



Shri Shankaracharya Institute of Professional Management & Technology

Department of Computer Science & Engineering

Class Test - I Session - July - Dec. 2023 Month - November

Sem- 3rd CSE and AIML Subject- Mathematics III Code- B000311(014)/B109311(014)

Time Allowed: 2 hrs Max Marks: 40

Note: - All questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Calculate (i) $L\left(\frac{1-\cos t}{t^2}\right)$ (ii) $I = \int_0^{\pi} t^2 e^{-2t} \cdot \sin t \, dt$	[4+4]	Apply	CO1
2.	Solve $ty'' + 2y' + ty = \cos t$, $y(0)=1$ OR $\frac{d^2x}{dt^2} + 9x = \cos 2t$, when $x(0) = 1, x(\pi/2) = -1$.	[8]	Apply	CO1
3.	Apply convolution theorem to prove that $L^{-1}\left\{\frac{8}{(s^2+1)^3}\right\} = (3-t^2)\sin t - 3t \cos t$	[8]	Apply	CO1
4.	Solve (i) $z = y'' + 2f\left(\frac{1}{x} + \log y\right)$ (ii) $px(z - 2y^2) + qy(z - y^2 - 2x^3) = z(z - y^2 - 2x^3)$	[2+6]	Apply	CO2
5.	Solve $r + s - 6t = y \cos x$ OR $(D^2 - DD' - 2D^2)z = (y-1)e^x$	[8]	Apply	CO2



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Class Test – I Session- July-December, 2023 Month- November

Sem- CSE 3rd (Sec- A, B & C) Subject- Data structure & Algorithms Code- B022312(022)

Time Allowed: 2 hrs

Max Marks: 40

Note: - All questions are compulsory and carries equal marks..

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	Cos
Q1	Calculate the address of X[0,30] in 2D array X[-20...20,10...35] stored in column major order in the main memory. Assume the base address to be 500 and each elements requires 1 words of storage. Also explain the 3D representation of array with suitable example.	[8]	Applying	CO1
Q2	Describe sparse matrix? Explain its representation with suitable example	[8]	Understanding	CO1
Q3	Implement an algorithm to perform following operation in link list. i) Delete the node at end of doubly link list. ii) Insert a node at middle in singly link list.	[8]	Applying	CO1
Q4	Convert following infix expression into postfix using stack method algorithm. $A*(B+C)+(B/D)*A+Z*U$	[8]	Applying	CO2
Q5	Explain insertion and deletion operation of queue and also write algorithm for both operations.	[8]	Understanding	CO2



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Department of Computer Science and Engineering

Class Test – I Session- July – Dec, 2023 Month-Nov

Semester- CSE 3rd [A, B & C]

Subject-Principles of Programming Languages, Code-B022313(022)

Time Allowed: 2 hrs.

Max Marks: 40

Note: -All questions are compulsory.

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COS
A.	Discuss Pseudo Code and Flow Chart by giving examples.	[8]	Understand	CO1
B.	Describe Modules and Modularization Criteria.	[8]	Understand	CO1
C.	Describe data flow diagram by giving example.	[8]	Understand	CO1
D.	Illustrate different types of programming methodologies.	[8]	Apply	CO2
E.	Summarize factors influencing the evolution of programming languages.	[8]	Understand	CO2

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Department of Computer Science and Engineering

Class Test – I Session- July – Dec, 2023 Month-Nov

Semester- CSE 3rd [A, B & C]

Subject-Principles of Programming Languages, Code-B022313(022)

Time Allowed: 2 hrs.

Max Marks: 40

Note: -All questions are compulsory.

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E.	Summarize factors influencing the evolution of programming languages.	[8]	Understand	CO2

Note: - Attempt Each question from each part.
Part-1 carries 2 marks for each Question. Part-2 carry 4 mark for each question, part-3 carry 10 marks

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
Part-1				
A.	Obtain the ASCII Code for the word " DELD"	2	Understanding	CO1
B.	Convert the Decimal number 46 to GRAY Code	2	Apply	CO1
C.	Explain Noise Margin & Figure of Merit of Digital ICs.	2	Understanding	CO2
Part-2				
A.	Find & correct the error of a Seven bit even parity hamming code. The received is 1100110.	4	Apply	CO1
B.	Implement 2 input RTL NOR Gate & Discuss its operation.	4	Apply	CO2
C.	Implement 2 input DTL NAND Gate & Discuss its operation.	4	Apply	CO2
D.	Implement 2 input TTL- NAND Gate & Discuss its operation.	4	Apply	CO2
E.	Reduce the following function using K-map technique& draw the logic diagram $f(A,B,C,D) = \Pi M(0,3,4,7,8,10,12,14) + d(2,6)$	4	Apply	CO1
F.	Implement the following expression using NAND-NAND Logic $Y = \Sigma m(0,2,6)$	4	Apply	CO1
Part-3				
A.	Minimize the following expression using Quine McCluskey Method & Draw the Logic Diagram $f(A,B,C,D) = \Sigma m(2,3,4,8,10,11) + d(0,1,3,15)$	10	Apply	CO1

"The day you take complete responsibility for yourself, the day you stop making any excuse, that's the day you start to the top."
— O.J. Simpson

Note: - Attempt Each question from each part.
Part-1 carries 2 marks for each Question. Part-2 carry 4 mark for each question, part-3 carry 10 marks.

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Class Test - I Session- July - Dec, 2023 Month-Nov

Sem- CSE 3rd[A,B,C]Subject-Operating SystemCode-B022315(022)

Time Allowed: 2 hrs

Max Marks: 40

Note: - All questions is Compulsory

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
A.	Discuss in details the Architecture of Unix operating system. OR Describe evolution of operating system.	[8]	Understanding	CO1
B.	Define operating system and list out various services provided by operating System and explain any two of them.	[8]	Understanding	CO1
C.	With neat diagram describe Process Control Block (PCB)	[8]	Understanding	CO2
D.	Define Process and Explain different states of a process, with a neat diagram Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with given Arrival Time and Burst Time.	[8]	Remembering	CO2
E.	Calculate the average waiting time and average turnaround time using First Come First Serve (FCFS).	[8]	Apply	CO2

PROCESS	ARRIVAL TIME	BURST TIME
P1	0	8
P2	1	4
P3	2	9
P4	3	5



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Sem- CSE 3rd[A,B,C]Subject-Operating SystemCode-B022315(022)

Time Allowed: 2 hrs

Max Marks: 40

Note: - All questions is Compulsory

Q.N.	Questions	Marks	Levels of Bloom's taxonomy	COs
A.	Discuss in details the Architecture of Unix operating system. OR Describe evolution of operating system.	[8]	Understanding	CO1
B.	Define operating system and list out various services provided by operating System and explain any two of them.	[8]	Understanding	CO1
C.	With neat diagram describe Process Control Block (PCB)	[8]	Understanding	CO2
D.	Define Process and Explain different states of a process, with a neat diagram Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with given Arrival Time and Burst Time.	[8]	Remembering	CO2
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P2	1	4
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