7210/A21 **OCTOBER 2008**

DISCRETE MATHEMATICS

Time : Three hours Maximum : 100 marks

PART A — ($6 \times 5 = 30$ marks)

Answer any SIX questions.

1. Write the properties of a relation.

2. Show that $f(x, y) = x^y$ is a primitive recursive function.

3. What is the disjunctive normal form of $pn(P \rightarrow Q)$?

4. Symbolise "X is the father of the mother of Y".

5. Write any two applications of recurrence relations.

6. Write the algorithm for solving Non-homogeneous finite order liner relation.

7. Define Rooted binary tree, spanning tree, weighted graph.

8. Write PRIM'S algorithm

9. Explain duality in lattices with example.

10. Write a short note on boolean functions.

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

11. Let $R = \{(1, 2), (3, 4), (2, 2)\}$ and

$S = \{(4, 2), (2, 5), (3, 1), (1, 3)\}$ find

RoS, SoR, RoR, SoS, RoSoR.

12. Show that $P \to (Q \to R) \Leftrightarrow P \to (\neg Q \vee R) \Leftrightarrow (P \wedge Q) \to R$ without using truth table.

13. Show that $(\exists x)\, m(x)$ follows logically from the premises $(x)\,[H(x) \to M(x)]$ and $(\exists x) H(x)$.

14. Solve the recurrence relation

$a(n) = a(n-1) + 2\ (n-1),\ a(1) = 2$.

15. Prove that a graph is a tree iff it is minimally connected.

16. State and prove distributive inequalities of a lattice.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

17. (a) Explain Warshall's algorithm.

(b) Explain all the four normal forms with examples.

18. (a) Solve $S(k) + 5S(k-1) = 9, S(0) = 6$ in all categories.

(b) Explain travelling salesmen problem.

19. Construct the logic circuit for

$f(x_1, x_2, x_3)0 = [(x_1 \wedge x_2) \vee x_3] \wedge [(x_2 \vee x_3) \vee x_3]$

7211/A22 **OCTOBER 2008**

PROGRAMMING IN C++

Time : Three hours Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. What are the benefits of CPP?

2. Differentiate break and continue statement with example.

3. What is the use of This pointer? Explain.

4. What are the differences between constructors and destructors?

5. Give explanation for Pass by Value and Pass by Address.

6. Write a program which holds student details using passing an Array of Structure.

7. Explain how to access the base class member function.

8. Explain Hybrid Inheritance.

9. What is binding? Write about this.

10. What are the rules for Virtual Functions?

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

11. Explain the basic concepts of OOPs.

12. Write a note on Dynamic allocation.

13. Explain about Reference Arguments.

14. Define base class student and two derived class internal and external exams and a final derived class result. Write a program for this with your own data.

15. Explain with a program how to access the Constructor and Destructor in Inheritance.

16. Explain Virtual Destructor with an example program.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

17. Explain about various operators C++.

18. Write an essay about Storage Classes.

19. Explain about Runtime Polymorphism.

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7212/A23 **OCTOBER 2008**

COMPUTER GRAPHICS

Time : Three hours Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. Define CG and give its application.

2. Distinguish between line, straight line and points in CG.

3. Explain the normalized device coordinates.

4. Write the line style primitives.

5. Explain the display file structures.

6. Give the polygon representation.

7. Write the 2D transformation matrix.

8. Explain concatenation with examples.

9. Explain mid point sub-division.

10. Define Viewport, Windowing, Window and clipping.

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

11. Write the graphics application.

12. Explain the DDA algorithm.

13. Explain the display file interpreter.

14. Explain the concept of filling with pattern.

15. Explain the rotation about arbitrary point.

16. Explain line clipping algorithm.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

17. Explain the vector generation algorithm.

18. Write the transformation routines and explain in detail.

19. Discuss the polygon filling concepts.

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OPERATING SYSTEMS

Time : Three hours Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. Discuss the need for the operating system.

2. What is a process? How does the OS represent a process in memory?

3. What do you mean by scheduling?

4. Explain any two scheduling algorithm.

5. What do you mean by Deadlock? Explain the problem occur in deadlock.

6. Explain Banker's Algorithm.

7. What do you mean by swapping?

8. Explain Page memory allocation.

9. Explain the different access methods in the file.

10. Explain any five DOS commands used to working with directories.

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

11. Explain protection requirement for I/O and memory.

12. Discuss the structure of the Operating System.

13. Explain the Analytic evaluation method.

14. Discuss the role of semaphore with an example.

15. What do you mean by thrashing?

16. Explain Unix file system.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

17. Explain the method to prevent and avoid Dead lock.

18. (a) What do you mean by multiprogramming operating system and distributed operating system?

(b) Explain in detail about Replacement policies.

19. Briefly explain the Interprocess communication.

7214/A25 **OCTOBER 2008**

COMPUTER ORGANIZATION

Time : Three hours Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. Write an assembly language program to add two numbers.

2. Discuss the rules of assembly language.

3. Explain all shift operations with example.

4. List out the program control instructions with their usages.

5. Explain Pipeline processing in detail.

6. Explain Auxillary memory.

7. Explain fetch and Indirect cycle.

8. List out the page replacement algorithms and explain them.

9. Write note on Asynchronous data transfer.

10. Explain storage hierarchy in a large computer system.

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

11. Explain data transfer and data manipulation Instructions.

12. Explain vertical micro instructions. List out the advantages and areas of application.

13. List out usages of addressing modes and explain its types.

14. What is asynchronous data transfer? Explain.

15. Differentiate between parallel and serial interrupts and explain each with an Example.

16. Explain the techniques used to protect memory.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

17. Explain Multiprocessor System organization.

18. Explain in detail

(a) DMA Data Transfer.

(b) Handshaking.

19. Explain associative and set-associative mapping in cache memory.

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7215/A26 **OCTOBER 2008**

COMPUTER ALGORITHM AND DATA STRUCTURE

Time : Three hours Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

Answer any SIX questions.

1. What is searching? Explain Linear Search Algorithm.

2. Define Preorder traversal.

3. How stacks are useful in evaluating expression?

4. Explain garbage collection.

5. Explain hash function with examples.

6. What is a singly linked list? Explain.

7. Define Knapsack problem.

8. Explain AND/OR graph.

9. Define Game trees.

10. How strings are represented? Explain.

PART B — (4 × 10 = 40 marks)

Answer any FOUR questions.

11. How to insert and delete an element from a stack? Explain.

12. Explain Quick sort.

13. Write the procedure for assigning program to a tape.

14. Define Mazing problem.

15. Explain Greedy method with suitable example.

16. How Binary trees are represented? Explain.

PART C — (2 × 15 = 30 marks)

Answer any TWO questions.

17. Formulate the travelling salesman problem and give procedure to solve it.

18. Discuss in detail :

(a) Explain Prim's algorithm.

(b) Insertion and deletion of a DLL.

19. Write short notes on :

(a) Draw Binary search tree with n = 12

(b) Threaded binary tree

(c) Circular queue

(d) Sparse matrix.

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