and 170 cms respectively. Can the samples be regarded as drawn from a population with same mean and S.D 6.25 cms.	CO4, L3	4
Q4	A, B and C are three candidates for the post of Director in a company. Their respective chances of selection are in the ratio of 4:5:3. The probability that A, if selected will introduce the internet trading in the company is 0.30. Similarly, the probability of B and C are 0.50 and 0.60 respectively. Find the probability that the company will introduce internet trading. Also find the probability that Director B introduced the internet trading in the company.	CO6, L5	4
Q5	A sample of 9 boys had heights (inches): 45,47,50,52,48,47,53 and 51. In the light of data, discuss the suggestion that mean height of population is 47.5.	CO4, L3	
Q6	The number of defects per unit in a sample of 330 units of a manufactured product was found as follow: **No of defect:** 0 1 2 3 4 **No of units:** 214 92 20 3 1 Fit a Poisson Distribution to the data and test goodness of fit.	CO3+CO4, L5	4

Course Outcomes (CO)

Students will be able to

1	Demonstrate the measures of central tendency to analyze the given data set
2	Create the histogram for a given data set

Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions:09]
Uni. Roll No. 2004899

[Total No. of Pages: 2]

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Probability and Statistics
Subject Code: BSIT-101
Paper ID: 16232

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately
4) Scientific Calculator is allowed.

Part – A **[Marks: 02 each]**

Q1.

a) What is the difference between skewness and kurtosis?

b) What is Type I and Type II error?

c) What is the difference between correlation and regression?

d) What is sampling distribution?

e) What is mean and variance of poison distribution?

f) A bag contains 4 red balls, 3 white balls and 5 green balls. A ball is drawn from the bag at random. What is the probability of getting a non red ball?

Part – B **[Marks: 04 each]**

Q2. Calculate the coefficient of correlation between X and Y for the following data.

X:	5	9	13	17	21
Y:	12	20	25	33	35

Q3. Obtain the two regression equations from the following data.

Sales:	91	97	108	121	67	124	51	73	111	57
Purchases:	71	75	69	97	70	91	39	61	80	47

Q4. What is Sampling? What is the difference between Probability and Non-Probabilty Sampling?

P.T.O.

Q5. A pack of 50 tickets numbered 1 to 50 is shuffled and then two tickets are drawn. Find the probability that:

a. Both the tickets drawn have prime numbers.

b. None of the tickets drawn has prime numbers.

Q6. What is the difference between frequency and probability distribution? Explain in detail.

Q7. Calculate Median and Mode for the following distribution.

Production per day (in Tons)	21-22	23-24	25-26	27-28	29-30
No. of days	7	13	22	10	8

Part – C **[Marks: 12 each]**

Q8. Fit a straight line for the following data.

X:	10	20	30	40	50
Y:	22	23	27	28	30

OR

A dice is tossed 120 times with the following results:

Number turned up:	1	2	3	4	5	6	Total
Frequency:	30	25	18	10	22	15	120

Test the hypothesis that the dice is unbiased.

[Note: The table value of $\psi^2_{5\%,5} = 11.070$]

Q9. Three similar boxes have white and black balls. Box I has 1 white and 2 Black, Box II has 2 white and 1 black, Box III has 2 white and 2 black. One of the boxes is selected and a ball is chosen at random from it, which turns out to be white. Find the probability that the third box is chosen using Bayes' Theorem?

OR

a) What is the difference between Probability Distribution and Sampling Distribution?

b) Explain classical, relative and subjective approaches of Probability with example.

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Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

[Total No. of Questions: 09]
Uni. Roll No. ...2104514

[Total No. of Pages: 02]

Program: B.Tech. (Batch 2018 onward)
Semester: 4th
Name of Subject: Probability and Statistics
Subject Code: BSIT-101
Paper ID: 16232
Scientific calculator is Allowed.

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

1) Parts A and B are compulsory.
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice.
3) Any missing data may be assumed appropriately.

Part – A

[Marks: 02 each]

Q1.

a) Find the mean of the data: 15,20,25,19,12,11,13,17,18,20.
b) Define Null hypothesis.
c) If the regression coefficient of x on y is 0.8 and that of y on x is 0.2, what is the value of correlation coefficient between x and y?
d) Two dice are tossed once. Find the probability of getting a total of 8.
e) Check the correctness of the statement,"Mean of a B.D is 15 and variance is 5."
f) Average score of two batsman A and B are respectively 54.65, 53.4 and their standard deviation are respectively 1.68, 1.62. Which batsman is more consistent?

Part – B

[Marks: 04 each]

Q2. Calculate the Median of the data given below:

Marks	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	8	11	9	25	12	16

Q3. Annual rainfall at a certain place is normally distributed with mean 45cm. The rainfalls for the last five years are 48cm, 42cm, 40cm, 44cm and 43cm. Can it be concluded that the average rainfall during the last five years is less than the normal rainfall ? (tabulated value = 2.976)

Q4. Find the rank correlation from the following data:

X	74	98	110	70	65	85	88	59
Y	121	133	170	102	90	152	160	85

P.T.O.

Q5 A can solve 90% of the problems given in a book and B can solve 75%. What is the probability that at least one of them will solve the problem , selected at random.

Q6 The probability that a bomb dropped from a plane hits the target is 1/3. If 6 bombs are dropped , find the probability that at least two will hit the target.

Q7. Fit a linear curve to the following data:

x	1	2	3	4	5
y	1	5	11	8	14

Part – C **[Marks: 12 each]**

Q8. Calculate the Karl Pearson's coefficient of correlation from the following data:

X	66	90	88	55	58	44	42
Y	58	76	65	58	53	49	56

OR

A factory produces two types of electric bulbs A and B. In an experiment relating to their life, the following results were obtained.

Length of life	10-20	20-30	30-40	40-50	50-60	60-70
Bulb A	20	18	32	40	22	18
Bulb B	13	22	40	32	18	10

Compare the Variabilities of life of two varieties using Coefficient of variation.

Q9 In a tape recorder factory, machines A, B and C manufacture respectively 50%, 30% and 20% of the total production. The percentage of the defective output of these machines are 3%, 4% and 5% . A tape recorder is selected at random and is found to be defective. Find the probability that the tape recorder was produced by machine A.

OR

Fit a Poisson distribution to the following data and calculate the expected frequencies.

x	0	1	2	3	4
f	122	60	15	2	1

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MORNING

03 OCT 2023

[Total No. of Questions: 09] [Total No. of Pages: 3]

Uni. Roll No. .....

Program: B.Tech. (Batch 2018 onward)
Semester: 4
Name of Subject: Probability and Statistics
Subject Code: BSTT-101
Paper ID: 16232
Scientific calculator is Allowed

Detail of allowed codes/charts/tables - Normal table is allowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A

[Marks: 02 each]

1.

(a) Find the quartile deviation from the given data: 28,18,20,24,27,30,15.

(b) Find the area under the normal curve between $z = 0$ and $z = 1.54$

(c) State the relation between the correlation and regression coefficients?

(d) Find the probability of drawing two cards king and queen from a pack of cards in two consecutive draws , the card drawn are not being replaced .

(e) Find the mean and the standard deviation of the number of heads in 100 tosses of a fair coin.

(f) If two Eigen values of a matrix are -1 and 1 . Find the third Eigen value when sum of diagonal elements of a matrix is given to be -4.

Part – B

[Marks: 04 each]

2. Compute median from the following data:

Mid-value	5	15	25	35	45	55	65	75
Frequency	15	7	11	10	13	8	20	16

P.T.O.

MORNING

03 OCT 2023

3. Two salesmen A and B are working in a certain district .From a sample survey conducted by a head office, the following results were obtained. State whether there is any significant difference in the average sales between the two salesmen.

	A	B
No.of sales	20	18
Average	170	205
Standard deviation	20	25

(Given the table value of t for 36 d.f. , $t_{0.5}$ for two tailed test=1.96)

4. Obtain the regression equation of Y on X by least square method:

X	1	2	3	4	5
Y	2	3	5	4	6

5. One card is drawn at random from numbers 1 to 150 . Find the probability that it is either divisible by 3 or 5

6. Describe the different methods of primary data collection.

7. If 8 ships out of 10 arrive safely , find the probability that at least one would arrive safely out of 5 ships selected at random.

Part – C **[Marks: 12 each]**

8. Calculate coefficient of Karl Pearsons coefficient of correlation from the following data:

X	100	200	300	400	500	600
Y	110	120	135	140	160	165

OR

The number of automobile accidents per week in a certain city were as follows:
12, 8, 20, 2, 14, 10, 15, 6, 9, 4. Are these frequencies in agreement with the belief that accident's numbers were the same during these 10 week period.
(Given $\chi^2_{0.05}$ for 9 d.f. =16.92).

P.T.O.

MORNING

03 Oct 2023

9. The daily outputs of the three machines in a factory are in the ratio of 2:3:1.Past experience shows that 2%, 4% and 5% of the item produced by A,B and C respectively are defective. If an item is selected at random is found to be defective ,find the probability that it is produced by A or B.

OR

Fit a Binomial distribution to the following data:

X	0	1	2	3	4	5	6	7	8	9	10
Y	6	20	28	12	8	6	0	0	0	0	0

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Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			
Program	B.Tech.(IT)	Semester	4 (Section-B)
Subject Code	PCIT-105	Subject Title	Python Programming
Mid Semester Exam (MSE) No.	2	Course Coordinator(s)	Akshay Girdhar
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MSE	29th May, 2023	Roll Number	

Note: Attempt all questions. All assumptions must be clearly stated.

Q. No.	Question	COs, RBT level	Marks
Q1	Radhika complains that defining functions to use in her programs is a lot of extra work. She says she can finish her programs much more quickly if she just writes them using the basic operators and control statements. State two reasons why her view is shortsighted.	CO1, L2	2
Q2	Justify how len ( ) and count ( ) are different with the help of examples.	CO1, L4	2
Q3	With the help of examples, differentiate between lists and dictionaries.	CO2, L2	4
Q4	With the help of code snippets: • Differentiate between structural equivalence and object identity. • Differentiate between function and method.	CO3, L3	4
Q5	Develop a code that inputs a text file. The code should print the unique words in the file in alphabetical order. The code should print the number of characters and digits.	CO6, L6	4
Q6	Create a recursive function that expects a pathname as an argument. The pathname can be either the name of a file or the name of a directory. If the pathname refers to a file, its name is displayed, followed by its contents. Otherwise, if the pathname refers to a directory, the function is applied to each name in the directory. Test this function in a new program.	CO6, L6	8

Course Outcomes (CO)
Students will be able to

1	Master Object-oriented programming to create programs using various constructs.
2	Identify, formulate, and solve engineering problems using software development process.
3	Apply the knowledge of language constructs to program complex real life solutions.
4	Function on multi-disciplinary teams through case studies.
5	Use the techniques, skills, and modern engineering tools such as PyCharm, Anaconda necessary for project development.
6	Design real -world problems and think creatively about solutions of them.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HO		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Subject Code	PCIT-105	Subject Title : Python Programming	
Q. No.		Question	Marks
Q1	Interpret the following statement with the help of code snippet (s) : *"The Python virtual machine sometimes knows the value of a Boolean expression before it has evaluated all of its operands."*		2
Q2	Analyze the following statement: *"Whether you are running Python code as a script or interactively in a shell, the Python interpreter does a great deal of work to carry out the instructions in your program."*		2
Q3	With the help of an example, associate software development process.		4
Q4	Illustrate iterative code with ***else*** and ***break***.		4
Q5	An investor deposits $10,000 with the Get-Rich-Quick agency and receives a statement predicting the earnings on an annual percentage rate (APR) of 5% for a period of 5 years. Write a program that prints the beginning principal and the interest earned for each year of the period. The program also prints the total amount earned and the final principal.		4
Q6	Develop code to perform the following task: Suppose you have data containing two fields (roll_no, obtained_marks) for the subject Chemistry where maximum marks are 60. Assume there are 70 students in the class and each one having has obtained some marks out of 60 i.e. no one is absent. Consider data in such a way that 40% of the maximum marks is the pass criteria and few students have obtained marks ranging 0 to 15 (Case-I) and others have obtained marks in the range of 16 to 60 (Case-II). You are supposed to compute average of obtained_marks of the stated cases. Assume average of obtained_marks of students in Case-II is less than 48. Now you can have additional fields called additional_marks and final_marks in your data. Populate the data in such a way that you start assigning marks in the field additional _marks starting from 1 to all the students of Case-II(here final_marks=obtained_marks+additional_marks). Care must be taken that in no case final_marks be greater than maximum marks. Perform the iterative process of addition of marks for all the students of Case-II and stop the process when average of final_marks of all students in Case-II is 48 (our target average). Ensure that all students of Case-II are given equal additional_marks except for students who have reached maximum limit. Your program must be such that target average for Case-II must be read through appropriate prompt message. If target average for Case-II is already greater than or equal to the Case-II obtained marks of students, no action is required, just display an appropriate message in that case.		8

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.(IT)	**Semester**	4th
Subject Code	PCIT-107	**Subject Title**	Web Technologies
Mid Semester Examination (MSE) No.	2	**Course Coordinator(s)**	Er. Navdeep Kaur Deol
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MSE	24th May, 2023	**Roll Number**	2121100

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Differentiate between localStorage and sessionStorage.	CO2, L2	2
Q2	What are the different fade methods in jQuery?	CO2, L4	2
Q3	How to set content with the jQuery text(), html(), val() and attr() methods. Explain with suitable examples.	CO4, L3	4
Q4	Write code snippets to demonstrate asort, ksort, arsort and krsort PHP functions.	CO5, L3	4
Q5	Create a multi-column layout in html using CSS3(just like newspaper with some headings, text and image). Also, diagrammatically represent the layout.	CO2, L6	4
Q6	How to connect PHP with MySQL database. Also, write PHP script to update the Address and Dept. No. of Jack William to United States and 5 respectively in the following table:	CO5, L5	8

EmployeeDetails

EmpID	EmpName	Address	Dept. No.
1	Mary Doe	Germany	2
2	Cindy Smith	Mexico	3
3	Jack William	England	4

Course Outcomes (CO) *Students will be able to:*

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyse the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level No.	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhi
Department of Information Technology

Program	B.Tech.(IT)	**Semester**	
Subject Code	PCIT-107	**Subject Title**	
Mid Semester Examination (MSE) No.	1	**Course Coordinator(s)**	
Max. Marks	24	**Time Duration**	
Date of MSE	24th March,2023	**Roll Number**	

Note: Attempt all questions

Q. No.	Question		
Q1	Differentiate between HTML and XHTML.		
Q2	What are the empty elements in HTML? Briefly explain it with an example.		
Q3	In how many ways can you integrate CSS on a web page? Discuss with the help of programming examples.	CO	
Q4	Explain the various event handling methods in jQuery.	CO4, L2	
Q5	Briefly explain the ordered and unordered lists in HTML with suitable example. Also, explain how can you change the type of list and control the list counting?	CO1, L4	
Q6	Create a feedback form in HTML and demonstrate the use of various form elements like text fields, radio buttons, checkboxes, text area and submit button. Also apply form validation on any two fields using JavaScript.	CO4, L6	8

Course Outcomes (CO)
Students will be able to

1	Understand the basic tools required for Web designing and applications
2	Build HTML5 and CSS3 for designing interactive web pages.
3	Analyze the basic operations of an AJAX application
4	Develop an interactive website using jQuery.
5	Acquire the basic usage of PHP construct and its integration with database for developing web modules like, login module, session authentication
6	Create and design dynamic web application using contemporary development tools like, MVC framework.

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Guru Nanak Dev Engineering College, Ludhiana
Department of Information Technology

Program	B.Tech (IT)	**Semester**	4th
Subject Code	PCIT-108	**Subject Title**	Computer Architecture and Microprocessor
MST No	2	**Course Coordinator(s)**	Dr. Amit Kamra / Er. Gitanjali
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	22nd May 2023	**Roll Number**	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Explain how the parallel processing improves the performance of multiprocessing environment.	CO4, L2	2
Q2	Support the statement "The use of microprocessor makes daily life easier" with the help of real time applications.	CO6, L5	2
Q3	a) Illustrate the need and significance of memory hierarchy. b) Discuss the main objective of multiprocessor.	CO1, L3 CO1, L2	4
Q4	a) Calculate the total number of cells in 64 Kb*8 memory chip. b) How many 256MB memory chips are required to build the memory capacity of 4GB RAM?	CO3, L3 CO1, L5	4
Q5	*Differentiate* a) *Microprocessor and microcontroller* b) *Virtual Memory and Cache Memory*	CO6, L4 CO1, L4	4
Q6	Draw the pin diagram of 8051 microcontroller and explain the functionality of each pin.	CO6, L6	8

Course Outcomes (CO)
Students will be able to

1	Identify computer systems, memory organization, Microprocessor and assembly language programm
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes.
3	Solve basic binary math operations by using the instructions of microprocessor.
4	Compare between pipelining and parallelism.
5	Design structured, well commented, understandable assembly language programs to provide solutio real world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HOTS)**		
RBT Level Number	L1	L2	L3	L4	L5	L6
RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech. (IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Microprocessors
MST No.	1	**Course Coordinator(s)**	Dr. Amit Kamra / Er. Gitanjali
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24 March 2023	**Roll Number**	

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level	Ma
Q1	Demonstrate the execution of the following instructions (i) LDA addr ii) ADC r ii)CMA iii) PUSH rp.	CO3, L3	2
Q2	Differentiate microprocessor and microcontroller.	CO1,L4	2
Q3	Discuss the different ways in which the location of the operand is specified in an instruction of Intel 8085? Explain them with the help of examples.	CO2,L2	4
Q4	Describe the different steps of instruction cycle with the help of flow chart.	CO1,L2	
Q5	Write an assembly language program to add two 8-bit numbers without the carry.	CO5,L6	
Q6	Draw and explain the architecture of the 8085 microprocessor.	CO1,L6	

Course Outcomes (CO) *Students will be able to:*

	Identify computer systems, memory organization, Microprocessor and assembly language programming
	Clarify instruction formats, RISC and CISC architecture and different addressing modes
	Solve basic binary math operations by using the instructions of microprocessor
	Compare between pipelining and parallelism
	Design structured, well commented, understandable assembly language programs to provide solutions to world problems
	Classify the trends and developments of microprocessor technology

RBT ification	**Lower Order Thinking Levels (LOTS)**			**Higher Order Thinking Levels (HO**		
Level	L1	L2	L3	L4	L5	L
		ling	Applying	Analyzing	Evaluating	Crea

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech. (IT)	**Semester**	4
Subject Code	PCIT-108	**Subject Title**	Computer Architecture & Mic
MST No.	1	**Course Coordinator(s)**	Dr. Amit Kamra / Er. Gitanjal
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24 March 2023	**Roll Number**	2104551

Note: 1. Attempt all the questions in serial order.

Q. No.	Question	COs, RBT level
Q1	Demonstrate the execution of the following instructions (i) LDA addr ii) ADC r ii)CMA iii) PUSH rp.	CO3, L3
Q2	Differentiate microprocessor and microcontroller.	CO1,L4
Q3	Discuss the different ways in which the location of the operand is specified in an instruction of Intel 8085? Explain them with the help of examples.	CO2,L2
Q4	Describe the different steps of instruction cycle with the help of flow chart.	CO1,L2
Q5	Write an assembly language program to add two 8-bit numbers without the carry.	CO5,L6
Q6	Draw and explain the architecture of the 8085 microprocessor.	CO1,L6

Course Outcomes (CO) *Students will be able to:*

1	Identify computer systems, memory organization, Microprocessor and assembly language programming
2	Clarify instruction formats, RISC and CISC architecture and different addressing modes
3	Solve basic binary math operations by using the instructions of microprocessor
4	Compare between pipelining and parallelism
5	Design structured, well commented, understandable assembly language programs to provide solutions to world problems
6	Classify the trends and developments of microprocessor technology

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HO		
RBT Level No.	L1	L2	L3	L4	L5	L
RBT Level	Remembering	Understanding	Applying	Analyzing	Evaluating	Crea

Guru Nanak Dev Engineering College, Ludhiana

Department of Information Technology

Program	B.Tech.	**Semester**	6
Subject Code	PCIT-104	**Subject Title**	Database Management Syste
(MST) No.	12	**Course Coordinator**	Mohanjit Kaur Kang
Max. Marks	24	**Time Duration**	1hr 30 mins
Date of MST		**Roll Number**	2104560

Note: Attempt all questions

Q. No.	Question	COs, RBT level
Q1	Define TPS.	CO3, L1
Q2	Distinguish between super key and candidate key.	CO2, L4
Q3	Discuss any ten SQL Queries in DBMS with syntax.	CO3, L2
Q4	Draw a state diagram of transaction showing its state. Explain ACID properties of a transaction	CO3, L3
Q5	Contrast log based recovery and cascading rollback.	CO2, L4
Q6	Illustrate functional Dependency? Explain its use in DBMS. Explain BOYCEE-CODD normal forms and how does it differ from 3NF. OR How you Evaluate NOSQL .Explain NOSQL database along with case study of MetLife, face book and Google.	CO2, CO5,L4,L5

Course Outcomes (CO)

Students will be able to

1	Apply knowledge of database system, No Sql database, data mining and SQL structure.
2	Identify, formulate database design, Functional dependencies and recovery techniques
3	Use the techniques, skills and tools such as query handling, normalized relations
4	Design Physical and object relational database.
	Investigate various case studies using NoSql.
	Apply the Applications of spatial and multimedia databases for real world.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels		
RBT Level Number	L1	L2	L3	L4	L5	
BT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Cr

Guru Nanak Dev Engineering College, Ludhiana
Department of Information Technology

Program	B.Tech.(IT)	**Semester**	4
Subject Code	BSIT-101	**Subject Title**	Probability and Statistics
Mid Semester Test (MST) No.	2	**Course Coordinator(s)**	Rupinder Kaur
Max. Marks	24	**Time Duration**	1 hour 30 minutes
Date of MST	24th May, 2023	**Roll Number**	2104560

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	DistinguishNull Hypothesis and Alternate Hypothesis.	CO1, L4	2
Q2	Write properties of Normal Distribution.	CO3, L1	2
Q3	The means of two large sample of sizes 1000 and 2000 are 168.75 cms and 170 cms respectively. Can the samples be regarded as drawn from a population with same mean and S.D 6.25 cms.	CO4, L3	4
Q4	A, B and C are three candidates for the post of Director in a company. Their respective chances of selection are in the ratio of 4:5:3. The probability that A, if selected will introduce the internet trading in the company is 0.30. Similarly, the probability of B and C are 0.50 and 0.60 respectively. Find the probability that the company will introduce internet trading. Also find the probability that Director B introduced the internet trading in the company.	CO6, L5	4
Q5	A sample of 9 boys had heights (inches): 45,47,50,52,48,47,53 and 51. In the light of data, discuss the suggestion that mean height of population is 47.5.	CO4, L3	
Q6	The number of defects per unit in a sample of 330 units of a manufactured product was found as follow:	CO3+CO4, L5	

No of defect:	0	1	2	3	4
No of units:	214	92	20	3	1

Fit a Poisson Distribution to the data and test goodness of fit.

urse Outcomes (CO)

idents will be able to

	Demonstrate the measures of central tendency to analyze the given data set
	Create the histogram for given data set