MASTER OF COMPUTER APPLICATIONS

MCA-I YEAR
Internal Assignment Questions

2021

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(Recognised by the Distance Education Bureau, UGC, New Delhi.)

OSMANIA UNIVERSITY, HYDERABAD – 500 007 Telangana State INDIA

(A University with Potential for Excellence and re-accredited by NAAC with 'A^{++}' grade)

☞ Last date to submit assignment : **October 9, 2021**

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION0

(Recognised by the Distance Education Bureau, UGC, New Delhi.)
OSMANIA UNIVERSITY, HYDERABAD – 500 007 Telangana State INDIA
(A University with Potential for Excellence and re-accredited by NAAC with 'A+' grade)

Dear Students,

All the students of **Master of Computer Application Program (MCA)** has to write **2** Assignments for each paper and submit **Assignment** for each paper 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 http://oucde.net and submit the payment receipt along with assignment at the concerned counter **on or before 9th October, 2021** and obtain proper submission receipt.

ASSIGNMENT WITHOUT THE PAID 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

1. NAME OF THE COURSE :_____
2. NAME OF THE STUDENT :_____
3. ENROLLMENT NUMBER :_____
4. NAME OF THE PAPER : _____
6. DATE OF SUBMISSION : _____

7. Write the above said details clearly on every assignment paper, otherwise your paper will not be valued.
8. Tag all the assignments paper-wise and submit.
9. Submit the assignments on or before **9th October, 2021** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Prof.G.B.Reddy
DIRECTOR

☞ Last date to submit assignment : **October 9, 2021**

MCA-I YEAR

CDE-101 **DISCRETE MATHEMATICS**

ASSIGNMENT – I

Answer all the questions **Marks : 5 x 4 = 20**

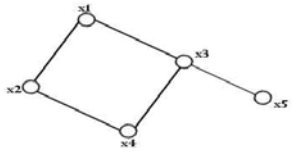
1. (a) Show that ¬ (P $\Longleftrightarrow$ Q) $\Longleftrightarrow$ (P V Q) Λ ¬(P Λ Q)

$\Longleftrightarrow$ (P Λ ¬Q) V (¬ P Λ Q) without using truth table

(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) 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.

CDE-101 **DISCRETE MATHEMATICS**

ASSIGNMENT - II

Answer all the questions **Marks : 5 x 4 = 20**

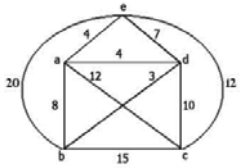
1. Design a single error correcting code for m=3 & n=7
2. (a) In how many ways can a committee of 3 faculty members and two students be selected from 7 faculty members and 8 students

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

3. (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

4. Consider the following graph. Find BFS & DFS



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

5. (a) Show that 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**

ASSIGNMENT- I

Answer the following questions **Marks : 5 x 4 = 20**

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.

☞ Last date to submit assignment : **October 9, 2021**

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% respectively. A bullet is taken from a days production and found to be defective. What is the probability that it can be from machine B ?.

CDE -102 **MATHEMATICS**
ASSIGNMENT - II

Answer the following questions **Marks : 5 x 4 = 20**

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 $\sin^4\theta + \sin^2\theta = 2 - 3\cos^2\theta + \cos^4\theta$

CDE-103 **MANAGERIAL ACCOUNTING & ECONOMICS**
ASSIGNMENT - I

Answer the following questions **Marks : 5 x 4 = 20**

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.

CDE-103 **MANAGERIAL ACCOUNTING & ECONOMICS**
ASSIGNMENT - I

Answer the following questions **Marks : 5 x 4 = 20**

1. Explain different types of costs.

☞ Last date to submit assignment : **October 9, 2021**

2. Write a Short note on Working Capital.
3. Explain the law of Variable proportions.
4. What do you mean by Break-even analysis? Write about its merits and demerits.
5. Explain different types of budgeting.

CDE-104 **INFORMATION TECHNOLOGY**
ASSIGNMENT- II

Answer the following questions **Marks : 5 x 4 = 20**

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.

CDE-104 **INFORMATION TECHNOLOGY**
ASSIGNMENT – I

Answer the following questions **Marks : 5 x 4 = 20**

1. Explain the different types of Instruction Formats?
2. Explain the different modes of transfer?
3. What is Cache memory? What are the different types of mapping?
4. Explain the features of Windows 98 and Windows NT.
5. What is Teleconferencing? What are the different uses of teleconferencing?

CDE – 105 **PROGRAMMING DATA STRUCTURES**
ASSIGNMENT – I

Answer the following questions **Marks : 5 x 4 = 20**

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.

CDE–105 **PROGRAMMING DATA STRUCTURES**
ASSIGNMENT – II

Answer the following questions **Marks : 5 x 4 = 20**

1. Define constructors? Discuss the different types of constructors available in C++ with suitable examples.
2. What are Linked Lists? Write a program to implement single linked list, with all operations.
3. Write a program to define a class “MATRIX”, include the operator overloading functions for operators ‘+’, ‘*’, ‘>>’ & ‘<<’ to add, multiply, read and display the matrices.
4. Discuss different types of Inheritance in C++ with examples for each.
5. Write short notes on templates. With an example explain about the function template.

CDE-106 **BUSINESS INFORMATION SYSTEMS**
ASSIGNMENT– I

Answer the following questions **Marks : 5 x 4 = 20**

1. Explain briefly about COBOL coding rules. write all divisions and their section in chronological order and explain their usage in writing a program.
2. Explain level numbers. What is importance of 66, 77, 88 special level numbers with suitable examples.

☞ Last date to submit assignment : **October 9, 2021**

3. Differentiate sequential file operations with indexed files with entries of environment and data division.
4. Write about data processing functions.
5. Discuss redefines and renames clause of COBOL.

CDE-106 **BUSINESS INFORMATION SYSTEMS**

ASSIGNMENT– II

Answer the following questions **Marks : 5 x 4 = 20**

1. (a) write about sort utility of Cobol with suitable example of a program
   (b) explain various threats of information system and its remedy
2. (a) explain characteristics of ESS.
   (b) Explain DSS in MIS
3. Explain steps involved in SDLC
4. Write complete program in COBOL to create a sequential file to store data about a student.
5. Explain report writer feature with all entries.

☞ Last date to submit assignment : **October 9, 2021**