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**	

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.

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?

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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

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

d) 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	Distinguish Type 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, $\sum y^2 = 2860, \sum xy =$ 3500 (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.
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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	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?

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-406	**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: P_0 (Arrival Time 0, CPU Burst Time 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]
Uni. Roll No. .....

[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 **[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.