Guru Nanak Dev Engineering College, Ludhiana
Department of Information Technology

Program	B.Tech.(IT)	Semester	5
Subject Code	PEIT-102	Subject Title	Advanced Web Technologies
Mid Semester Exam (MSE) No.	2	Course Coordinator(s)	Akshay Girdhar
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MSE	22nd November, 2024	Roll Number	2103751

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

Q. No.	Question	COs, RBT level	Marks
Q1	What could be the reasons for the quoted statement w.r.t. a Software Developer's point of view: *"I will use Laravel for my Next-Project!"*	CO5, L4	2
Q2	Differentiate between Laravel and CodeIgniter.	CO5, L2	2
Q3	In Laravel, describe the directory structure and configurations.	CO5, L2	4
Q4	Discuss benefits of database migration in Laravel.	CO5, L2	4
Q5	In Laravel, how can you define a route that redirects users to another route or URL? Create a sample implementation for redirecting to the home page.	CO5, L6	4
Q6	Design and implement a web application using CodeIgniter or Laravel that demonstrates the Model-View-Controller (MVC) pattern for CRUD operations on assumed table(s). Include the relevant code and explanations for each component.	CO6, L6	8

Course Outcomes (CO)
Students will be able to

1	Apply the knowledge of HTML5 based Bootstrap framework for web page designing
2	Create and design web applications using MVC approach and Bootstrap.
3	Demonstrate the understanding of version control and data repository maintenance using GIT
4	Develop web applications using the PHP frameworks.
5	Identify, formulate and solve engineering problems in the area of dynamic web applications.

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	5
Subject Code	PCIT-111	Subject Title	Internet of Things
Mid Semester Examination (MSE) No.	2	Course Coordinator	Prof. Himani Sharma
Max. Marks	24	Time Duration	1 hour 30 minutes
Date Of MST		Roll Number	

Note: Attempt all questions

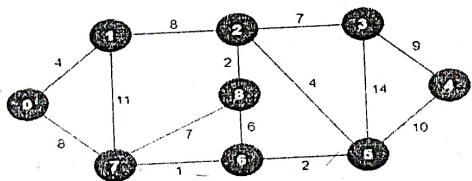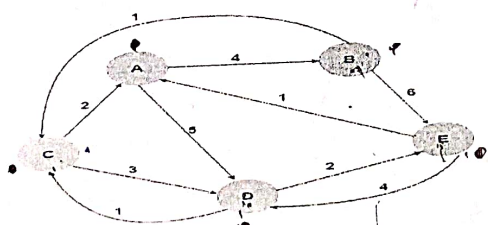| Q.No.	Question	COs, RBT Level	Marks
Q1	Discuss the services offered at Amazon EC2 and TCUP and compare and contrast the arduino and rasberry pi.	CO4, L2	2
Q2	Write a program using python/arduino to interface PIR Sensor check the motion of PIR Sensor.	CO1, L6	2
Q3	a) Examine the Participatory sensing used for city traffic densities management using IOT. b) Describe the latest features of Xively(Pachube/CoSM), Nimbits Cloud Platform.	CO3, L3 CO4, L1	4
Q4	Elucidate the security Model and Access Control for Industrial usage in IOT.	CO6, L2	4
Q5	Elaborate the functions for source identity-management, identity-establishment, device messages access-control, message-integrity, message non-repudation and availability in IoT application and services.	CO6, L4	4
Q6	Design and develop the Architectural view of RFIDs for a supply chain Application for container tracking system and Internet Connected Smart Home Services and Monitoring.	CO5, L6	8

Course Outcomes (CO)	
Students will be able to	
1	Analyze IOT in terms of Conceptual framework
2	Illustrate the design principles for connected devices and web- connectivity
3	Discriminate the functionality of IP and MAC addresses along with the application layer protocols
4	Outline cloud computing paradigm for data Collection, storage and computing services
5	Elucidate sensor technology for sensing the real world using analog and digital sensors
6	Outline security tomography of large networks and layered attacker model

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
RBT Level Number	L1	L2	L3	L4	L5	L6

Guru Nanak Dev Engineering College, Ludhiana
Department of Information Technology

Program	B.Tech.(IT)	Semester	5th
Subject Code	PCIT-112	Subject Title	Theory of Computation
Mid Semester Test (MST) No.	2	Course Coordinator(s)	Rupinder Kaur
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	Nov 20, 2024	Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Define Recursive Languageand Recursively Enumerable Language.	CO2. L1	2
Q2	Is NDPDA more powerful than DPDA? Justify with suitable example.	CO4. L4	2
Q3	Explain ambiguity of Context free languages. Test whether the following language is ambiguous or not. S -> S1S | 0	CO5. L2	4
Q4	State Pumping Lemma for Context Free Grammar. Show that the set $L=\{ a^n b^n c^n \mid n>=1 \}$ is not Context Free Grammar.	CO3. L3	4
Q5	Design a PDA for $L= \{ ww^R \mid w =\{a,b\} \}$	CO4. L6	4
Q6	Illustrate Turing Machine Model and design a Turing machine for $L=\{ a^n b^n c^n \mid n>=1 \}$	CO1. CO4. L6	8

Course Outcomes (CO)
Students will be able to

1	Identify the different concepts in automata theory- deterministic automata, regular expressions, regular languages, context-free grammars, context-free languages, and Turing machines
2	Demonstrate the various categories of languages and grammars in the Chomsky hierarchy
3	Illustrate the finite automata, regular expressions and context-free grammars accepting or generating a certain language.
4	Design finite automata, pushdown automata, Turing machines, formal languages, and grammars.
5	Contrast the computational strengths and weaknesses of these machines
6	Utilize automata concepts and techniques in designing systems that address real world problems.

Guru Nanak Dev Engineering College, Ludhiana
(Department of Information Technology)
MSE Question Paper

Guru Nanak Dev Engineering College, Ludhiana			
Department of Information Technology			5
Program	B.Tech.(IT)	Semester	
Subject Code	PCIT-110	Subject Title	Discrete Mathematics
Mid Semester Test (MST) No.	2	Course Coordinator(s)	Er. Jaskiran Kaur
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	18-11-2024	Roll Number &203781	

Note: Attempt all questions

Q. No.	Questions	COs, RBT level	Marks
Q1	Illustrate the concept of chromatic number. Find the chromatic number for the bipartite graph $K_{(5,6)}$.	CO4, L2	2 (1+1)
Q2	Draw a graph with seven vertices containing a Hamiltonian circuit but not Eulerian Circuit.	CO5, L6	2 (1+1)
Q3	Define Generating functions. Find the generating function for the sequence: i) 2, 2, 2, …… (a constant sequence of 2's). ii) 0, 1, 2, 3, ……… iii) 1,1,2,3,5,………	CO2, L1	4 (1+1+1+1)
Q4	Solve the recurrence relation: $a_n - 7a_{n-1} + 12a_{n-2} = 2^n$ for a0= 1, a1= -1	CO1, L3	4
Q5	Find the MST for the graph using Kruskal's algorithm: 	CO4, L4	4
Q6	State Floyd Warshall's algorithm and solve the graph using the same: 	CO4, L5	8

Department of Information Technology

Program	B.Tech (IT)	Semester	5
Subject Code	PCIT-109	Subject Title	Programming in JAVA
MSE No.	2nd	Course Coordinator(s)	Pf. Reema Verma/ Pf. Gitanjali
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MSE	21st November 2024	Roll Number	

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Is it possible to achieve true parallelism using multithreading? What are the limitations in it?	CO3, L2	2
Q2	Differentiate between keyword **throw** and **throws** with the help of program.	CO3, L4	2
Q3	With the help of program, demonstrate the following methods of String Class: a) charAt( ) b) replace ( )	CO5, L3	(2 + 2)
Q4	a) "Interfaces can be extended", substantiate this statement by developing a suitable code fragment. b) "Threads can be given priorities"- Support this statement with suitable example. How do you set and get priority values for threads in java?	CO3, L3	(2 + 2)
Q5	Consider the following exception handling Java program. Check the program carefully and find out if there are any error occurs? If yes, how can you fix the error? If not, why not? Give your proper argument and output of program. **NOTE : Write the code of program on answer sheet**	CO3, L4	(2 + 2)

```
class Exception{

public static void main(String args[ ] {

try{

try{
    System.out.println("going to divide");
    int b=35/0; } catch(ArithmeticException e){System.out.println(e);}

try
{
    int a[]=new int[5]; a[5]=4;
}
catch(ArrayIndexOutOfBoundsException e) { System.out.println(e); }
System.out.println("other statement");
}
catch(Exception e)
    { System.out.println("Exception handled"); }
System.out.println("casual flow");

}
```

Q. No.	Question	COs, RBT level	Marks
Q6	a) Write a program that reads an integer input from the user. Implement Exception handling to ensure that the program handles scenarios where the user enters a non-integer value. If a non-integer value is entered, the program should catch the exception and display an error message, prompting the user to enter a valid integer. b) Design a package to contain the **class Student** that contains the data members such as name, roll number and another package contains the **interface Sports** which contains some sports information. Import these two packages in a package called as **Report** which process both Student and Sport and give the report.	CO6, L6	(4 + 4)