

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

Program	B.Tech CSE	Semester	3 <sup>rd</sup>
Subject Code	PCCS-102	Subject Title	COMPUTER NETWORKS
Mid Semester Examination (MSE)	1	Course Coordinator(s)	Dr. Amandeep K.Sohal Dr. Daljeet Singh Dr. Inderjit Singh
Max. Marks	24	Time Duration	1 hour 30 minutes
Date of MST	26/09/2023	Roll Number	2205482..... (For Student only)

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1 -	In which situations, physical and logical addressing can be used in data communication?	CO1, L2	2
Q2 -	Choose an appropriate multiplexing technique (FDM/TDM) for a voice channel that occupies a bandwidth of 4kHz. We need to multiplex 12 voice channels with guard bands of 500Hz and calculate required bandwidth.	CO1, CO2, L4	2
Q3 -	Explain, why we twist cables in twisted pair cable? Also, discuss the propagation methods used in unguided media.	CO4, L2	1.5+2.5
Q4 -	We measure the performance of a telephone line (4 KHz of bandwidth), when the signal is 20 V, the noise is 6 mV. What is the maximum data rate supported by this telephone line?	CO1, L3	4
Q5 -	Identify the switching methods used in telephone system and internetworking system. Differentiate these methods with suitable diagram.	CO2, L5	4
Q6 -	A. Draft a neat and labeled diagram for interaction between layers in OSI reference model with their data units in each layer B. Discuss in detail the following layers which are i. Responsible for node to node delivery ii. Responsible Process to process delivery iii. Responsible for encryption of information	CO1, CO4, L4	2-6

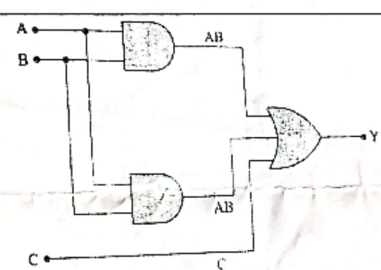
**Course Outcomes (CO) Students will be able to:**

1	Develop an understanding of modern network architectures from a design and performance.
2	Understand the major concepts involved in wide area networks, local area networks and wireless local area networks.
3	Analyze various protocols to develop network related applications for future needs.
4	Apply the knowledge of different network designs and various logical models of networking to solve problems of communication over different medium.
5	Utilize knowledge of routing and congestion control algorithms to overcome various issues over different complex networking structures.
6	Discuss algorithms for medium access sub layer to avoid collision and error problems over different types of networks.

27/09/23

<b>Guru Nanak Dev Engineering College, Ludhiana</b>			
<b>Department of Computer Science &amp; Engineering</b>			
<b>Program</b>	B.Tech.(CSE)	<b>Semester</b>	3
<b>Subject Code</b>	ESCS-101	<b>Subject Title</b>	Digital Electronics
<b>Mid Semester Exam (MSE) No.</b>	1	<b>Course Coordinator(s)</b>	Dr. Amit Jain, Pf. Priti Aggarwal, Pf. Meetal
<b>Max. Marks</b>	24	<b>Time Duration</b>	1 hour 30 minutes
<b>Date of MST</b>	27 <sup>th</sup> Sep., 2023	<b>Roll Number</b>	2203482

Note: Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Illustrate the concept of principle of duality to find the dual of the following expression: $(A+B')(A.B')'+AB'C$	CO1, L2	2
Q2	Based on Number system conversion theory, determine x in following: a) $(225)_x = (341)_8$ b) $(333)_5 = (X)_{BCD}$	CO1, CO5, L4	2
Q3	Construct the expression for different outputs of Half Adder using K Maps. Also implement them using NAND gate.	CO2, L3	4
Q4	Compare the characteristics of RTL, DTL, DCTL and TTL logic families.	CO2, L2	4
Q5	 <p>For the above given logic circuit, Deduce the Boolean expression and convert it into standard SOP and POS form.</p>	CO1, CO5, L4	4
Q6	Minimize the expression using K-Maps and Design the output using AOI technique: $f = \sum m(0, 4, 7, 8, 9, 10, 11, 16, 24, 25, 26, 27, 29, 31)$ . Would it be convenient to design it using NAND and NOR gates? Comment.	CO1, L4	8

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

- Understand the relationships between Boolean algebra, combinational logic, and sequential logic.
- Solve combinational logic problem formulation and logic optimization.
- Construct digital logic circuits using gates and state-of-the-art MUX, ROM, PLA and PAL units
- Create profound analysis and design of synchronous and asynchronous sequential circuits
- Design and inspect digital circuits to meet desired needs within realistic constraints.
- Develop skills to build and troubleshoot digital circuits.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
	L1	L2	L3	L4	L5	L6
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 Computer Science and Engineering

Program:	B.Tech.(CSE)	Semester:	3 <sup>rd</sup>
Subject Code:	HSMCS-101	Subject Title:	Human Values and Professional Ethics
Mid Semester Test (MST) No.:	1 <sup>st</sup>	Course Coordinator(s):	Prof. Gurwant Singh Prof. Sukhjeet Singh Dr. Raman Kumar
Max. Marks:	24	Time Duration:	1 hour 30 minutes
Date of MST:	28-09-2023 (Thursday)	Roll Number:	2203482

**Note:** Attempt all questions. Elaborate your answer with a neat diagram, wherever required.

Q. No.	Question	COs, RBT level	Marks
Q1.	Explain the difference between ethics and morals.	CO1, L1, L2	2
Q2.	Define spirituality and its relevance in the workplace.	CO2, L2	2
Q3.	Discuss the importance of honesty, courage, and empathy in professional life.	CO3, L2, L3	4
Q4.	Describe the structure of value relations and how it influences decision-making in the workplace.	CO6, L3, L4	4
Q5.	How to conduct a professional SWOT analysis of an individual's ethical behaviour, citing relevant examples.	CO3, CO4, L3, L4	4
Q6.	Discuss the concept of the Johari Window and its application in improving self-awareness in the workplace.	CO4, L4, L5	8

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

1. Discriminate between valuable and superficial in the life.
2. Encourages students to discover what they consider valuable.
3. Understand the value required to be a good human being and apply these values in real life.
4. Evaluate and modify the behavior.
5. Understand fundamental and organizational duties and protect individual and social rights.
6. Know about professional behavior, values and guiding principles.

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

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Guru Nanak Dev Engineering College, Ludhiana

Department of CSE

Program	B.Tech.CSE (A/B/C)	Semester	3
Subject Code	BSCS-101	Subject Title	Mathematics-III
Mid Semester Test (MST) No.	1	Course Coordinator(s)	Sukhminder Singh Rajbir kaur Sanchit Mehra
Max. Marks	24	Time Duration	1 hour 30 min.
Date of MST	29-9-2023	Roll Number	2205492

Note: Attempt all questions.

Q. No.	Question	COs, RBT level	Marks												
Q1	Write algorithm for straight line fit of a curve.	CO5, L2/L3	2												
Q2	Discuss the analyticity of the function : $f(z) = \cos z$	CO2, L3/L5	2												
Q3	Solve the system of equations by Gauss Elimination method : $2x + 2y + 4z = 18$ , $x + 3y + 2z = 13$ , $3x + y + 3z = 14$	CO6, L3/L5	4												
Q4	The results of measurement of electric resistance R of a copper bar at various temperatures t ( in degrees) are listed below : <table border="1" style="margin: 5px auto;"> <tr> <td>t</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>R</td> <td>1</td> <td>5</td> <td>11</td> <td>8</td> <td>14</td> </tr> </table> Find a relation $R = a+bt$ .	t	1	2	3	4	5	R	1	5	11	8	14	CO5, L3/L5	4
t	1	2	3	4	5										
R	1	5	11	8	14										
Q5	Solve the system of equations by Gauss Jordan method : $x + 2y + z = 3$ , $2x + 3y + 3z = 10$ , $3x - y + 2z = 13$	CO6, L3/L5	4												
Q6	(a) Given that $u - v = e^x(\cos y - \sin y)$ . If $f(z) = u + iv$ is an analytic function, find $f(z)$ in terms of $z$ . (b) Evaluate $\int_C \frac{z-1}{(z+1)^2(z-2)} dz$ where C is $ z-i =2$ using Cauchy Integral formula.	CO2, L3/L5 CO3, L3/L5	8 (4+4)												

Course Outcomes (CO)

Students will be able to

CO2	Understand Analytic functions and evaluation of derivative of functions of complex variable.
CO3	Evaluate integration of functions of complex variables.
CO5	Fit the given data into best fit curve.
CO6	Apply statistical methods for analyzing experimental data.

RBT Classification	Lower Order Thinking Levels (LOTS)			Higher Order Thinking Levels (HOTS)		
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RBT Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating

**Guru Nanak Dev Engineering College, Ludhiana**  
**Department of Computer Science & Engineering**

<b>Program</b>	B.Tech.(CSE)	<b>Semester</b>	3
<b>Subject Code</b>	PCCS-101	<b>Subject Title</b>	Object Oriented Programming
<b>Mid Semester Exam (MSE) No.</b>	1	<b>Course Coordinator(s)</b>	Pf. Kamaldeep Kaur Pf. Manpreet Kaur Mand Dr. Hardeep Singh Kang
<b>Max. Marks</b>	24	<b>Time Duration</b>	1 hour 30 minutes
<b>Date of MST</b>	25 <sup>th</sup> Sep, 2023	<b>Roll Number</b>	2215190-2203482

**Note:** Attempt all questions

Q. No.	Question	COs, RBT level	Marks
Q1	Make use of a program to demonstrate the concept of array of objects.	CO3, CO4, L3	2
Q2	Inspect the given programs to find the errors and re-write the correct code: <pre>#include&lt;iostream&gt; using namespace std; int main() int outer; innermost; s; for(outer=5; outer&gt;=1; outer--) { for(s=1 s&lt;=5-outer s++) cout&lt;&lt;" "; for (innermost=1 innermost&lt;=outer innermost++) { cout&gt;&gt;"*"; } cout&lt;&lt;endl; } }</pre>	CO2, L4	2
Q3	Compare and contrast procedure-oriented programming with object-oriented programming.	CO1, L2	4
Q4	Explain the characteristics of static data members and static member functions. Implement the above concept in a program.	CO4, L2	4
Q5	Both the parameterized and copy constructors take arguments, yet they are not same. Support this statement by distinguishing between both constructors.	CO4, L4	4
Q6	i) "Data hiding is an important feature of OOPS but still we can access the private data of a class outside the class without class member functions." Justify the above statement with suitable program. ii) Develop the C++ code for given situation: Declare a variable 'a', taking its initial value as 10. Apply any combination of increment/decrement and arithmetic operators to generate a single expression that will give the output value of 'a' as 14.	CO2, CO4, L5, L6	8

**Course Outcomes (CO)**

*Students will be able to*

1	Compare and contrast procedure-oriented programming with object-oriented programming and understand the core concepts of OOP.
2	Use of operators, control structures, and data types with their methods.
3	Make use of arrays and string handling methods.
4	Design user defined functions, modules and packages.
5	Investigate and implement polymorphism, inheritance, dynamic memory management and exception handling techniques to solve problems.
6	Create and handle files in object-oriented programming.

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