Code No: A0B07 | MR20(2020-21) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH II YEAR II SEMESTER REGULAR EXAMINATIONS, AUGUST-2022

SUBJECT: APPLIED STATISTICS AND OPTIMIZATION TECHNIQUES

BRANCH: Common to CSE, IT, CSE (AIML, IOT)

Time: 3 hours | Max. Marks: 70

Answer Any five questions | 5X14M=70 M

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) Write short notes on Analysis of co-variance. b)The following data represents the number of units produced by four operators during three different shifts: Operators **Shifts** / **A** / **B** / **C** / **D** I: 10 / 8 / 12 / 13 II: 10 / 12 / 14 / 15 II: 12 / 10 / 11 / 14 Perform a two way analysis of variance and interpret the result.	4 10	L2 L4	1
2.	a) Explain the need and importance of design of experiments. b) Carry out analysis of variance for the following Experimental Designs with 4 treatments A,B,C,D at 1% L.O.S A (12) / D (12) / A (16) / B (17) / C (19) C (32) / A (20) / B (18) / D (15) / A (18) A (17) / C (20) / D (19) / B (19) / C (16)	4 10	L3 L4	2
3.	a) Discuss principles of experimentation. b) Carry out analysis of variance for the following Experimental Designs with 4 treatments A,B,C,D at 1% L.O.S D (27) / B (18) / C (29) / A (6) C (16) / A (10) / D (21) / B (19) A (6) / D (39) / B (25) / C (32) B (25) / C (42) / A (10) / D (28)	4 10	L3 L4	2

4.	a) Discuss about unbalanced Assignment problem. b) A project consists of four major jobs for which four contractors have submitted tenders. The tender amounts quoted in lakhs of rupees are given in the matrix below. Find the assignment that minimizes the total cost of the project. Each contractor has to be assigned only one job. job Contractor A B C D 1 10 24 30 15 2 16 22 28 12 3 12 20 32 10 4 9 26 34 16	4 10	L2 L4	3
5.	a) Explain Least cost entry method with an example. b) Determine initial basic feasible solution to the following T.P.using: i. North-west corner rule, ii. Vogel's approximation method. Destination Origin A B C D E Supply P 2 11 10 3 7 4 Q 1 4 7 2 1 8 R 3 9 4 8 12 9 Demand 3 3 4 5 6 21	4 10	L2 L4	3
6.	a) Explain about Max-mini and mini-max strategy. b) Solve the following game using the concept of dominance: Player-A/ Player B B1 B2 B3 B4 A1 8 10 9 14 A2 10 11 8 12 A3 13 12 14 13	4 10	L3 L4	4
7.	a) Write about Games with pure strategy and mixed strategy. b) From the following pay-off matrix, determine the optimal strategy: Player B Player A I II III I 6 9 4 II 5 10 7 III 9 8 9	4 10	L3 L4	4
8.	a) What is meant by Transient and Steady state? b) Customer arrives at self service departmental stores to make their daily purchases. The store employs one cashier at its counter. 5 customers arrive on an average every 20 minutes while 10 customers leave every 30 minutes after making their purchases. Assuming Poisson distribution for arrival rate and exponential distribution for service rate find. i. Average time a customer spends in the departmental store. ii. Average time customer waits before being served. iii. Average number of customers in the departmental store. iv. Probability of 3 customers in the departmental store. v. Probability of more than 3 customers in the departmental store.	4 10	L2 L4	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: A6603 | MR20(2020-21) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH II YEAR II SEMESTER REGULAR EXAMINATIONS, AUGUST-2022

SUBJECT: MACHINE LEARNING FOUNDATIONS

BRANCH: CSE (AIML)

Time: 3 hours **Max. Marks: 70**

Answer Any five questions **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) Discuss with examples some useful applications of machine learning. b) What is PAC learning explain with example?	7 7	L3	1
2.	a) Explain the following with examples: i. Decision Tree. ii. Decision Tree Learning. b) Discuss the nearest neighbor with a neat sketch.	7 7	L3	2
3.	a) What is support vector machine? Discuss in detail. b) Explain the following i. Linear regression. ii. Logistic Regression	7 7	L3	2
4.	a) Explain the ***k-Means*** Algorithm with an example. b) How Matrix factorization works in PCA. Explain in detail?	7 7	L4	3
5.	Explain the following. a) Active learning. b) Reinforcement learning	7 7	L2	4
6.	a) Discuss scalable Machine learning with distributed & online. b) What is Semi supervised learning explain its detailed concepts?	7 7	L2	4
7.	a) Give a detail note on classification methods for IOT with neat sketch? b) Explain the concept of modeling sequence timing series data.	7 7	L4	5
8.	a) Explain the various models for IOT applications discuss with example. b) Discuss the recent trends in various learning techniques of machine learning.	7 7	L4	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code NO: A0511 | MR20(2020-21) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH II YEAR II SEMESTER REGULAR EXAMINATIONS, AUGUST-2022

SUBJECT: OPERATING SYSTEMS

BRANCH: CSE(AIML)

Time: 3 hours **Max. Marks: 70**

Answer Any five questions **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) Discuss the essential properties of the various types of operating systems. b) Write a note on Cache Memory and Direct Memory Access.	7 7	L3	1
2.	Consider the set of 5 processes whose arrival time and burst time are given below Calculate the average waiting time and average turnaround time using i. Shortest Job First ii. Shortest Remaining Time First iii. Round Robin	14	L4	2
3.	a) What is a monitor? Explain how dinning philosopher's problem is solved using monitors with example pseudo code. b) Explain Banker's deadlock-avoidance algorithm with an illustration.	7 7	L2	2
4.	a) Given free memory partitions of 100 K, 500 K, 200 K, 300 K, and 600 K (in order), how would each of the First-fit, Best-fit, and Worst-fit algorithms place processes of 212 K, 417 K, 112 K, and 426 K (in order)? b) Explain the concept of demand paging in detail with neat diagrams.	7 7	L3	3
5.	a) What do you mean by thrashing? Suggest solutions to overcome this in virtual memory. b) Define Virtual Memory? Discuss the benefits of virtual memory technique	7 7	L3	3
6.	Suppose the head of a moving head disk with 200 tracks, numbered 0 to 199, is currently serving a request at track 143 and has just finished a request at track 125.If the queue of requests is kept in FIFO order: 86, 147, 91, 177, 94, 150, 102, 175,130. What is the total head movement to satisfy these requests for the following disk scheduling algorithms? (a) FCFS (b) SCAN (c) SSTF (d) C- SCAN	14	L4	4
7.	a) Discuss in detail about file system structure and implementation of operating system. b) Describe the various methods for free-space management.	7 7	L4	5
8.	a) Discuss the process lifecycle in Android in detail. b) Write about the key Components of a LINUX system	7 7	L4	5

Process Id	Arrival Time	Burst Time
P1	3	1
P2	1	4
P3	4	2
P4	0	6
P5	2	3

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: A0516 | MR20(2020-21) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH II YEAR II SEMESTER REGULAR EXAMINATIONS, AUGUST-2022

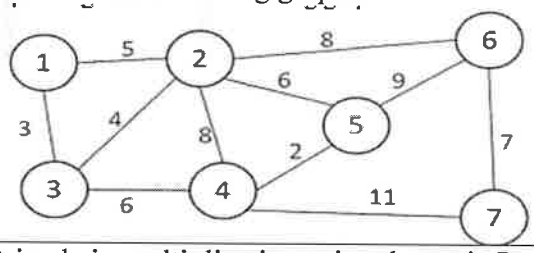
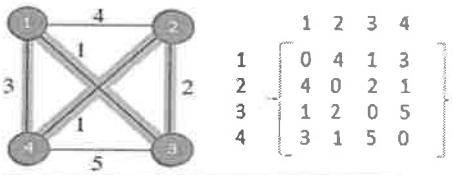
SUBJECT: DESIGN AND ANALYSIS OF ALGORITHMS

BRANCH: COMMON CSE, IT, CSE(AIML, DS, IOT)

Time: 3 hours **Max. Marks: 70**

Answer Any five questions **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) Write an algorithm for calculating the factorial of a given number. Compute the time complexity (using tabular method) and space complexity b)Compare and Contrast BFS and DFS approaches	7 7	L4	1
2.	a) Write in detail about pseudo code for expressing algorithms. b) Describe about Weighted Union and Collapsing Find algorithms.	7 7	L2	1
3.	a) Explain binary search with an example. Prove that the time complexity of Binary Search is O(log n). b) Solve the following knapsack problem n=7,m=15, (p1,p2,….,p7) =(10,5,15,7,6,18,3) and (w1,w2,…..,w7) = (2,3,5,7,1,4,1)	7 7	L3	2
4.	a) Write Strassen's algorithm for matrix multiplication and discuss with an example. b) Demonstrate Kruskal's algorithm and apply it to find the minimum cost spanning tree for the following graph. 	7 7	L3	2
5.	a) Explain matrix chain multiplication using dynamic Programming. b) How do you solve travelling sales man problem using dynamic programming?  1 2 3 4 1 0 4 1 3 2 4 0 2 1 3 1 2 0 5 4 3 1 5 0	4 10	L3	3
6.	a) Draw and analyze the solution tree for the given Sum of Subsets problem using Backtracking. n=6 m=30 S={5, 10, 12, 13, 15, 18} b) Compare FIFO and LC Branch and Bound algorithms	7 7	L3	4
7.	a) Explain in detail about deterministic and non deterministic algorithms with examples b) Is travelling salesman problem is NP-hard or NP-complete? Justify your answer.	7 7	L2	5
8.	a) Define P, NP, NP-Complete, and NP-Hard Problems b) Explain clique decision problem and chromatic number decision problems with examples.	7 7	L2	5

Code No: A1203 | MR20(2020-21) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH II YEAR II SEMESTER REGULAR EXAMINATIONS, AUGUST-2022

SUBJECT: COMPUTER GRAPHICS

BRANCH: CSE (AIML)

Time: 3 hours **Max. Marks: 70**

Answer Any five questions **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) Differentiate between Vector scan display and Raster scan display b) Explain following character generation methods with example. i) Stroke method ii) Starburst method	7 7	L2	1
2.	a) Explain with diagram raster scan display technique b) Write about application areas of computer graphics.	7 7	L2	1
3.	a) What is computer graphics? Explain different application areas of computer graphics. b) Explain the working details of DDA line drawing algorithm?	7 7	L2	2
4.	a) Compare inside and outside test for polygon. b) Outline composite transformation over arbitrary point.	7 7	L3	2
5.	a) Given a triangle with vertices A(2,3), B(5,5), C(4,3) by rotating 90 degree about the origin and then translating two unit in each direction. Use homogenous transformation matrix to find the new vertices of the triangle. b) Use the Cohen Sutherland algorithm to clip two lines P1(35,10)-P2(65,40) and P3(65,20)-P4(95,10) against a window A(50,10), B(80,10), C(80,40) and D(50,40).	7 7	L2	3
6.	a) Use Bresenham's line drawing algorithm to rasterize line from (6,5) to (15,10). b) Consider the line from (5, 5) to (13, 9).Use the Bresenham's algorithm to rasterize this line.	7 7	L3	4
7.	a) Write DDA Arc generation algorithm. b) Find the transformation of triangle A(1,0) B(0,1) C(1,1) by i. Rotating 30° about the origin ii. Translating one unit x and y direction and then rotate 45° about origin.	7 7	L3	4
8.	a) Apply shearing transformation to square with A(0,0), B(1,0), C(1,1) and D(0,1) as shear parameter value of 0.5 relative to the line Yref = -1 and Xref=-1. b) Explain 3D basic geometric transformation with an example.	7 7	L3	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.

Code No: A00M2 | MR20(2020-21) | HT.NO:

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

Maisammaguda, Dhulapally, (Post Via Kompally), Secunderabad-500100.

B.TECH II YEAR II SEMESTER REGULAR EXAMINATIONS, AUGUST-2022

SUBJECT: ENVIRONMENTAL SCIENCE

BRANCH: COMMON TO CSE, IT, CSE (CS, AIML, DS, IOT)

Time: 3 hours **Max. Marks: 70**

Answer Any five questions **5X14M=70 M**

All Questions carries equal marks

Q.NO.	QUESTIONS	MARKS	*BT LEVEL	CO
1.	a) Identify different types of ecosystems and explain with examples. b) Explain the scope and importance of ecosystem.	7 7	L2	1
2.	Explain about characteristics and types of grassland ecosystem.	14	L2	1
3.	a) Outline the benefits and problems of big dams. b) Explain about non renewable energy resources with examples.	7 7	L2	2
4.	Show the uses of water resources and impacts of over utilization of ground and surface water.	14	L3	2
5.	a) Summarize all possible methods to Control Air Pollution in the Environment. b) Explain about the effects of air pollution.	7 7	L2	3
6.	Summarize the effects on environment due to modern agricultural practices for increased food production.	14	L3	3
7.	a) Identify the theme and important components of Kyoto Protocol. b) Identify the salient features of Montreal Protocol.	7 7	L3	4
8.	a) Define sustainable development and explain the importance of environmental education. b) Explain the role of information technology in environment.	7 7	L2	5

*Bloom's Taxonomy Level (BT Level): L1-Remember, L2- Understand, L3- Apply, L4- Analyse, L5- Evaluate, L6- Create.