M.C.A
INTERNAL ASSIGNMENT QUESTIONS
(Aug/Sept- 2017)

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(RECOGNISED BY THE DISTANCE EDUCATION BUREAU, UGC, NEW DELHI)

OSMANIA UNIVERSITY

(A University with Potential for Excellence and Re-Accredited by NAAC with "A" Grade)

Prof. SHIVARAJ

DIRECTOR

Dear Students,

All the MCA-I, II & III Year students has to write 2 Assignments for each paper and submit **Assignments.** The submission of Assignments compulsorily. Each assignment carries **20 marks.** University Examinations will be held for **80 marks**. The concerned faculty evaluates these assignment scripts. The marks awarded to you will be forwarded to the Controller of Examination, OU for inclusion in the University Examination marks. If you fail to submit Internal Assignments before the stipulated date, the internal marks will not be added to University examination marks under any circumstances. **The assignment marks will not be accepted after the stipulated date.** You are required to **pay Rs.500/- fee** towards Internal Assignment marks through DD (in favour of Director, PGRRCDE, OU) and submit the same along with assignment at the concerned counter **on or before 31-05-2017** and obtain proper submission receipt.

ASSIGNMENT WITHOUT THE DD WILL NOT BE ACCEPTED
Assignments on Printed / Photocopy / Typed papers will not be accepted and will not be valued at any cost. Only hand written Assignments on A/4 size paper (one side only) will be accepted and valued.

Methodology for writing the Assignments:

1. First read the subject matter in the course material that is supplied to you.
2. If possible read the subject matter in the books suggested for further reading.
3. You are welcome to use the PGRRCDE Library on all working days including Sunday for collecting information on the topic of your assignments.
   (10.30 am to 5.00 pm).
4. Give a final reading to the answer you have written and see whether you can delete unimportant or repetitive words.
5. The cover page of the each theory assignments must have information as given in FORMAT below.

FORMAT

a. NAME OF THE COURSE :

b. NAME OF THE STUDENT :

c. ENROLLMENT NUMBER :

d. NAME OF THE PAPER : _____

e. DATE OF SUBMISSION : _____

6. Write the above said details clearly on every assignment paper, otherwise your paper will not be valued.
7. Tag all the assignments paper-wise and submit.
8. Submit the assignments on or before **31.05.2017** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Prof.Shivaraj

DIRECTOR

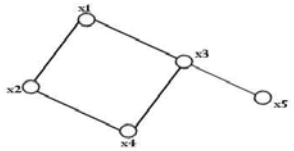
Prof. G. Ram Reddy Centre for Distance Education
Osmania University
MCA – I Year 2017 ASSIGNMENTS

CDE-101 Discrete Mathematics ASSIGNMENT - I

1. (a) If f: A →B & g: B→C are two onto functions, then the mapping gof: A→C is also an onto function. Prove

(b) Determine whether the conclusion C is valid in the following premises without using truth table: H1: ¬Q, H2: P → Q, C: ¬ P

2. . The following figure depicts hasse diagram of a partially ordered set (P, R) where P = { x1, x2, … x5}. Find which of the following are true: x1Rx2, x4Rx1, x3Rx5, x2Rx5, x1Rx1& x4Rx5. Find the least & greatest members in P if they exist. Also find the maximal & minimal elements of P. Find upper & lower bounds of {x2, x3, x4}, {x3, x4, x5} & {x1, x2, x3}. Also indicate the LUB & GLB of these subsets if they exist.



3. **(a) S. T ¬ (P $\Longleftrightarrow$ Q) $\Longleftrightarrow$ (P V Q) Λ ¬(P Λ Q)**
$\Longleftrightarrow$ (P Λ ¬Q) V (¬ P Λ Q)
without using truth table

(b) Define primitive recursive function and show that f(x) = x/2 is primitive recursive, where x/2 is the integral part of x/2

4. (a) Simplify (a' * b' * c) + (a * b' * c) + (a * b' * c')

(b) In any Boolean algebra, S.T (a + b) (a' + c) = ac +a'b = ac + a'b + bc

5. Define Ring. Prove that <Q, *> where * is binary operation defined by a * b = ab + a +b is a group.

6.. Find the number of integers between 1 to 1000 which are not divisible by 2, 4, 6 or 9

7. (a) Find the coefficient x^4y^3 & number of terms in the expansion of $(3x – 10y)^{11}$

(b) Use column summation identity & r = 1, 2 & 3 to derive formula
1.2 + 2.3 + 3.4 +……..+n. (n+ 1) = (n(n+1)(n+2))/3

8. Compute inverse of each element in Z_7 using Fermats & Eulers theorem

9. (a) S.T a plane connected graph with less than 30 edges has a vertex of degree ≤ 4

(b) S.T if G is a simple planar graph with $|V| \geq 11$, then the complement of G is non-planar

10. (a) S.T if G is a polyhedral graph then there is a region of degree ≤ 5

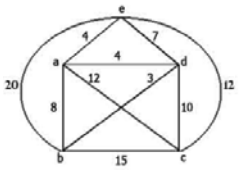
(b) Determine the height of binary tree whose largest level order index is $2^5 + 33$.

CDE-101 Discrete Mathematics ASSIGNMENT - II

1. (a) P.T ¬(P Λ Q) → (¬ P V (¬ P V Q)) $\Longleftrightarrow$ (¬ P V Q)
(b) P.T (P V Q) Λ (¬ P Λ (¬ P Λ Q)) $\Longleftrightarrow$ (¬ P Λ Q) without using truth table.
2. (a) Let R denote a relation on set of all ordered pairs of a positive integer such that (x, y) R (u, v) iff xv=yu. S.T R is an equivalence relation.
(b) Let X = {1, 5, 6, 7, 8} & R be a relation on X defined by R = {(1, 5), (5, 6), (5, 7), (6, 7), (7, 8)}. Find transitive closure of R
3. (a) Solve the recurrence relation $a_n = 6a_{n-1} – 11a_{n-2} + 6a_{n-3}$ & $a_0=2$, $a_1=5$ & $a_2=15$
(b) Obtain sum of products canonical form of the expression $(x_1 + x_2)' + (x_1' * x_3)$ in four variable x1, x2, x3 & x4.
4. (a) Obtain simplified Boolean expression equivalent to $m_5 + m_7 + m_9 + m_{11} + m_{13}$ where m_j are minterms in variables x_1, x_2, x_3, x_4
(b) Use K-maps to simplify $\sum (0, 2, 6, 8, 9, 7, 13, 15)$
5. (a) P.T 4^{th} roots of unity forms an abelian group in the binary operation *
(b) P.T a group G is abelian if $b^{-1}a^{-1}$ b a = e for every a, b belongs to G
6. Design a single error correcting code for m=3 & n=7
7. (a) In how many ways can a committee of 3 faculty members and two students be selected from 7 faculty members and 8 students

(b) How many ways are there to distribute 12 different books among 15 people if no person is to receive more than one book

8. (a) How many integral solutions are there for $x_1 + x_2 + x_3 + x_4 = 36$ where $x_1 \geq 3$, $x_2 \leq 2$, $x_3 \leq 1$ & $x_4 \geq 4$
   (b) How many ways can be letters { 5.a. 4.b, 1.c} be arranged so that all letters of same kind are in a single block
9. Consider the following graph. Find BFS & DFS



Find Minimal Spanning tree. Find the Pre-order & post-order traversal for the resultant spanning tree

10. (a) S.T a simple connected graph with 7 vertices each of degree 4 is non-planar
    (b) Find $\chi(K_n)$ & $\chi(C_n)$

CDE -102 – MATHS AND STATISTICS

STATISTICS ASSIGNMENT (I)

Answer the following questions

1. a) write about ogives construction.
   b) Represent the following frequency distribution in the form of a historogram.

Class Intervals	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	7	12	16	24	15	6

2. a) Distinguish primary data and secondary data. How do you collect primary data.
   b) What are the data validation method – Explain.
3. a) Write about central tendency methods.
   b) Find Mean and Variance for the following frequency list.

X	:	1	2	3	4	5	6	7
Y	:	15	29	32	47	34	20	16

4. a) Give mathematical definition of Probability and Addition theorem of Probability.
   b) If two fair dies are rolled simultaneously, find the probability that
      i) Sum of the points on top face is 9.
      ii) Sum of the points on the top faces is at least 10.
5. a) What is conditional Probability? State Multiplication theorem of Probability and Baye's theorem ?
   b) Three machines A,B,C will produce 25%,35% and 40% of the bullets in a bullet manufacturing company. The Probabilities that these machines produce defective bullets are 1%, 2% and 1.5% respecetively. A bullet is taken from a days production and found to be defective. What is the probability that it can be from machine B ?.
6. a) Define r.U and Mathematical expectation of a r.U. A discrete r.U. has the following probability distribution.

X	:	-2	-1	0	1	2	3
P(X)	:	0.1	a	0.2	2a	0.3	a

   Find i) The value of 'a',
   ii) its distribution function F(X),
   iii) Mean and variance of X.
   b) A continuous r.U.X has the following probability density function
   $F(X) = 20e^{-20x}$; $X>0$
   $= 0$; 0 otherwise
   Find i) Mean of X, ii) $P(X \leq 1000)$, iii) $P(X>3000)$

7. a) What is regression state the properties of regression coefficients.
   b) Given below are the heights of fathers (X) and sons (Y), Find a regression line to predict the son's height given father's height.

Father Height(X) :	60	61	62	62	63	64	65	67
Son Height(Y) :	62	63	60	63	67	67	64	66

And hence find the correlation between them.

8. a) Define Normal distribution and state its properties.
   b) If X is distributed normally with mean 12 and standard deviation 4. Find i) $P(X \geq 20)$, ii) $P(X \leq 20)$, iii) $p(0 \leq X \leq 12)$
9. a) A can hire firm has two cars which its hires day by day to customers. The no of customers demand for a car from that firm on any day is distributed as Poisson variate with mean 1.5. Compute the probability that on a day i) neither can is given to customers, ii) some demand is refused.
   b) a manufacturer claims that only 10% of his products are defectives. To test his claim 15 units are inspected from the production it's claim will be accepted it out of 15 units no of defectives is at most 2. find the probability that the manufactures claim is accepted.
10. a) the means of two large samples of sizes 1000 and 2000 members are found to be 67.5 and 68.0 inches can the samples be regarded as drawn from the same population of standard deviation 2.5 inches ? test at 5% level of significance.
    b) ten scores of 10 candidates prior and after training are given below.

Prior	:84	48	36	37	54	69	83	96	90	65
After	:90	58	56	49	62	81	84	86	84	75

Is the training effective? Test at 5% level of significance

Mathematics - Assignment (II)

1. (a) Prove by mathematical induction

$1^2 + 3^2 + 5^2 + \ldots + (2n-1)^2 = \frac{n(4n^2-1)}{3}$ for all n

(b) Solve $\log(3x-2) + \log(5x-2) = \log(10x-3)$

2. (a) Find the cube root of $10 + 6\sqrt{3}$
   (b) If α, β are the roots of $ax^2 + bx + c = 0$. The form the equation whose roots are $\alpha^2 + \beta^2, \alpha, \beta$.
3. (a) If $y = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \text{--------}$ Then Show that

$$x = y + \frac{y^2}{2!} + \frac{y^3}{3!} + \text{--------}$$

(b) Find A-1 if $A = \begin{pmatrix} 3 & 4 & 5 \\ 2 & -1 & 8 \\ 5 & -2 & 7 \end{pmatrix}_{3\times 3}$

4. (a) Solve by matrix inversion method
   x + y + z = 8, x – y + 2z = 6, 3x + 5y – 7z = 14

(b) Show that $-2\bar{a}+3\bar{b}+5\bar{c}$, $-\bar{a}+2\bar{b}+3\bar{c}$, $7\bar{a}-\bar{c}$ are collinear

5 (a) Find a unit vector perpendicular to each of 2i + j – k and 3i + 4j – k
   (b) Show that $\sin^4\theta + \sin^2\theta = 2 - 3\cos^2\theta + \cos^4\theta$

6. (a) In a Δ ABC prove that
   sin2A + sin2B + sin2C = 4 sinA.sinB.sinc

(b) Prove that $\frac{1+Cos2\theta+Sin2\theta}{1+Cos2\theta+Sin2\theta} = Cot\theta$

7. (a) If $(x + iy)^{1/3} = a + ib$ Show that $\frac{x}{a} + \frac{y}{b} = 4(a^2 - b^2)$

   (b) Find the area of the triangle formed by the line $y - 4x - 7 = 0$ with the Co-ordinate axes.

8 (a) Find the equation of the circle passing through the points (-1,2) (3,-2) and whose centre is on x = 2y.

   (b) Find the equation of the parabola whose focus is (1,-1) and the directrix is $x + y + 7 = 0$

9 (a) Find the equation of the hyperbola whose foci (± 5,0) and eccentricity is 5/4

   (b) If x = a [Cos t + Sin t] , y = a[Sin t - t.Cos t] find dy/dx.

10. (a) If $u = \tan^{-1}\left(\frac{x^3 - y^3}{x^3 + y^3}\right)$. Then show that x.ux + y.uy = 0

   (b) Evaluate : $\int_0^{\pi} x.Sin^7 x.Cos^6 x dx$

CDE-103 - (MAE) Assignment-1

1.Explain the accounting conventions
2.Give the nature of capital budgeting decisions. What is its significance for a firm?
3.How is cost of equity capital is determined under the CAPM ?
4.Define and differentiate Absorption Costing and Marginal Costing
5.Explain features of perfect competition. How is equilibrium output determined in case of a firm in the short run under perfect competition ? Discuss.
6.Write about the long run production function.
7.Prepare profit & loss Account from the following.

	Rs.
Gross Profit	2,56,250
Rent	6,500
Commission paid	3,250
Salaries	9,750
Taxes	9,750
Trade expenses	1,625
Bank Charges	1,950
Printing & Stationary	8,125
Packing charges	1,625
Carriage outward	6,500
Discount received	3,250
Discount allowed	2,112
Bad Debts	2,438
Depreciation on plant	4,875

8.Consider the following data of a company for the year 1998.

Sales	Rs 80,000
Fixed cost	Rs 15,000
Variable cost	Rs 30,000

Find the following :

a) Contribution
b) Profit
c) BEP
d) M.S

9.Explain the scope and subject matter of managerial economics.
10.Explain the law of Demand with the help of a diagram.

(MAE) Assignment-2

1. What do you mean by Accounts? Discuss briefly about the various accounting concepts.
2. What do you understand by ratio analysis? Discuss its objectives and limitations.

3. A company is contemplating investment in one of the two projects. Calculate the NPV of both the projects giving recommendation. Which project should be accepted.

Initial Outlay		Project A Rs	Project B Rs.
Cash inflow after tax year ended		18,000	20,000
	1	8,000	8,000
	2	7,000	9,000
	3	6,000	7,000
	4	5,000	6,000

Required rate of return is 10% per annum

4. Prepare double column cash book of Ashok & Co from the following

1997

Dec 1	Bank debit balance	Rs. 15,000
Dec 5	Cash received from Srinivas	Rs. 1,250
Dec 8	Payment made to Ramesh	Rs. 1400
	Discount received	Rs. 25
Dec 15	Purchases	Rs. 5000
Dec 16	Salaries paid	Rs. 2,250
Dec 18	Wages paid	Rs. 150
Dec 22	Cash from Mahesh	Rs. 1000
Dec 24	Furniture purchases	Rs. 250
Dec 26	Received from Rahul	Rs. 1400
	Discount	Rs. 100
Dec 28	received from Rahul	Rs. 1230
	Discount	Rs. 20
Dec 30	offices expenses paid	Rs. 100

5. Differentiate between the Cash flow statement and Funds flow statement.
6. Explain different types of costs.
7. Write a Short note on Working Capital.
8. Explain the law of Variable proportions.
9. What do you mean by Break-even analysis? Write about its merits and demerits.
10. Explain different types of budgeting.

Course No. 104 (IT) – CDE : *Assignment – I*

1. What is a computer? What are the different types of computers? Explain.
2. Explain about Input and Output devices.
3. What is a CPU? What are the different functions performed by CPU?
4. What is a micro operation? What are the different micro operations?
5. What is addressing? What are the different addressing modes? Explain with examples.
6. What is an Instruction set? What are the different types of instructions?
7. What is memory? What are the different types of memory?
8. What is DMA? Explain.
9. What is an Operating System? What are the tasks performed by an O.S.
10. What is Data Base Management System? Explain its features and uses.

Assignment – II

1. What are logic gates? Explain about different types of logic gates.
2. Prove the following:

   (i) $A + A.B = A$ (ii) $A.(A + B) = A$

   (iii) $(A + B)^1 . (A^1 + B^1)^1 = 0$

3. Explain the Instruction Cycle with flowchart?
4. Explain the functions of the following instructions?

(i) CLA (ii) CMA (iii) SNA (iv) LDA (v) BUN (vi) SZA

5. Draw the block diagram of control Unit and explain.
6. Explain the different types of Instruction Formats?
7. Explain the different modes of transfer?
8. What is Cache memory? What are the different types of mapping?
9. Explain the features of windows 98 and windows 98.
10. What is Teleconferencing? What are the different uses of teleconferencing?

CDE – 105 - Programming Data Structures - Assignment – I

1. Write a complete C++ program to implement all operations on a Linked STACK.
2. (a) Discuss about various Data Types of C++ in detail.
   (b) Write a program to ADD 2 matrices.
3. Write an algorithm and draw a flowchart for printing all EVEN numbers from 2 to 500.
4. Discuss about recursive functions, Inline Functions, and Default Arguments? Give examples.
5. Define polymorphism. Write a program to define a Base class "Animal" & define the derived classes "Cat", "Dog" and "Cow" and implement polymorphism for eat( ) and Cry( ) functions.
6. Define Trees? What are Binary trees. Write a program to implement preorder, post-order and in-order traversal's of a Binary tree.
7. Discuss about templates, with an example program to implement Queues using Arrays.
8. Discuss about :
   (i) Pointers (ii) Address operation
   (iii) Abstract Base Class (iv) Inheritance
   (v) Dynamic Arrays (vi) Virtual functions
9. Discuss in detail about AVL trees with Insertion and deletion operations with examples.
10. Write a program to find the sum, difference, product and division of 2 rational numbers using classes. Use friend functions, member functions, operator overloading.

CDE – 105 - Programming Data Structures - Assignment – 2

1. (a) Explain about the Operators of C++ in detail
   (b) Write an algorithm and draw a flow chart for finding the factorial of a given number.
2. Define class. Write a program to find the sum of 2 Time Objects using class "Time".
3. Write a program to implement all stack operations using Arrays.
4. (a) Discuss about call-by-value & call-by-reference with suitable examples.
   (b) Explain about graphs & graph representations.
5. Write a program to read 2 sets A, B and find $A \cap B$.
6. Define constructors? Discuss the different types of constructors available in C++ with suitable examples.
7. What are Linked Lists? Write a program to implement single linked list, with all operations.
8. Write a program to define a class "MATRIX", include the operator overloading functions for operators '+', '*', '>>' & '<<' to add, multiply, read and display the matrices.
9. Discuss different types of Inheritance in C++ with examples for each.
10. Write short notes on templates. With an example explain about the function template.

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MCA – I Year 2017 ASSIGNMENTS

CDE-106 – BUSINESS INFORMATION SYSTEMS – 1

1. Explain briefly about COBOL coding rules. write all divisions and their section in chronological order and
2. explain their usage in writing a program.
3. Explain level numbers. What is importance of 66, 77, 88 special level numbers with suitable examples.
4. Differentiate sequential file operations with indexed files with entries of environment and data division.
5. Write about data processing functions.
6. Discuss redefines and renames clause of COBOL.
7. Generate flow chart to solve problem generating multiplication table
8. Write organizational structure.
9. What is information system and explain the role of IS at various levels in MIS.
10. Explain the application of tactical accounting and financial information system.

CDE-106 – BUSINESS INFORMATION SYSTEMS – 2.

1. write about sort utility of Cobol with suitable example of a program
2. explain various threats of information system and its remedy
3. explain characteristics of ESS.
4. Explain DSS in MIS
5. Explain steps involved in SDLC
6. Write complete program in COBOL to create a sequential file to store data about a student.
7. Explain report writer feature with all entries.
8. Write characteristics of magnetic tapes.
9. Write the use OCCURS CLAUSE in COBOL.

Note: Last date for submission of MCA I, II & III assignments : 31-05-2017

DATA COMMUNICATIONS AND COMPUTER NETWORKS
ASSIGNMENT – I

1. (a) Write about Transport Service Primitives.
   (b) Write about Connection Establishment.
2. (a) Write about
   (i) LAN Architecture (ii) ISDN
   (b) Write about IEEE 802.4 (or) Token Bus.
3. (a) Distinguish between Datagram Subnet and Virtual Circuit Subnet.
   (b) Write about Optimality Principle and Shortest Path Routing.
4. (a) Write about
   (i) Flow based Routing (ii) Flooding
   (b) Write about
   (i) Loading Shedding (iv) Traffic Shaping
5. (a) Write about
   (i) CSMA/CD (ii) Transmission Media
   (b) Explain Token Ring (or) IEEE 802.5.
6. (a) Write about Crash Recovery.
   (b) Write about Flow Control and Buffering.
7. (a) Distinguish between Connection Oriented and Connectionless Service.
   (b) Write about Socket Address Structures.
8. (a) Explain Elementary Socket System Calls.
   (b) Write about Socket Options.
9. (a) Write about
   (i) DES (ii) IDEA
   (b) Write about Authentication using Kerberos.
10. (a) Write about SNMP.
    (b) Write about RSA.

DATA COMMUNICATIONS AND COMPUTER NETWORKS
ASSIGNMENT – II

1. (a) For the given bit string M = 1010001101 and P = 110101 Construct Shift Register Circuit and Find the CRC.
   (b) Write about
   (i) Go – Back n ARQ (ii) Selective reject ARQ
   (iii) Sliding window Flow Control.
2. (a) Write about
   (i) Different topologies of network.
   (ii) Stop-and-Wait Flow Control
   (b) Explain HDLC
3. (a) Write about Distance vector Routing
   (b) Write about
   (ii) Tunneling (ii) Fire Walls (iii) Fragmentation

4. (a) Write about
(i) Link State Routing (ii) Hierarchical Routing (iii) Choke Packets
(b) Write about IP Protocol.
5. (a) Write about TCP Segment Header
(b) Write about
(i) Multiplexing (ii) TCP Connection Establishment
6. (a) Write about
(i) TCP Timer Management (ii) TCP Connection Release
(b) Write about TCP Congestion Control.
7. (a) Explain Advanced Socket System Calls.
(b) Write about Asynchronous I/O with Program.
8. (a) Explain Internet Super Server
(b) Write about
(i) Input – Output Multiplexing (ii) Out-of-Band Data
9. (a) Write about
(i) Substitution Cipher (ii) Transposition Cipher (iii) PGP
(b) Write about Authentication using KDC.
10. (a) Write about DNS.
(b) Write about E-mail Architecture and Services.

Database Management System

Assignment – I

1) a) What is a Relationship? Explain different types of Relationships with an example.
b) What is an Entity? Explain weak and strong Entities with an example.
2) Explain Three-Levels of Abstraction? What is Data Independence ? Explain different types of Data Independence.
3) a) What is QBE? Write the syntax of QBE .Explain with an example
b) Explain aggregate functions in QBE with an example
4) a) What is an Index? Explain the Properties of an Index.
b) Explain about Cost-Model.
5) Explain the structure of ISAM? Explain insertion and deletion operations on ISAM with an example.
6) Explain Dynamic Hashing Techniques.
7) a) What is DBA? Explain the Functions of DBA.
b) What is DBM? Explain the roles of DBM.
8) a) What is Transaction? Explain the ACID properties?
b) What is a schedule? Explain different types of Schedules.

9) a) Explain about Time-Stamp based Protocols.

b) Explain validation protocols.

10) Explain about Access Control Mechanism.

Database Management System
Assignment – II

1) Explain the structure of DBMS.

2) What is Normalization ? Explain different types of Normalization with example.

3) a) Write the Syntax of Tuple Relational Calculus and Domain Relational Calculus.

b) Explain different types of Operators supported by Relational Algebra with an example.

4) Consider the following Schema

Supplier(sid:Integer, sname:string, address: string)

Parts(pid:integer, pname : string , color : string)

Catalog(sid : integer, pid : integer, cost : real)

Write the following queries in relational algebra, tuple relational calculus and domain relational calculus:

a) Find the names of suppliers who supply some red part

b) Find the *sid* of suppliers who supply some red or green part.

c) Find the sid of suppliers who supply some red part or are at 221 Packer Ave.

d) Find the sid of the suppliers who supply red part and cost = 1000.

5. Explain different types of File Organizations.

6. What is B+ -Tree? Explain the operations performed on B+-Tree with an example.

7. Explain about Hash Function? Explain about Static Hashing? Differentiate between linear and extendible hashing.

8. a) Explain about View Serializability?

   b) Explain about Conflict Serializability.

9. a) Explain about Locks? Explain about Two-Phase Locking Technique.

   b) Explain about Distributed Operating System

10. What is Deadlock? Explain about deadlocks.

Operating System
Assignment – I

1 Define Operating System and discuss its various function of operating system in brief

2 Explain the structure of a monitor & monitor solution to dining philosopher's problem

3. a) Explain briefly how resource allocation graphs are used in detecting and avoiding deadlock explain.
   b) Compare file allocation methods
4 Explain process management and explain about inter process communications
5 What is distributed systems. Explain the goals and challenges of distributed
6 What is memory management and discuss various memory allocations schemes Systems
7. a) Explain general architecture of windows 2000.
   b) Explain briefly aboutWindows NT Executive.
8. a) Explain design issues of distributed file system
   b) Discuss mounting mechanism used in Unix systems
9. a) List and explain Unix system calls b) Enumerate different shell variables
10. Explain memory managementof Unix operating system.

Operating System

Assignment – I

1. List out some different types of operatingsystems. Explain their functionalities of each
2. What is CPU Schedule and Scheduling criteria and differentiate between preemptive and non preemptive scheduling.
3. Distinguish between external and internal fragmentation and give solutions to the problem
4. Explain 1. Critical Section 2. Monitors 3.Semaphores 4. Spin Locks
5. Explain page replacement algorithm and fault handling mechanism.
6. Consider the following snapshot of a system
   Allocation Max Available
   A B C D A B C D A B C D0
   P00 0 1 2 0 0 1 2 1 5 2 0
   P11 0 0 0 1 7 5 0
   P21 3 5 4 2 3 5 6
   P30 6 3 2 0 6 5 2
   P40 0 1 4 0 6 5 6
   Answer the following questions using Bankers Avoidance algorithm
   I) is the system in a safe state, if so give the sequence
   II) If a request from process P arrives for (0,4,2,0) can the request be granted immediately.
7. a) Explain the features of UNIX Operating system and explain its architecture.
   b) What is security explain security descriptor.
8. a) Explain DMA Mode of I/O. What are the steps in DMA transfers.
   b) Identify the functions in Client and the Server in Client/Server architecture.
9. Explain RPC. Identify the components of RPC mechanism
10. Explain Distributed shared memory concept.

SOFTWARE ENGINEERING & OBJECT ORIENTED SOFTWARE DEVELOPMENT

ASSIGNMENT QUESTIONS -I

1. Discuss about SE Challenges.
2. Discuss about Spiral Model
3. Define Software Requirement. Give the IEEE format of SRS?
4. What is Function Oriented Design? Explain
5. Explain COCOMO Effort Estimation Model
6. Explain RiskManagement
7. Discuss about Interaction Diagrams
8. Explain about Building blocksof UML
9. Explain USDP
10. Write about Workers& their Rolein Designworkflow

ASSIGNMENT QUESTIONS -II

1. What is CMMI? Explain
2. Explain about PDL
3. Write about design principles
4. Explain about Formal Technical Reviews
5. Write about Software Maintenance.
6. Define Re-engineering, Forward Engineering
7. Draw a Class diagramfor ATMSystem
8. Differentiate between Analysis & Design Classes
9. What are the activitiesin Designworkflow?
10. Differentiate between State-chartand Activitydiagrams

DESIGN AND ANALYSIS OF ALGORITHMS

ASSIGNMENT – 1

1. What is an Algorithm ? Explain the various properties of an algorithm.
2. Determine the frequency counts for all statements in the following algorithm

```
i = 1;
while (i<=n) {
x = x + 1;
i = I + 1;
}
```

3. Let G be an undirected connected graph with atleast one vertex of odd degree. Show that G contains no Eulerian Walk.
4. Write an algorithm for implementing a priority Queuing using heap.
5. Explain about the strategy of divide and conquer strategy.

6. Explain about Knapsack problem with suitable examples.
7. Prove that Kruskal's algorithm generates a minimum cost spanning tree for every connected undirected graph G
8. Write an algoirhtm to construct an optimal binary search tree given the roots r(I,j), 0<=i<j<=n. show that this can be done in O(n) time.
9. Define the following
   (a) Articulation points , (b) GameTrees , (c) DFS ,(d) BFS
10. What is satisfiability? Write a non-deterministic algorithm satisfiability.

ASSIGNMENT – 2

1. If S is a set of n elements, the power set of S is the set of all possible subsets of S. Write an algorithm to compute the powerset.
2. Explain the usage of Asymptotic analysis and notations of it.
3. Explain the various collision resolution techniques
4. Device a ternary search algorithm that first tests the element at position n/3 for equality with some value x, and then n checks the element 2n/3 and either discover x or reduces the set size to one-third the size of the original. Compare the binary search tree.
5. Write an algorithm that multiplies two n X n matrices using O(n3) operations. Determine the precise number of multiplications, additions and array element accesses.
6. Explain the Prim's minimum spanning algorithm with an example.
7. Find an optimal binary merge pattern for ten files whose lengths are 45,78,88,79,84,53,91,35,3 and 11.
8. Explain and prove the correctness of BellmanFord Algorithm
9. Write an algorithm for graph color problem with suitable examples.
10 . Compare and contrast deterministic and non-deterministic algorithms

INFORMATION SYSTEM CONTROL AND AUDIT

ASSIGNMENT – I

1) a) What are the major objectives of information system auditing? Explain four of these objectives.
   b) Explain the contribution of information system management and behavioural science to information system auditing.
2) a) Explain the purpose served by factoring a system into a number of subsystem. What should be the basis of factoring?
   b) Briefly explain the necessity for control and audit of computer system.
3) a) Write brief notes on the plaining and organizing functions of an information audit system.
   b) Explain the advantage ofcentralized programming.
4) a) How do you manage a programming group for an information system design? Explain in detail.
   b) Write brief notes on the control functions of an information audit system.

5) a) Explain the functions of a Data Administrator(DA) and database administrator with respect to concurrency control and existence control.
b) What are the different threts to the physical security of information systems? Write brief notes on these threats.
6) a) Explain a mechanism to perform network operations to conduct operations management control.
b) Explain briefly the different quality assurance functions used in operations management control.
7) a) What are the types of data coding errors that are present? Explain the factors that affect the frequency with which data coding errors are likely to be made.
b) What are the relative strengths and limitations of link encryption versus end to end encryption?
8) a) Write an essay on communication controls.
b) Write notes on the use of plastic cards as a security mechanism.
9) a) What is an audit charter? What are the major components of an audit charter?
b) Why does the information system audit function need an audit?
10) Write short notes on the following topics:
a) Generalized audit software
b) Types of concurrent auditing techniques

INFORMATION SYSTEM CONTROL AND AUDIT ASSIGNMENT – II

1. a) What are the issues of an Auditor inComputer operations, Scheduling and maintenance?
b) Explain the work of a Production Control group.
2 a) Why do we need Quality Assurance? What are its functions?
b) What are Auditors concerns in Quality Assurance?
3 a) What are Cryptographic controls and how do they work.
b) Give the role of Digital Signatures, PIN and Plastic cards in Access Control.
4 a) Why the Input Controls are important? What are Batch controls.
b) Write about Input error reporting and handling.
5 a) How do we validate input instructions?
b) What are Input Audit trials and existence controls?
6 a) Write about Communication Subsystem exposures.
b) Explain the controls over Subversive threats.
7 a) Explain the motivation for using Audit software.
b) List the benefits and limitations of Audit Software.
8 a) Write about the Utility software used in Evidence collection.
b) Why do we need Specialized Audit Software?
9 a) Write the need for Concurrent Audit Software.
b) Write a paragraph about varioustypes of concurrent Audit Software.

10 a) Write about Staffing and Leading functions in Managing as IS Audit.

b) Write about Standards and Procedures laid down by ISACA (Information System Audit and Control Association).

Note: Last date for submission of MCA I, II & III assignments : 31-05-2017

Prof. G. Ram Reddy Centre for Distance Education
Osmania University
MCA – III Year 2017 ASSIGNMENTS

CDE-301 PAPER –I E-COMMERCE
ASSIGNMENT – I

1. . Explain about Intranet and Extranet.
2. . Explain in detail about Web portals.
3. Discuss in details about various Payment Systems for E – Commerce.
4. Write about Web marketing strategies.
5. Explain Purchasing, Logistics and Support activities.
6. Explain Interaction, Legal and Ethical issues of E-Commerce.
7. Explain about WEB Server basics for the WEB Servers.
8. a. Write about E – Commerce Software for Small, Medium and Large Business.

b. Discuss about Intellectual property rights.

9. Explain about Communication Channels and Web Servers.
10. a. Explain about SSl, SET, ACH and EBPP.

b. Discuss about PlanningE – Commerce initiatives.

CDE-301 PAPER –I E-COMMERCE
ASSIGNMENT – II

1. Discuss about Revenue modelsfor selling on the WEB.
2. Describe about Value chain in E-Commerce and SWOT Analysis.
3. Explain about Revenue models in Transaction.
4. Briefly discuss E – mail Marketing & Advertising on web.
5. Write a short note on Supply Chain Management and EDI.
6. Write short notes on the internet and the WWW
7. Describe the Basic and Advanced functions of E – Commerce software.
8. Explain about the Security threats E-Commerce.
9. What are the objectives of E-Commerce Security and discuss how to protect

Client Computers?

10 Explain about Traditional E – Commerce.

CDE-302 PAPER – II CLIENTSERVER PROGRAMMING
ASSIGNMENT – I

1)What is an exception?Explain various types of exceptions with examples?

2)Explain the concept of multithreading along with program?

3)Describe J2EE 1.4 architecture?

4)What are the J2EE standard services?

5)a)Explain JDBC drivers?

b)Explain HTML,XHTML.XML?

6)Explain the working of JSP sessions and cookies?

7)Explain java mail layered architecture?

8)Write about Java Naming & Directory Interface?

9)What is SOAP?Explain various elements of SOAP?
10)What are the various web services?Explain all of them in detail?

PAPER:302 CLIENT SERVER PROGRAMMING
ASSIGNMENT-11

1)Why we are using applets?Explain JApplet with program?
2)What is socket?Explain java.net package?
3)Describe MVC layered architecture?
4)Explain interoperability?Describe how to deploy an application?
5)Explain Statement,Prepared statement and Resultset?
6)Describe the life cycle of a servelet?
7)What is an Enterprise Java Bean?What are the various enterprise beans we have?
8)a)Explain CORBA distributed computing model? b)Explain IDL?
9)Explain JMS API architecture?
10)Explain UDDI programming and UDDI data structures?

PAPER:303: SOFTWARE QUALITY TESTING
ASSIGNMENT – I

1. Briefly explain the concept of 'Quality Management' in software development.

2. Explain ISHIKAWA's seven basic Quality tools.

3. What is Path testing? How are paths selected and how a loop can be tested?

4. Explain the criteria that can be used for model assessment and comparison of the Reliability Models.

5. What are Ugly domains and how do Programmers and Testers treat them and Explain briefly about Defect Removal Effectiveness.

6. What are the elements in a Control flow graph and Explain how Inspections Reviews and Walkthroughs can be used in transaction flow testing.

7. Describe HALSTEAD's metrics. What are the weaknesses of his work and Discuss the criteria used for model evaluation.

8. Discuss various Data-Flow testing strategies and Anomalies and Briefly explain various consequences of bugs.

9. (a) Discuss the strategies for programmers and testers.
   (b) Explain the following:
   i) Decision table ii) State graphs

10. What are the motivations for Logic based testing? Briefly explain the Graph matrices and their applications and How do structural test generators help in Test Design Automation?

PAPER:303: SOFTWARE QUALITY TESTING
Assignment -II

1. Define software quality. Explain about product quality metrics and Discuss SQM processes proposed by IEEE

2. Discuss the concept of Rayleigh model frame work and What are the different models of testing? Explain.

3. (a) Explain the following software reliability models.
   (i) Jelinski – Moranda (J-M) Model
   (ii) Goel – Okumoto (G-O) Model
   (b) Explain the criteria for model assessment and comparison.

4. What are the four components in software development process? Explain.

5. (a) What are 'Test and test design Bugs'? Suggest remedies for the test.
   (b) Explain a testing approach for Multi-entry / Multi-exit Routines.

6. What are bugs? Classify and explain the importance of bugs. Explain about the Taxonomy used for bugs.

7. (a) Explain why the static analysis methods are not sufficient and why testing is required for anomalies.
   (b) Explain the concept of path and domain boundary predicates in Domain Testing.

8. (a) Explain matrix node reduction algorithm for obtaining path expression with an example.
   (b) Explain the following:
   (i) KV Charts ii) State testing

9. Explain the use of Decision Tables as a basis for Test Case design and Explain the design guidelines for building finite-state machines.

10. Why programmers are responsible for software quality? Discuss the strategies.

Prof. G. Ram Reddy Centre for Distance Education
Osmania University
MCA – III Year 2017 ASSIGNMENTS

PAPER:304: Web Programming
Assignment-I

1) Explain the concept of www.Architecture, HTTP and Role of HTML?
2) Write about on Text Styling, Formatting Texts, List, Tables and Formatting, Forms in HTML?
3) Explain Data Types, operators, Control Structures of Java Script?
4) Write a programs on the Scope rules, Recursion, Passing Parameters using Java Script?
5) Explain about Operators, Data types, Control Structures, Functions, Arrays, String manipulations of VB Script?
6) What is Web Servers and Explain any two types of Web Servers?
7) Write about XML namespaces, DTDs?
8) Write about the DOM and its methods and also write XSL?
9) Explain in briefly for the Common Gateway Interface?
10) Explain in briefly for Perl 5?

PAPER:304: Web Programming
Assignment-II

1) Write about Visual Studio.Net Overview?
2) Write about introduction Visual Basic.Net and its Controls and Forms?
3) Write about variables, Program Flow and Procedures of Visual Basic.Net?
4) Write about overview of ASP.Net?
5) Explain developing ASP.Net Controls and Data Binding with Server Controls?
6) Write about Mobile Web applications, ADO.Net, XML, ASP.Net Applications?
7) Write about Visual C#.Net Overview?
8) Write about Windows applications and Services?
9) Write about .Net Web services and XML Services?
10)Write about the Web Service design Considerations and Web service Security?

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31-05-2017