M.C.A
INTERNAL ASSIGNMENT QUESTIONS
(Aug/Sept 2018- 2019)

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)

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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 online payment and submit the payment receipt same along with assignment at the concerned counter **on or before** **28-06-2019** and obtain proper submission receipt.

ASSIGNMENT WITHOUT THE PAYMENT RECEIPT 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 **28.06.2019** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

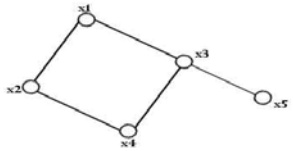
Prof. CHINTHA. GANESH
DIRECTOR

MCA 1ST YEAR

CDE-101 Discrete Mathematics ASSIGNMENT - I

1. (a) S. T $\neg (P \Longleftrightarrow Q) \iff (P \vee Q) \wedge \neg(P \wedge Q)$
$\iff (P \wedge \neg Q) \vee (\neg P \wedge Q)$
without using truth table
(b) Determine whether the conclusion C is valid in the following premises without using truth table: H1: $\neg Q$, H2: $P \rightarrow Q$, C: $\neg P$

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.

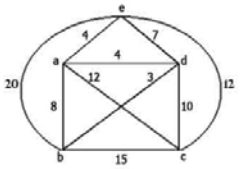


3. (a) If f: A →B & g: B→C are two onto functions, then the mapping gof: A→C is also an onto function. Prove
(b) Define primitive recursive function and show that f(x) = x/2 is primitive recursive, where x/2 is the integral part of x/2
4. (a) Simplify (a' * b' * c) + (a * b' * c) + (a * b' * c')
(b) 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. Compute inverse of each element in Z_7 using Fermats & Eulers theorem.
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. Find the number of integers between 1 to 1000 which are not divisible by 2, 4, 6 or 9
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 $\neg(P \wedge Q) \rightarrow (\neg P \vee (\neg P \vee Q)) \iff (\neg P \vee Q)$
(b) P.T $(P \vee Q) \wedge (\neg P \wedge (\neg P \wedge Q)) \iff (\neg P \wedge Q)$ 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

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

(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 $A = \begin{pmatrix} 3 & 4 & 5 \\ 2 & -1 & 8 \\ 5 & -2 & 7 \end{pmatrix}_{3\times3}$

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 : $\int_0^{\pi} x.Sin^7x.Cos^6x\,dx$

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 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. 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.

Course No. 104 –IT- CDE : *Assignment – 2*

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. 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. 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 NT.

10. What is Teleconferencing? What are the different uses of teleconferencing?

CDE – 105 - Programming Data Structures - Assignment – I

1. Write an algorithm and draw a flowchart for printing all EVEN numbers from 2 to 500.

2. (a) Discuss about various Data Types of C++ in detail.
   (b) Write a program to ADD 2 matrices.

3. Write a complete C++ program to implement all operations on a Linked STACK.

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. Write a program to read 2 sets A, B and find A $\cap$ B.
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. Define class. Write a program to find the sum of 2 Time Objects using class "Time".
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.

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 assignments : 28-06-2019

MCA 2ND YEAR

CDE – 201 - DATA COMMUNICATIONS AND COMPUTER NETWORKS ASSIGNMENT – I

1. (a) Write about
   (i) CSMA/CD (ii) Transmission Media
   (b) Explain Token Ring (or) IEEE 802.5.

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 Transport Service Primitives.
   (b) Write about Connection Establishment.

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.

ASSIGNMENT – II

1. (a) Write about
   (i) Different topologies of network.
   (ii) Stop-and-Wait Flow Control
   (b) Explain HDLC

2. (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.

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.

CDE – 202 – DBMS ASSIGNMENT – 1

1) a) What is DBA? Explain the Functions of DBA.

   b) What is DBM? Explain the roles of DBM.

2) 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.

3) Explain Three-Levels of Abstraction? What is Data Independence ? Explain different types of Data Independence.

4) a) What is QBE? Write the syntax of QBE .Explain with an example

   b) Explain aggregate functions in QBE with an example

5) a) What is an Index? Explain the Properties of an Index.

   b) Explain about Cost-Model.

6) Explain the structure of ISAM? Explain insertion and deletion operations on ISAM with an example.

7) Explain Dynamic Hashing Techniques.

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.

CDE – 202 – DBMS ASSIGNMENT – 2

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.

CDE – 203 Operating System assignment -1

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 about Windows 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 management of Unix operating system.

Operating System assignment -2

1. List out some different types of operating systems. 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	D_0
P_0	0	0	1	2	0	0	1	2	1	5	2	0
P_1	1	0	0	0	1	7	5	0				
P_2	1	3	5	4	2	3	5	6				
P_3	0	6	3	2	0	6	5	2				
P_4	0	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.

CDE – 204 SEOOSD - ASSIGNMENT-1

1. Discuss about **SE Challenges**.
2. Differentiate between **Spiral Model** and **Waterfall Model**
3. Define **Software Requirement**. What is the **need** for Requirements?
4. What is **Structure Design Methodology**? Explain the **Steps** with an example
5. Explain any One **Effort Estimation Model**
6. Explain **Risk** Management
7. Discuss **Configuration Management** Process
8. Explain about **Building blocks** of UML
9. Explain **USDP**
10. Write about **Workers** & their **Role** in **Testing** workflow

CDE – 204 SEOOSD - ASSIGNMENT-2

1. What is **CMMI**? Explain
2. Explain about **Design Verification**
3. Write about **Module-Level** design principles
4. Explain about **Formal Technical Reviews**
5. Write about **Software Metrics**.
6. Define **Reverse engineering, Forward Engineering**
7. Draw a **Use Case diagram** for **PayRoll** System
8. Differentiate between **Analysis & Design Classes**
9. What are the **activities** in **Design** workflow?
10. Differentiate between **State-chart** and **Activity** diagrams

CDE – 205 DESIGN AND ANALYSIS OF ALGORITHMS
ASSIGNMENT – 1

1. What is an Algorithm ? Explain the various properties of an algorithm.
2. What is the time complexity of an algorithm? Explain with an example.
3. Write the ‘Merge Sort’ algorithm.Give an example.
4. Write the Greedy Algorithm to generate shortest paths from a single source to all the remaining vertices in a graph.
5. Write an algorithm for travelling salesman problem and explain with an example.
6. Explain the concept of reliability design?

7. Describe about '8-queens problem' using backtracking concept.
8. What is Graph coloring problem? Draw state space tree for Mcoloring when n = 3 and m= 3.
9. What is satisfiability? Write a non-deterministic algorithm satisfaiability.
10. What is Max Clique.Show that CNR-Satisfiability clique decision problems.

ASSIGNMENT – 2

1.Write heap sort algorithm. Construct Max heap tree using following data, and sort the elements in non-decreasing order. {35, 25, 10, 40, 30, 50}
2. Explain about disjoint set union and find operations
3. What is divide-and-conquer strategy. How is it applied in quick sort. Apply quick sort algorithm to sort the following list of keys. (28, 12, 30, 45, 20, 70, 15, 60)
4. Find an optimal solution to Knapsack instance n = 7, M = 15, (p1, p2, ….p7) = (10, 5, 15, 7, 6, 6, 18, 3) and (w1, w2, ….w7) = (2, 3, 5, 7, 1, 4, 1) .
5. Write an algorithm for the solution of all pairs shortest problem. Determine its time complexity.
6. Construct the optimal Binary Search Tree given n = 4; (a1, a2, a3, a4) = (do if read while) p(1:4) = (3, 3, 1, 1) and Q(0:4) = (2, 3, 1, 1, 1) .
7. Give the state space tree generated in the process of First-in-First-out search and Bound search method for 8-queens problem.
8. Draw a portion of the state space tree generated by LCBB for the following Knapsack problem. N = 5, (p1, p2, p3, p4, p5) = (10, 15, 6, 8, 4) (w1, w2, w3, w4, w5) = (4, 6, 3, 4, 2) and m = 12 .
9. State and explain Cook's theorem.
10. Write and explain non-deterministic sorting algorithm

CDE – 206 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 behavioral 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 planning and organizing functions of an information audit system.
b) Explain the advantage of centralized 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 threats 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
c) Utility software.

CDE – 206 INFORMATION SYSTEM CONTROL AND AUDIT ASSIGNMENT – 2

1. a) What are the issues of an Auditor in Computer 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 various types 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 assignments: 28-06-2019

MCA 3RD YEAR

Paper: 301 CDE, E-Commerce

Assignment – I

1.(a) Explain the various revenue models for selling on the web.

(b) Differentiate between emotional and rational Marketing.

2.(a) Differentiate between Traditional and Electronic E-Commerce.

(b) Write about Internet protocols.

3.(a) what is SWOT Analysis ? Explain in detail

(b) Explain in detail HTML Tags.

4.Explain the various EDI transactions.

5.Explain the various revenue models for selling on the Web.

6.(a)What is SCM? What are the functions of SCM?

(b) Explain the various characteristics of supply chain management in e-commerce?

7.a) Explain the advantages and limitations of software for web servers.

8.Write about Intellectual property rights and possible threats to security of Communication channels.

9.What is a Firewall? What are the limitations of firewalls?

10.Write short notes on: Electronic cash and Electronic Wallets.

Paper: 301 CDE, E-Commerce

Assignment – II

1. (a) Explain the significance of E-commerce

(b) Explain value and supply chain.

2.(a)What are the various categories of E-Commerce based on the parties involved in a transaction?

(b)What is XML? What are the advantages of XML over HTML?

3. Explain the concept of packet switched networks.

4.Differentiate between intranet and extranet.

5.(a)Describe the Advertising supported Revenue models.

(b)Briefly describe the revenue Strategy Issues.

6.(a) What are the ethical issues related to electronic commerce?

(b) Briefly describe the Taxation issues related to electronic commerce.

7.Describe the advanced functions of E-Commerce software.

8.What are digital signatures ? What type of security services are used for the transmission of data between sender and the receiver.

9.(a)Define Cryptography. What are the data security services for which Cryptography may be used?

(b)Explain clearly the role of public and private keys in asymmetric encryption.

10.(a)Write short notes on: Payment cards and Electronic cards.

(b)Describe the strategies for developing E-Commerce web sites.

PAPER:302 CLIENT SERVER PROGRAMMING

ASSIGNMENT-I

1.(a) What are OOPs concepts in Java?Explain them briefly?

(b)Explain about Exception Handling and Dynamic Method Dispatching?

2. (a)Define Applet?

(b)Explain the hierarchy of the Applet class with a diagram?Write an applet program to display a message using an applet?

c.Explain in detail the event classes used in Java Applets?

3. Explain the architecture of J2EE 1.4 with a neat diagram?

4. How web services are useful in J2EE?

5. (a).Explain the types of JDBC Drivers?What are the different steps needed to communicate with a database?

(b).Write the differences between Servlets and JSP?

6. Design a bio-data form using HTML?Write the differences between XHTML and HTML?

7.Expain clearly about the implementation of RMI with a proper code?

8.Write briefly about JMS?

9.Explain about UDD?

10.Write a short notes on WSDL?

PAPER:302 CLIENT SERVER PROGRAMMING

ASSIGNMENT-II

1.(a).Define Thread?Describe life cycle of a thread?

(b).Differentiate about applets and applications?Explain about String handling in Java?

2.Explain Socket program using TCP/IP in Java?

3.Explain about Web Services?

4.What are the various components of J2EE1.4?Explain them in detail?

5.Explain the life cycle of a servlet?Describe JSP elements?

6.Define Java Bean?What are the types of Enterprise beans and describe them?

7.Eplain briefly Security and JNDI?

8.Explain the Object Management Architecture,ORB and IDL?

9.Write a short notes on SOAP?

10.Explain the importance of JAXR?

CDE-303 PAPER –III SOFTWARE QUALITY TESTING

ASSIGNMENT –I

1 .Define software quality. Explain in detail about product quality metrics.

2 .Explain Basic quality tools applied in software development.

3 .Explain the criteria for evaluation of models reliability growth models.

4 .(a) Discuss the rayleigh model frame work in quality management of a software.

(b) Briefly explain about PTR sub model.

5 . (a) Explain the transaction flow testing techniques.

(b) Explain path sensitizing.

6 . (a) Discuss the transaction flow implementation mechanism.

(b) What are system bugs and integration bugs.

7. Explain different categories of metrics.

8. Explain various data flow testing strategies.

9. Explain the following

(a) KV charts (b) Decision tables (c) Stubs and Drivers.

10. Explain the following

(a) State testing (b) Matrix of a graph

CDE-303 PAPER –III SOFTWARE QUALITY TESTING

ASSIGNMENT –II

1 . Explain defect removal effectiveness

2. Explain in detail about in process quality metrics.

3. Explain the following

(a) J-M Model (b) G-O Model

4. Explain (a) Run Charts (b) Pareto Diagrams (c) Customer satisfaction metric

(d) Scatter Diagram

5. Explain taxonomy of bugs and flow graphs and path testing.

6. Explain basic path testing criteria.

7. Explain domain testing and Interface testing.

8. Explain structural and Hybrid metrics.

9. Explain graph matrices and applications.

10. (a) Explain the strategies for programmers and independent testers.

(b) Explain the tools that can be used in testing.

CDE-304 Web Programming

Assignment -1

1. write about meta tags and formatting tags in HTML.
2. Explain ROWSPAN,COLSPAN, Group attributes used in Table Creations.
3. a) Differentiate GET and POST methods used in form.

   b) Explain about ACTION attribute used in form creation.
4. List out and explain about various objects and its functions provided by Java Script.
5. Explain overview of .NET Framework.
6. Explain in detail about Server controls and HTML Controls used in web application development.
7. Write about ASP.NET execution cycle process.
8. Explain Caching and Security in detail in ASP.NET.
9. Define WebService. Explain with example how to create a webservice.

10 a) Explain Classes concept in C#.NET.

b) Write about XML Advantages.

CDE-304 Web Programming

Assignment -2

1. Write about Filters in DHTML.
2. Explain how events are handled in Java Script with suitable examples
3. Illustrate when client side scripting and server side scripting is used in building web application.
4. Explain arrays concept in VB Script.
5. write about MSIL and ILJIT in detail.
6. Explain ADO.NET Framework.
7. List out and write about Validation Controls in .NET.
8. a) Write short notes on 1.WSDL 2.SOAP

   b)Write about namespaces, DTD, XSL in XML.
9. Explain ASP.NET page life cycle.
10. Write the advantages of Perl scripting language.

Last date to submit assignment : 28-06-2019.