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उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2014-2015

पी०जी० डिप्लोमा/कम्प्यूटर अनुप्रयोग में स्नातकोत्तर

P.G. Diploma/Master in Computer Application

विषय : विषय कोड : एम.सी.ए.

Subject : Subject Code: MCA

कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-1.1/

Course Title: Discrete पी.जी.डी.सी.ए.-1.1

Mathematics Course Code : MCA-1.1/PGDCA-1.1

अधिकतम अंक : 30

Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18

Maximum Marks : 18

1. Show that the following equivalences. 6

(a) $p \Rightarrow (q \Rightarrow p) \Leftrightarrow p \Rightarrow (p \Rightarrow q)$.

(b) $(p \Leftrightarrow q) \Leftrightarrow (p \wedge q) \vee (\neg p \wedge \neg q)$.

2. Define Boolean algebra with an example. 6

3. (a) Show that the dual of distributive lattice is a distributive Lattice is a distributive Lattice 6

(b) Draw the Circuit diagram of

$(x'y + xy')(Y + Z' + W)$.

Section - B

अधिकतम अंक : 12

Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

Short answer questions.

4. Find using Karnaugh maps a minimal form for the boolean function. 2

$f(x, y, z) = xyz + xyz' + x'y'z + x'y'z'$

5. In any boolean algebra show that 2

$(a + b)(b + c)(c + a) = ab + bc + ca$.

6. Define with examples of NAND and NOR gates. 2

7. Show that the dual of a modular lattice is modular. 2

8. Define tautologies and contradictions with examples. 2

9. construct the truth table for 2

$p \vee (q \wedge r) \Leftrightarrow q \wedge (p \vee r)$.

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2014-2015

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P.G. Diploma/Master in Computer Application

विषय : विषय कोड : एम.सी.ए.
Subject : Problem Solving and Subject Code: MCA
Programming through C कोर्स कोड : एम.सी.ए.-1.2
कोर्स शीर्षक : Course Code : MCA-1.2
Course Title:

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. Write an algorithm, draw a corresponding flowchart and write an Interactive program to convert a binary number to its octal equivalent. 6
2. Write an interactive C program to check whether the given string is a palindrome or not, using pointers. 6
3. Write an interactive program to generate pay slips for the staff of size 12 employees (2 members are clerks, one computer operator, 6 salesmen, 3 helpers), working in a small chemist retail shop. 6

Assumptions can be made wherever necessary. The payslip should display the employee no., employee name, no. of days worked during the

month, date of generation of the payslip, month for which the salary is being paid, all the details of the payment, deductions, gross-pay and net-pay.

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Write an interactive program called "Weight converter" that accepts the weight in milligrams/decigrams/centigrams/kilograms/ounces/pounds/tons and displays its equivalent in grams. 2
5. Write a C program to get transpose of given matrix in same matrix. 2
6. Write a function for performing case sensitive string comparison. [use pointers] 2
7. Write recursive program to print Fibonacci series for n terms. 2
8. Write a function to reverse the given number. 2
9. Write short note on : 2
(a) Malloc () and free ()
(b) Bit fields.

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P.G. Diploma/Master in Computer Application

विषय : विषय कोड : एम.सी.ए./पी.जी.डी.सी.ए.
 Subject : Subject Code: MCA/PGDCA
 कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-1.3/
 Course Title: Computer पी.जी.डी.सी.ए.-1.3
 Organization and Assembly Course Code : MCA-1.3/PGDCA-1.3
 Language
 Programming

अधिकतम अंक	: 30
Maximum Marks	: 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक	: 18
Maximum Marks	: 18

- Convert the following : 6
 - $(22.5)_{10} = (q)_2$
 - $(3234)_8 = (?)_{16}$
 - $(AF2)_{16} = (?)_{10}$
 - $(1010.01)_2 = (?)_{10}$
 - $(150.125)_{10} = (?)_{16}$
- Write short note on the following : 6
 - Performance of Processors
 - 1's and 2's complement
 - Decoder
- Draw and explain 32-bit (80486) architecture in detail. 6

Section - B

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

- Write Secondary Storage Systems. 2
- What is Register? Draw and explain any one shift register in detail. 2
- What is DMA? Explain DMA transfer modes in detail. 2
- Differentiate between RISC and CISC. 2
- What is Interrupt? Explain the types of Interrupts. 2
- Explain Compiler and Interpreter. 2

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पी०जी० डिप्लोमा/कम्प्यूटर अनुप्रयोग में स्नातकोत्तर

P.G. Diploma/Master in Computer Application

विषय : विषय कोड : एम.सी.ए.
Subject : Systems Analysis and Design Subject Code: MCA/PGDCA
कार्स कोड : एम.सी.ए.-1.4/
कोर्स शीर्षक : पी.जी.डी.सी.ए.-1.4
Course Title: Course Code : MCA-1.4/
PGDCA-1.4

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. What is system? Explain classification of system? Explain skill of system analyst? 6
2. Explain SDLC in detail? Explain incremental and iterative model in detail? 6
3. Explain role of business analyst in detail? Explain Data Analysis in detail? 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

Short answer questions.

4. Discuss the feasibility study factors for Online Examination System in brief. 2
5. Explain System Analysis Model? 2
6. Draw a DFD for Sale & Purchase Management System for Manufacturing Industry. 2
7. Draw an ERD for Hotel Management System. 2
8. Explain Hipo chart? 2
9. Difference between Black Box Testing and White Box Testing. 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम

Master of Computer Application

विषय : विषय कोड : एम.सी.ए./
Subject : पी.जी.डी.सी.ए.
कोर्स शीर्षक : Subject Code : MCA/PGDCA
Course Title: Data Communication and Computer Network कोर्स कोड : एम.सी.ए./
पी.जी.डी.सी.ए.-1.5
Course Code : MCA/PGDCA-1.5

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What is a computer network? Discuss in details the classification of Network. 6
2. What is data communication? Discuss the different made of Data communication. 6
3. What do you mean by addressing? Discuss the different type of addressing. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is Analog data transmission? 2
5. Why do we need modulation? 2
6. What is the differences between bit rate and band rate. 2
7. What is Hamming distance? 2
8. What is flow and error control? 2
9. What is CSMA? 2

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पी०जी० डिप्लोमा/कम्प्यूटर अनुप्रयोग में स्नातकोत्तर

P.G. Diploma/Master in Computer Application

विषय : विषय कोड : एम.सी.ए.
Subject : Introduction to Subject Code : MCA/PGDCA
Database Management कोर्स कोड : एम.सी.ए.-2.1/
System पी.जी.डी.सी.ए.-2.1
कोर्स शीर्षक : Course Code : MCA-2.1/
Course Title: PGDCA-2.1

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. Consider the following requirements of a staff management system of an organization : 6
 - (a) The basic information that needs to be stored about the staff includes staff-id, name, address, date of birth, date of employment, post held.
 - (b) It keeps dependent information of employees. An employee can have many dependents.
 - (c) Pay details of the employees are also kept.
 - (d) It also keeps track of the various departments and employees of those departments.

Draw the E-R diagram for the organization. Make suitable assumptions, if any.

2. (b) Consider the following relational scheme : 6

O Student (s _ id, name, phone, Programme)

O Subject (subject _ id, subject _ name, taught _ by)

O Marks (s _ id, subject _ id, marks)

Make assumptions, if any,

Formulate SQL queries for the following :

- (i) Find the name of students who have passed more than 5 subjects. (For passing a subject, student must get at least 50 marks)
 - (ii) Find the Programme of the students who have not passed a single course.
 - (iii) Find the subject that has been passed by all the students who have appeared for that subject.
 - (iv) Find the list of teachers who have taught more courses than what has been taught by teacher 'XYZ'.
 - (v) Find the sid of those students who share the same phone numbers. (Assume that a maximum of two students can have the same phone number).
3. Consider the following relation : 6
- Examination (student _ id, name, subject _ code, paper _ code, maximum _ marks, pass _ fail, examination _ date, exam _ centre _ code, Marks _ obtained _ by _ student)
- (i) Explain at least three anomalies in the relation above.
 - (ii) Identify the functional dependencies in the relation. Identify the primary key of the relation.
 - (iii) Normalise the relation to 2NF and 3NF.
 - (iv) Write the SQL commands for creating the tables. Specify the primary key(s) also.

Section - B

अधिकतम अंक : 12

Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Write at least six advantages of the database approach. 2
 5. Explain the sequential file organisation with help of a diagram. Write at least one advantage and one disadvantage of this organisation. 2
 6. Explain the following relational algebraic operations with the help of one example each : 2
 - (i) Set Difference
 - (ii) Division.
 7. Explain the two phase locking scheme with the help of an example. Why is strict two phase locking needed? 2
 8. Which of the two data structures, binary search tree or B tree, would you use for implementing an index in a database system? Justify your answer. 2
 9. What are distributed database systems? List four advantages and six disadvantages. Explain fragmentation in a distributed database system, with the help of an example. 2
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P.G. Diploma/Master in Computer Application

विषय : विषय कोड : एम.सी.ए.
 Subject : Object Oriented Subject Code: MCA/PGDCA
 Technologies and कोर्स कोड : एम.सी.ए.-2.2/
 Java Programming पी.जी.डी.सी.ए.-2.2
 कोर्स शीर्षक : Course Code : MCA-2.2/
 Course Title: PGDCA-2.2

अधिकतम अंक : 30
 Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
 Maximum Marks : 18

1. What is Object Oriented Paradigm? Explain features of Object Oriented Paradigm. Why Object Oriented Programming are preferred over structured programming? 6
2. What is static method? Explain why main method in Java is always static and What are different bitwise operators available in Java? Write a Java program to explain the use of bitwise operators. 6
3. What is overloading of methods? Explain with an example how overloading of methods is different from overriding of methods. 6

Section - B

अधिकतम अंक : 12
 Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is abstract class? Explain advantages of abstract class with the help of an example. 2
5. What is polymorphism? Write a java program to show the advantage of polymorphism. 2
6. What is package in Java? Explain how to decide the need of package(s) in a system which is to be developed using Java. 2
7. What is an exception? Explain how an exception is handled in Java. Also explain hierarchy of different exception classes in Java. 2
8. What is String class in java? Explain how it is different from StringBuffer class. Also write a java program to find whether a given string is a palindrome or not. 2
9. Explain basic features of Java programming language. 2

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पी०जी० डिप्लोमा/कम्प्यूटर अनुप्रयोग में स्नातकोत्तर

P.G. Diploma/Master in Computer Application

विषय : विषय कोड : एम.सी.ए.
Subject : Software Subject Code: MCA/PGDCA
Engineering कोर्स कोड : एम.सी.ए.-2.3/
कोर्स शीर्षक : पी.जी.डी.सी.ए.-2.3
Course Title: Software Course Code : MCA-2.3/
Engineering PGDCA-2.3

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. Define the following : 6
(i) Software Product (ii) Software Engineering (iii) Software Testing.
- 2.(a) Define software risk. Explain in brief the types of software risk. 6
- (b) Explain the layered approach used in software Engineering.
3. Explain SDIC in detail. Also explain the framework activities involved in the software development process. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. State four differences between alpha & Beta testing. 2
5. Explain the task in value at in Requirements Engineering. 2
6. Define software reliability and software availability. 2
7. Explain four approaches to handle the software sizing problem. 2
8. Describe in detail, debugging strategies. 2
9. Explain the features of SCM. 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम (एम.सी.ए.)

Master in Computer Application (MCA)

विषय : विषय कोड : एम.सी.ए./
Subject : Operating पी.जी.डी.सी.ए.
system concept and Networking Subject Code: MCA/PGDCA
Management कोर्स कोड : एम.सी.ए./
पी.जी.डी.सी.ए.-2.4
कोर्स शीर्षक : Course Code : MCA/PGDCA-2.4
Course Title:

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What are the four Major Component of GUI? Explain the function of each component in details. 6
2. What is an operating system? Discuss the types and structure of an operating system. 6
3. What do mean by transmission media? Discuss the different type of transmission media. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What are the different state of Linux operating system. 2
5. What do you mean by invisible mode in yahoo Messenger. 2
6. What types of utilities are provided in Toolbox? 2
7. What are the function of resource manager? 2
8. What is multitreading? 2
9. List the advantage of optical fiber. 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में स्नातक कार्यक्रम

Master of Computer Application Programme

विषय : विषय कोड : एम.सी.ए.
Subject : Subject Code: MCA
कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-3.1(New)
Course Title: Advance Discrete Mathematics
Course Code : MCA-3.1(New)

अधिकतम अंक : 30
Maximum Marks : 30

- Note : 1.** Answer all questions. Q.N. 1 to 3 are long answer questions. A.N. 4 to 9.
- 2.** Are short answer questions.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

- 1.(a) Show that the function $\left[\frac{x}{2} \right]$ which is equal to the greatest equal to the greatest integer less than or equal to $\frac{x}{2}$ is primitive recursive. 6
- (b) Show that the recurrence relation $a_n = a_{n-1} + 2 \quad n \geq 2$
2. Find a recurrence relation and give initial conditions for the number of bit strings of length n that do not contain the pattern - 9. 6
3. (a) Show that a simple graph with n vertices and k components can not have more than $\frac{(n-k)(n-k+1)}{2}$ edges. 6

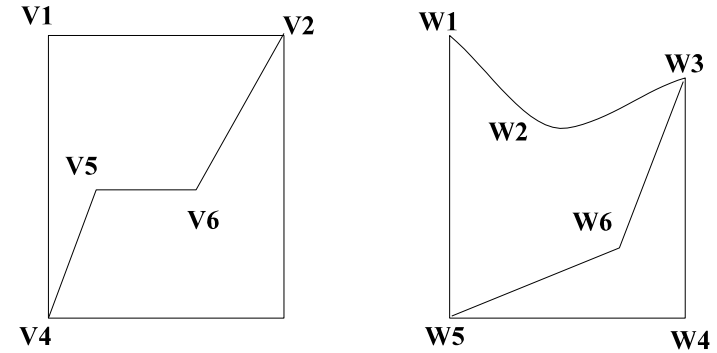
- (b) show that the maximum number of edges in a simple graph with n vertices is $\frac{n(n-1)}{2}$.

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short answer questions.

4. Verify whether graph G and H are isomorphic. 2



G

5. Using the recursion, define the multiplication function * given by $g(x, y) = x * y$. 2
6. Find the generating function for the sequence 1, 9, 9², 9³,..... Where a is a fixed constant. 2
7. Show that a planar graph G is 5 - colorable. 2
8. Show that a simple connected graph with n vertices and m edges is Hamiltonian if $m > \frac{1}{2} (n-1)(n-2) + 2$. 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर परास्नातक कार्यक्रम (एम.सी.ए.)

Master of Computer Application Programme (MCA)

विषय : विषय कोड : एम.सी.ए.
Subject : Principle of Management of Subject Code: MCA
info system and communication कोर्स कोड : एम.सी.ए.-3.2
Course Code : MCA-3.2

skill

कोर्स शीर्षक :

Course Title:

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What is organisation? Discuss its characteristics and functions? 6
2. Write an essay on Business functions and processes? 6
3. Explain the various levels of management activities? 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Discuss the impact of informaton system on business? 2
5. What is portfolio management? 2
6. Explain the distintive ways of implementation of ERP? 2
7. Highlight the various information rights and Acts? 2
8. What are different types of communications? 2
9. Write short note on curriculum vitae? How useful is in information providing? 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में अनुप्रयोग में स्नातकोत्तर

Master of Computer Application

विषय : विषय कोड : एम.सी.ए.
Subject : Subject Code: MCA
कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-3.3
Course Title: Data and File structures Course Code : MCA-3.3

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. What is linked list? Write the differences between doubly linked list and circular linked list. 6
2. What do you mean by Binary Search tree (BST). Draw a binary tree of given postorder : GHDIJEBCA & Inorder : GDHBI EFAC. 6
3. Define the structure of an AVL tree. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What are the major features of a Binary search tree? 2
5. What is circular queues? Write an algorithm for deletion of an element from the circular queue. 2
6. Write a function to check the overflow condition of a list represented by an array. 2
7. What is sparse matrices? Explain with suitable example. 2
8. What is the space complexity of Euclid Algorithm? 2
9. Prove that if $f(n) = n^2 + 2n + 5$ and $g(n) = n^2$ then $f(n) = O(g(n))$. 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम

Master of Computer Application (MCA)

विषय : विषय कोड : एम.सी.ए.

Subject : Object Oriented Subject Code: MCA
analysis and कोर्स कोड : एम.सी.ए.-3.4
Design Course Code : MCA-3.4

कोर्स शीर्षक :

Course Title:

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. What is object design? Explain the steps of object design with suitable example. 6
2. What is multiple inheritance? Discuss its role in object oriented analysis and design. 6
3. What is design optimization? Explain with suitable example. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What are the shortcomings in structured approach? 2
5. What is persistency? 2
6. Why generally, does an object oriented system use a relational DBMS? 2
7. What are the metrics for choosing the best algorithm? 2
8. List the steps for converting state diagram to code. 2
9. What is the advantage of two ways association. 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर अनुप्रयोग में स्नातकोत्तर
Master of Computer Application

विषय : विषय कोड : एम.सी.ए.
Subject : Subject Code: MCA
कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-4.1
Course Title: Design and Analysis of Algorithms Course Code : MCA-4.1

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

खण्ड - 'अ'
Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. Prove that the minimum degree of any node in an n node binomial. 6
2. Show the results of inserting the keys : F, S, Q, K, C, L, H, T, V, W, M, R and N in order to an empty B-Tree with minimum degree 2. 6
3. Prove that if the weights on the edge of the connected undirected graph are distinct then there is a unique minimum spanning tree. Give an example in this regard. Also discuss Kruskal's minimum spanning tree in detail. 6

खण्ड - ब
Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

1. Show the following recurrence. : 2
 $T(I) = 1$
 $T(n) = 4T(n/3) + n^2$ for $n \leq 2$
2. Show the trace of heapsort algorithm for following input data : 2
30, 50, -100, 200, 50, 30, 60, 80, 200 in order.
3. Write an algorithm for inserting a node into Fibonacci Heap. 2
4. Give an algorithm for Strassen's multiplication. Explain how a divide and conquer strategy is applicable to it? Also analyze your algorithm. 2
4. Give single source shortest path algorithm. Give the time complexity. 2
5. Give the non-deterministic algorithm for sorting elements in non-decreasing order. 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर अनुप्रयोग में स्नातकोत्तर

Master of Computer Application Programme

विषय : विषय कोड : एम.सी.ए.
Subject : Operating System Subject Code : MCA
कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-4.2
Course Title: Course Code : MCA-4.2

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

- 1.(a) State and explain different mechanism for Interprocess communication and synchronisation. 6
- (b) What is critical section problem? Explain it in brief.
2. State different architectures of operating system and explain monolithic architecture in detail. 6
3. Explain the concept of thread. Compose user level threads and kernel level threads. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is a process? Write and explain a typical 'Process Control Block' (PCB). 2

5. What is page fault? Describe the actions taken by the O.S. when page fault occurs. 2
6. On a simple paging system with 2^{24} bytes of physical memory, 256 pages of logical address space and a page size of 2^{10} bytes. How many bits one in a logical address and in a physical address specify the page frame. 2
7. For the processes listed in table, draw a chart illustrating their execution using. 2

(a) First come First Serve

Process	Arrival Time	Processing time
A	0	3
B	1	6
C	4	4
D	6	2

(b) Shortest Job first

8. What do you mean by busy waiting? What other kinds of waiting time are there? Can busy waiting be avoided altogether? Explain your answer. 2
9. Write short notes on : 2
(a) Virtual memory.
(b) Access mechanism.

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2014-2015

कम्प्यूटर अनुप्रयोग में स्नातकोत्तर

Master of Computer Application Programme

विषय : विषय कोड : एम.सी.ए.
Subject : Advanced Data Base Subject Code : MCA
Management System कोर्स कोड : एम.सी.ए.-4.3
कोर्स शीर्षक : Course Code : MCA-4.3
Course Title: Advanced Data Base
Management System

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. What is Relational Database Management System? Explain the various terms used in RDBMS. 6
2. Explain the normalization process in RDBMS. Discuss the various normalization forms with the help of on suitable examples. 6
3. Consider the following relation : 6
TRIP (trip-id, start - date, cities - visited, cards - used)
This relation refers to business trips made by salesman in a company. Suppose the trip has a single start - date but involves many cities and one may use multiple credit cards for that trip. Make up a nock-up population of a table.
 - (a) Discuss what FDS (Functional Dependencies) and/or MVDS (Multi-valued dependency) exist in this relation.
 - (b) Show a possibnle decomposition in normal forms.

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is the difference between controlled and uncontrolled redundancy? Illustrate with an examples. 2
5. What do you mean by external, conceptual and physical schema? 2
6. List the various cases where use of a NULL value would be appropriate. 2
7. What do you understand by E.R. diagram? Explain the various symbols used in it. 2
8. Explain the various steps of design database. 2
9. What are the roles of MS-Access in constructing the database? Discuss the other functions of MS-Access in brief. 2

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2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम (एम०सी०ए०)

Master in Computer Application (MCA)

विषय : विषय काड : एम.सी.ए.
Subject : Subject Code: MCA
कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-4.4
Course Title: Advanced Course Code : MCA-4.4
Internet
Technologies

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. How does Session Bean differ from the Entity Bean in terms of object sharing, object state and failure recovery? 6
2. Using servlet, JSP, JDBC and XML create a web application for a courier company to provide online help in tracking the delivery status of items. 6
3. Write code to use a form to authenticate a client using the session information stored in the HTTP session object in the web server. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Explain different types of system vulnerabilities. 2
5. Explain the different types of restrictions on EJB. 2
6. What are the advantages of XML over HTML? 2
7. What is DTD? Why do we use it with XML documents ? 2
8. What are the custom tags in JSP ? 2
9. Explain the life cycle of servlet. 2

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2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम (एम०सी०ए०)

Master in Computer Application (MCA)

विषय : विषय कोड : एम.सी.ए.
Subject : Computer Graphic and Subject Code : MCA
Multimedia कोर्स कोड : एम.सी.ए.-5.1
कोर्स शीर्षक : Course Code : MCA-5.1
Course Title:

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. Differentiate between the following : 6
(i) Procedural animation and Stochastic animation
(ii) Bitmap graphic and Vector graphic
(iii) Hypertext and Hypermedia
(iv) Printer and Plotter.
2. What do you mean by the term Authoring tools in Multimedia?
Briefly describe any two authoring tools. 6
3. Write c-programme and algorithm of Mid-point Circle
Generation Algorithm. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. Use DDA line generation algorithm to draw a line from (0, 21) to (7, 7). 2
5. Find the transformation matrix for the reflection About the line $Y = x$. 2
6. What are the advantages and disadvantages of 2-buffer method? 2
7. Why do we need illumination models? 2
8. What is Raster Scan and how is it different from Random Scan? 2
9. What is aliasing? Explain how Antialiasing overcome the problem of aliasing. 2

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2014-2015

कम्प्यूटर अनुप्रयोग में स्नातकोत्तर

Master of Computer Application Programme

विषय : A.I. and Knowledge Management
विषय कोड : एम.सी.ए.
Subject Code: MCA
Subject :
कोर्स कोड : एम.सी.ए.-5.2
कोर्स शीर्षक :
Course Code : MCA-5.2
Course Title:

अधिकतम अंक : 30
Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

1. Write a function division which divides a number X by Y such that if $Y = 0$ then the function returns the symbol 'infinity' else it returns the quotient X/Y . 6
2. Write a LISP program expo to compute i raise to power j where i and j are natural numbers. 6
3. What is the structure of Agents? Also explain Goal Based Agents and utility Based Agents. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What is differentiate between forward chaining system & Backward chaining system? 2
5. Define MYCIN and COMPASS. 2
6. Write down application areas of expert systems. 2
7. In order to explain the use cut, we write a program to find the factorial (N) using cut as follows : 2
fact (N, 1) : $n <= 1, !$
fact (N, F) : - M is N - 1, !
fact (M, F1),
F is F1 * N.
8. The variable X is bound to 5 and the variable Y is bound to 7. Further the value $(5 + 5) * (7 + 7)$ is evaluated to 140. 2
9. Draw cons-cell structure for list ((A B) (C D)). 2

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2014-2015

कम्प्यूटर में स्नातक कार्यक्रम

Master of Computer Application Programme

विषय : कम्प्यूटर विषय कोड : एम.सी.ए.
 Subject : Computer Subject Code: MCA
 कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-5.3
 Course Title: Numerical and Statistical Computing Course Code: MCA 5.3

अधिकतम अंक : 30

Maximum Marks : 30

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

खण्ड - 'अ'

Section 'A'

अधिकतम अंक : 18

Maximum Marks : 18

- Find the Newton's Backward Differences form of interpolating polynomial for the data : 6

x :	4	6	8	10
f(x) :	19	40	79	142
- Calculate the value of integral. 6
 $\int_4^{5.2} \log x \, dx$ by using
 (i) Trapezoidal Rule (ii) Wedd's Rule
- Determine the Real root of the equation. 5
 $X^3 - X^2 - 2 = 0$
 Correct to one decimal place using Regula Falsi Method.

खण्ड - ब
 Section - B

अधिकतम अंक : 12
 Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

- If $\pi = \frac{22}{7}$ is approximated as 3.14, find the absolute error, relative error respectively. 2
- Let $a = 0.41$, $b = 0.36$, and $C = 0.70$ prove that 2

$$\frac{a-b}{c} \neq \frac{a}{c} - \frac{b}{c}$$
- What do you mean by the term "Accuracy" and "precision". 2
- Evaluate $\int_0^1 \frac{1}{1+X} dx$ else using Sempson rule. 2
- Solve the equation using Newton Raphson method : 2
 $X^2 - 4X^2 + 4 = 0$
- What do you mean by term "Random variable"? 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम (एम०सी०ए०)

Master in Computer Application (MCA)

विषय : विषय कोड : एम.सी.ए.
Subject : Subject Code : MCA
कोर्स शीर्षक : कोर्स कोड : एम.सी.ए.-5.4
Course Title: Parellel Computing Course Code : MCA-5.4

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. Define Array processing. Why an array processors called as SIMD array computers? 6
2. State and Explain Gustafson's Law for measuring speedup performance of paralld system. Explain with the help of an example. 6
3. Define the cluster computing. Explain the memory organisation in a cluster computing. 6

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. What do you mean by Fat Tree? 2
5. What is systolic array? 2
6. What is parallel virtual machine (PVM)? 2
7. What do you mean by Data parallel programming? 2
8. What is synchronization lalency problem in multithread process? 2
9. What is permutation Network? 2

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अधिन्यास (Assignment)

2014-2015

कम्प्यूटर में परास्नातक कार्यक्रम (एम.सी.ए.)

Master in Computer Application (MCA)

विषय : विषय कोड : एम०सी०ए०

Subject : Subject Code: MCA

कोर्स शीर्षक : कोर्स कोड : एम०सी०ए०-5.5

Course Title: Accountancy
and Fancial
Management Course Code : MCA-5.5

अधिकतम अंक : 30
Maximum Marks : 30

Section 'A'

अधिकतम अंक : 18
Maximum Marks : 18

Note : Long Answer Questions. Answer should be given in 800 to 1000 Words. Answer All questions. All questions are compulsory.

1. What are various accounting concepts? Explain any three? 6
2. Differentiate between Trading and Profit and Loss Account? 6
3. A machine is available for purchase at a cost of Rs. 80,000 6

The expected life of five years and to have a scrap value of Rs.

10,000 at the end of the five year period we have estimated that

it will generate additional profit over its life as follows :

Year	Rs.
1	20,000
2	40,000
3	30,000
4	15,000
5	5,000

These estimate are profit before depreciations. You are required to calculate the return on capital employed?

Section - B

अधिकतम अंक : 12
Maximum Marks : 12

Note : Short Answer Questions. Answer should be given in 200 to 300 Words. All Questions are compulsory.

4. "Accounting cycle is the seequence of procedures used to keep track of wht has happened in the busienss"? Discuss 2
5. Explain the process of constructing a Balance sheet? 2
6. What is cash flow statement? 2
7. What is the utility of Ratio Analysis? 2
8. Define and evaluate various leverage ratios? 2
9. Discuss the objectives of financial management? 2