MASTER OF COMPUTER APPLICATIONS

MCA - II SEMESTER

Internal Assignment Questions

2023

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

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Dear Students,

All the students of **Master of Computer Application(MCA) II - Semester** has to write 2 Assignments for each paper and submit **Assignment** for each paper compulsorily. Each assignment carries **30 marks.** University Examinations will be held for **70 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 19th February, 2023** 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

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 **19th February, 2023** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

DIRECTOR

MCA - II SEMESTER
ASSIGNMENT – I

OPERATING SYSTEMS

Paper :_ PCC-201 Total Marks: **30**

SECTION – A

Unit – I : Answer the following short questions (each question carries **Three** marks) 6 x 3 = **18**

1. What do you mean by AWK give an example program

2. Brief about shell programming and grep

3. Differ external and internal fragmentation

4. What are file access methods brief?

5. compare Capability based systems and Language based Protection,

6. Define kernel modules

SECTION – B

Unit – II : Answer the following questions (each question carries Six marks) 2 x 6 = **12**

1. a) What are the deadlock necessary conditions and explain about bankers algorithm
   b) What is access matrix? Brief about file system interface and implementation

2. a) Mention access methods and protection of file system interface
   b) Elaborate Firewalling and Computer security Classification

Name of the Faculty :**Dr. B. Sujatha**
College/Dept : CSE, UCE, OU

MCA - II SEMESTER
ASSIGNMENT – II

OPERATING SYSTEMS

Paper : PCC-201

Total Marks: **30**

SECTION – A

Unit – I : Answer the following short questions (each question carries Three marks) 6 x 3 = **18**

1. What are the security and file permission,
2. Describe OS structure and strategies,
3. Why page fault occurs and how to solve the page fault problem
4. Define File system structure,
5. List the Principles and Domains in system protection
6. What are Terminal services and fast user switching File systems,

SECTION – B

Unit – II : Answer the following questions (each question carries Six marks) 2 x 6 = **12**

1. a) Elaborate file system implementation and directory implementation

   b) List the scheduling criteria? Consider the following set of process that arrives at time 0, with the length of the CPU burst given in milliseconds.

Process	Burst time
P1	20
P2	5
P3	3

If the process in the order p1, p2, p3 and are served in FCFS order and SJF draw the Gantt chart, calculate TAT of each process (turn around time) ,waiting time of each process and response time of each process.

2. a) Give case study for design principles and kernel modules

   b) If FIFO page replacement is used with four page frames and eight pages ,how many page fault will occure with reference string 0 1 7 2 3 2 7 1 0 3 if the four frames are initially empty? Now repeat this problem for LRU?

Name of the Faculty :**Dr. B. Sujatha**
College/Dept : CSE, UCE, OU

MCA - II SEMESTER
ASSIGNMENT–I

DATABASE MANAGEMENT SYSTEM

Paper : **CDE – 202** Total Marks: **30**

ASSIGNMENT – I

SECTION – A

Unit – I : Answer the following short questions (each question carries **Three** marks) 6 x 3 = **18**

1. Explain about Data abstraction.
2. Explain DML Statements with syntax and examples.
3. Explain about functional dependency
4. Explain about states of a transaction.
5. Explain about multiple granularity.
6. Explain about conflict serializability.

SECTION – B

Unit – II : Answer the following questions (each question carries **Six** marks) 2 x 6 = **12**

1. Explain about Dynamic Hashing Techniques.
2. Explain about Deadlocks.

ASSIGNMENT–II
DATABASE MANAGEMENT SYSTEM

Paper : **PCC–202** **Total Marks : 30**

ASSIGNMENT – II

SECTION – A

Unit – I : Answer the following short questions (each question carries **Three** marks) 6 x 3 = **18**

1. Explain about Weak and Strong entities.
2. Explain DDL Statements with syntax and examples.
3. Explain about Integrity Constraints.
4. Explain about View Serializability.
5. Explain about 2 Phase Locking.
6. Explain about functions of DBA.

SECTION – B

Unit – II : Answer the following questions (each question carries **Six** marks) 2 x 6 = **12**

1. Explain different Normal forms with examples.

2. Explain about ISAM and B+ Trees with examples.

Name of the Faculty :**G. BHASKAR**
College/Dept : Nrupatunga PG College

MCA - II SEMESTER
ASSIGNMENT – I
DESIGN AND ANALYSIS OF ALGORITHMS

Paper: PCC203 **Total Marks: 30**

SECTION – A

Answer the following short questions (each question **THREE** marks) Marks **6 x 3 = 18**

1. Define an algorithm what are the properties of an algorithm
2. Enumerate the operations of stacks and queues
3. Define graphs
4. Define convex hull
5. Define knapsack problem in greedy method
6. Discuss Dijkstra's algorithm

SECTION – B

Answer the following questions (each question carries **SIX** marks) Marks **6 x 2 = 12**

1. Explain the job sequencing with deadlines is done in greedy method
2. Discuss the working of quick sort algorithm

MCA - II SEMESTER
ASSIGNMENT – II
DESIGN AND ANALYSIS OF ALGORITHMS

Paper: PCC203 **Total Marks: 30**

SECTION – A

Answer the following short questions (each question **THREE** marks) Marks **6 x 3= 18**

1. Define 0/1 knapsack problem
2. Discuss binary tree traversal techniques
3. Define the spanning trees
4. What is a sum of subsets?
5. Define Hamiltonian cycle?
6. Define P, NP, NP-Complete and NP-Hard

SECTION – B

Answer the following questions (each question carries **SIX** marks) Marks **6 x 2 = 12**

1. Illustrate all pairs shortest path algorithm
2. Discuss about 8 queens problem

Name of the Faculty: **Ms.Humera S**
Dept: Computer Science

MCA - II SEMESTER

ASSIGNMENT - I

ARTIFICIAL INTELLIGENCE

Paper: -PCC204 **Total Marks: 30**

SECTION – A

Answer the following short questions (each question carries **three** marks**)** **Marks 6 x 3 = 18**

1. Give an introduction to Pythons Control Flow.
2. Explain the General Problem solving characteristics of a Problem.
3. Write short notes on Predicate Logic.
4. Differentiate between Expert Systems and Traditional Systems.
5. Discuss briefly about Semantic Web.
6. Write short notes on Applications of AI.

SECTION – B

Answer the following questions (each question carries **six** marks) **Marks 2 x 6 = 12**

1. a) Write notes on the following with respect to Python :
   i) Functions ii) Lists iii) Tuples iv) Packages
   b) Give an introduction to intelligent systems and Foundations of AI.
2. a) Write notes on Heuristic Search Techniques.
   b) Explain about Knowledge Representation using Semantic Network.
   c) Give an overview of Probability Theory and Bayesian Network.

MCA - II SEMESTER

ASSIGNMENT – II

ARTIFICIAL INTELLIGENCE

Paper: **PCC204** Total Marks: **30**

SECTION – A

Answer the following short questions (each question carries three marks) Marks **6 x 3 = 18**

1 Give an introduction to sub areas of AI.
2 Explain about Iterative deepening and A* Algorithm with suitable example.
3 Write short notes on Axiomatic Systems.
4 Describe the phases in Building Expert Systems.
5 Write notes on Certainty Factor Theory
6 Give an introduction to Natural Language Processing.

SECTION – B

Answer the following questions (each question carries six marks) 2 x 6 = 12

1 a) Write notes on the following with respect to Python :
   i) Dictionaries ii) Files iii) Modules iv) OOP
   b) Give an introduction to Alpha Beta Pruning.
2 a) Write short notes on Semantic Table, Propositional Logic and Refutation in Propositional Logic.
   b) Explain about Sentence Analysis Phase, Grammars and Parsers in Natural LanguageProcessing

Name of the Faculty: **M Narendar Reddy**
Dept: Computer Science, UCE, OU

MCA - II SEMESTER

ASSIGNMENT – I
MACHINE LEARNING

Paper: PCC205 **Total Marks: 30**

SECTION – A

Answer the following short questions (each question carries three marks) 6 x 3 = 18

1. Write a short note on convex Optimization.

2 Explain the Lasso regression method.

3. What is bagging method?

4. Write the process of linear classification.

5. Describe the density based hierarchical methods.

6. Write short notes on learning theory.

SECTION – B

Answer the following questions (each question carries six marks) 2 x 6 = 12

1. a) Describe the basics of linear algebra for machine learning.

b) Describe the Bayes estimates.

(OR)

c) Discuss linear regression method.

d) Explain the steps of PCA?

2. a) Describe about the logistic regression.

b) Explain about Support Vector Algorithm.

(OR)

c) Give an overview of Ensemble Methods.

d) Write a short note on a) Expectation Maximization b) Model Based Learning in Reinforcement Learning

MCA - II SEMESTER

ASSIGNMENT – II

MACHINE LEARNING

Paper: PCC205 Total Marks: 30

SECTION – A

Answer the following short questions (each question carries three marks) **6 x 3 = 18**

1. Discuss about Probability Theory for Machine Learning
2. Write about partial least squares
3. Write a short note on Linear Discriminant Analysis
4. Explain about Ada Boost Algorithm?
4. Elaborate the naïve Bayes algorithm.
5. Explain k -Means Algorithm
6. Write a short note on Expectation Maximization

SECTION – B

Answer the following questions (each question carries six marks) **2 x 6 = 12**

1. a) Describe statistical decision theory.
   b) Explain about Ridge Regression.

   (OR)

   c) Discuss about Linear Discriminant Analysis
   d) Explain the working of ANN

2. a) Differentiate between bagging and boosting
   b) Discuss the concept of adaboost.

   (OR)

   c) Explain about Gaussian Mixture Model
   d) Describe the structure of a Bayesian network?

Name of the Faculty: Arun Kumar Silivery

MCA - II SEMESTER

ASSIGNMENT – I

OPERATIONS RESEARCH

Paper: PCC206 Total Marks: **30**

SECTION – A

Answer the following short questions (each question carries **three** marks) Marks :6 x 3 = **18**

1. Define Slack and Surplus variables in a L.P.P
2. Solve graphically the following L.P.P :

   Maximize $Z = 3x_1 + 4x_2$

   S.T.C : $4x_1 + 2x_2 \leq 80$

   $2x_1 + 5x_2 \leq 180$

   $x_1, x_2 \geq 0$
3. How do you solve an unbalanced transportation problem?
4. Explain briefly Vogel's approximation method.
5. What are the Applications of Dynamic Programming ?
6. Describe a two-person zero-sum game.

SECTION-B

Answer the following Questions (each question carries **six** marks) Marks : 6 x 2 = **12**

1. Use Simplex Method to solve the following L.P.P.

   Maximize $Z = x_1 + 2x_2$

   S.T.C : $-x_1 + 2x_2 \leq 8$

   $x_1 + 2x_2 \leq 12$

   $x_1 - 2x_2 \leq 3$

   $x_1, x_2 \geq 0$

2. a) Explain briefly Matrix Minima (least cost) method.

   b) Solve the following transportation problem using NWC Method:

	D1	D2	D3	D4	Supply
O1	3	1	7	4	300
O2	2	6	5	9	400
O3	8	3	3	2	500
Demand	250	350	400	200	

MCA - II SEMESTER

ASSIGNMENT – II

OPERATIONS RESEARCH

Paper: PCC206 Total Marks: 30

SECTION – A

Answer the following short questions (each question carries **three** marks) **Marks 6 x 3 = 18**

1. Define Optimum Solution of a Graphical Method.
2. What is the role of slack and surplus variable in simplex method?
3. Why artificial variable technique being used in Big 'M' method?
4. Distinguish between degenerate and non-degenerate basic feasible solution
5. Define Operation Research. Explain the main characteristics of OR.
6. Define Least Cost or Matrix Minima method.

SECTION-B

Answer the following Questions (each question carries **six** marks) Marks 6 x 2 = **12**

1. Examine various steps of Hungarian method for solving Assignment problem.
2. Determine an initial basic feasible solution to the following Transportation problem by using VAM corner method

		Destination			
Origin	D1	D2	D3	D4	Supply
O1	1	2	1	4	30
O2	3	3	2	1	50
O3	4	2	5	9	20
Demand	20	40	30	10	

Name of the Faculty: **Dr. V.B Narsimha**
Dept: Computer Science, UCE, OU