Section-B (SEE: 50 Marks)			
4	Correc ng errors in the trial balance: The Adjus ng and Closing Procedure: The adjus ng process, Accrual versus cash basis Accoun ng, Prepara on of Adjusted trial balance and financial statements, closing entries & reversing entries.	04	
5	Using accounting information in decision-making. Accounting in practice, Worksheet. Purchase book, sales book, cashbook, patty cashbook, etc. Control accounts and subsidiary accounts. Bank reconciliation statement.	05	
6	Cost In General: Cost in general: objectives & classifications; Costing Journals; Job order costing, Process costing & Overhead costing, cost sheet; Cost of goods sold statement.	03	
7	Marginal & Relevant costing: Marginal costing tools and techniques, cost-volumeprofit analysis.	03	
8	Guidelines for Decision-Making: Budget, Capital budgeting; planning, evaluation & control of capital expenditures.	03	
		30	

Books :

Text Book :

1. Charles T. Horngren & Walter T. Harrison (2nd Edition): Accounting. 2.
Adolph Matz & Milton F. Usry: Cost Accounting- Planning And control

Reference Books :

1. Sankar Prasad Basu & Monilal Das.: Practice in Accountancy.
2. Jerry J. Weygandt, Donald E. Kieso & Paul D. Kimmel.: Accounting Principles.
3. Jay M Smith & K Fred Skousen.: Intermediate Accounting.

MATH-2407

	Section-B (SEE: 50 Marks) **Group: A (20 Marks)**		
4	**Fourier Series**: Physical Significance of Fourier series, Periodic Signal, Trigonometric form and Complex form of Fourier series, Fourier Integral, Frequency Spectrum, Piecewise Continuous waveforms, Even symmetry, Odd symmetry, Half-wave symmetry, Phase Spectrum, , Sketch different types of Periodic Signals, Application of Fourier Series	06	CLO3
5	**Convolution:** Harmonic analysis, convolution theorem, convolution sum, convolution Integral	05	CLO4
	Group: B (30 Marks)		
6	**Laplace transforms**: Unit Step Function, Impulse Function, Ramp Function, Sketch Waveform, Derive Laplace transform from Fourier transform ,the Laplace transforms of different functions, The First Shift Theorem, Multiplication Theorem, Division Theorem,, Laplace transforms of unit step functions, Inverse Laplace transforms	08	CLO3
7	**Fourier Transform**: A-periodic Signal, Fourier transforms, Inverse Fourier Transform, Solution of IVP by Laplace Transforms	05	CLO3
8	Fourier Analysis using MATLAB	03	CLO5

Algorithm (CSE-2421)

Section-B (SEE: 50 Marks)			
4	**Greedy Algorithms and String Matching Algorithms:** Greedy algorithms, Activity selection problem, Elements of greedy strategy, Huffman codes and its application; String Matching Algorithms, Naive string-matching algorithm, Rabin-Karp algorithm; Complexity analysis of the algorithms	5 lecture hours	CLO1 CLO2 CLO3 CLO4 CLO5
5	**Graphs Basic & Traversal Techniques:** Representation of Graphs, Breadth First Search, Depth First Search, Algorithm of BFS and DFS, Application of BFS and DFS, Minimum Spanning Tree, Kruskal's and Prim's Algorithm, Complexity analysis of the algorithms	5 lecture hours	CLO1 CLO2 CLO3 CLO4
6	**Shortest Path Algorithms:** Single-source shortest path, Dijkstra's Algorithm, Bellman-Ford's Algorithm; All-pairs shortest path, Floyd-Warshall's Algorithm; Complexity analysis of the algorithms	5 lecture hours	CLO1 CLO2 CLO3 CLO4
7	**Computational Geometry & Number Theory:** Computational Geometry, Line Segment Properties, Convex Hull, Graham Scan Algorithm of Convex Hull, Number Theory, GCD, Modular Arithmetic, Prime Number generation, Complexity analysis of the algorithms	5 lecture hours	CLO1 CLO2 CLO3 CLO4
8	**Theory of NP-Completeness and Coping with Hardness:** Theory of NP-Completeness, P, NP, NP-Complete and NP-Hard Problems; Backtracking, N-Queen Problem; Branch and Bound; Approximation algorithms	5 lecture hours	CLO1 CLO2 CLO3 CLO4 CLO5
		40	

DBMS (CSE-2423)

Section-B (SEE: 50 Marks)			
4	**Integrity, Security and Relational Database Design:** Domain constraint, Integrity, Assertions, Triggers, Authorization, Authentication, Security, Privileges, Roles, and Audit trails, Encryption-Decryption Algorithm, Decomposition etc.	04	**CLO2**
5	**Functional Dependency and Normalization:** Functional Dependencies, Closure of a set of Functional dependencies. Un-normal Form (UNF), First Normal Form (1NF), Second Normal Form (2NF), Third Normal Form (3NF), Boyce and Code Normal Form (BCNF).	04	**CLO2**
6	**Indexing and Hashing:** Ordered indices, Hash indices, Hash function, Primary index, Secondary index, Dense, sparse, Multilevel indices, B+ tree index files, Handling Bucket Overflows, Overflow Chaining, Closed Hashing, Open Hashing, Linear probing, Hash indices, Dynamic Hashing.	04	**CLO2**
7	**Transaction:** ACID Properties, Transaction state diagram, Implementation of Atomicity and Durability, Shadow copy technique, Concurrent Execution, Serializability, Recoverability, Recoverable schedule, Cascade-less Schedules, Implementation in Isolation, Testing of Serializability.	04	**CLO2**
8	**Concurrency control, Recovery System and Distribute databases:** Lock-Based Protocols, granting of locks, Two-phase locking protocol, Graph based protocol, Tree protocol, Timestamp based protocols,	02	**CLO2**

TOC (CSE-2425)

lemma for regular languages.
Context-Free Languages: Formal definition of a context-free grammar - Examples of context-free grammars. Ambiguity - Chomsky normal form. Pushdown Automata, Formal definition of a pushdown automaton - Examples of pushdown automata, Equivalence with context-free grammars.
Computability Theory: the Church-Turing Thesis. Turing machine, Nondeterministic Turing machines, Hilbert's problems.
Decidability: Decidable languages, The halting problem – the diagonalization method..
Complexity Theory: The Classes P, NP, Examples of problems in these classes. The P versus NP question. NP-Completeness, Polynomial time reducibility, The Cook-Levin Theorem. Examples of

Algoritmns Lab (CSE-2422)

		7. Implementation of Radix sort	CLO2
5	Lab work	8. Solving Matrix-chain multiplication problem 9. Solving longest common subsequence problem	CLO1 CLO2
6	Lab work	10. Solving problem with the technique of memorization 11. Solving selected competitive programming problem that requires dynamic programming	CLO1 CLO2
7	Lab work	12. Solving activity selection problem 13. Implement Huffman tree and generating prefix	CLO1 CLO2
8	Lab work	14. Implementation of Naive string-matching algorithm 15. Implementation of Rabin-Karp algorithm	CLO1 CLO2
9	Lab work	16. Implementation of Breadth First Search 17. Implementation of Depth First Search	CLO1 CLO2
10	Lab work	18. Implementation of Kruskal's Algorithm for finding minimum spanning tree 19. Implementation of Prim's Algorithm for finding minimum spanning tree	CLO1 CLO2
11	Lab work	20. Implementation of Dijkstra's algorithm for solving single-source shortest path problem 21. Implementation of Bellman-Ford's algorithm for solving single-source shortest path problem	CLO1 CLO2
12	Lab work	22. Implementation of Floyd-Warshall's algorithm for solving all-pairs shortest path problem	CLO1 CLO2
13	Lab work	23. Determining whether two line segment intersect 24. Determining convex hull of a set of points using Graham's scan algorithm	CLO1 CLO2

Week	Activities	Topics	CLOs
14	Lab work	25. Implementation of extended Euclid's algorithm for finding GCD 26. Implementation of different prime number generation algorithms 27. Solving N-Queen Problem 28. Solving different backtracking problems	CLO1 CLO2
15	Programming Contest	29. Testing the problem solving skills of students by giving them problems	CLO3

URBL SYLLABUS

	Final Exam :50 Marks ভাষা ও নির্মিতি: ৩০ ১. বাংলা বানানের নিয়ম। ২. যতিচিহ্ন। ৩. বঙ্গানুবাদ/ক্ষুদে গল্প লেখা। ৪. পত্র লেখন । ৫. সংক্ষিপ্ত আলোচনা।(ক.একুশে ফেব্রুয়ারি ;খ.মুক্তিযুদ্ধ; গ.বাংলার লোকসংস্কৃতি;ঘ. মানবতা ও নৈতিকতা;ঙ.আধুনিক তথ্যপ্রযুক্তি।) বাংলা সাহিত্য : ২০ **কবিতা** : (ক) বঙ্গভাষা (মাইকেল মধুসূদন দত্ত)। (খ) আজ সৃষ্টি সুখের উল্লাসে (কাজী নজরুল ইসলাম)। (গ) তোমাকে পাওয়ার জন্য হে স্বাধীনতা (শামসুর রাহমান)। **প্রবন্ধ** : (ক) সভ্যতার সংকট (রবীন্দ্রনাথ ঠাকুর)। (খ) যৌবনে দাও রাজটিকা (প্রমথ চৌধুরী) । **নাটক** : কবর (মুনীর চৌধুরী)।	18	