(DMCA 201)

ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

SOFTWARE ENGINEERING
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Explain iterative waterfall and spiral model for software life cycle and discuss various activities in each phase.

2. What is Requirement Engineering? List the Functional and Non Functional requirement for Library Management system.

3. Explain decomposition levels of abstraction and modularity concepts in software design?

4. Explain black box testing methods and its advantages and disadvantages.

5. Write about the need for software measures and also explain various metrics.

6. Identify the umbrella activities in software engineering process.

7. Write about characteristics of software as a product.

8. What is known as SRS review? How is it conducted?

9. Write short notes on user interface design process?

(DMCA 201)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

SOFTWARE ENGINEERING
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Describe the design procedure for data acquisition system

2. State the objectives and guidelines for debugging.

3. Describe unit testing and integration testing.

4. Give any two differences between project metrics and process metrics.

5. Define behavioral modeling.

6. Name evolutionary process models.

7. Define cohesion and coupling.

8. Distinguish between alpha and beta testing?

9. What is meant by prototyping?

_____

(DMCA 202)

ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

PROGRAMMING WITH JAVA
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. (a) Describe the characteristics of OOPs in detail.

   (b) Write a Java program to check whether a given String is palindrome or not?

2. Explain about interfaces and packages in Java with examples.

3. (a) With suitable code segments illustrate various uses of 'final' keyword.

   (b) How to handle multiple catch blocks for a nested try block? Explain with an example.

4. What is need of collection frame work? Describe different classes and interfaces of collection frame work.

5. (a) State different states of applet life cycle and how to execute applets.

   (b) Write a java program to display all odd numbered files of a text file.

6. What is an array? How to create and initialize array objects in Java?

7. What is the role and responsibility of JVM in program execution?

8. Write about different data types are allowed in Java.

9. Illustrate method overriding with suitable example.

(DMCA 202)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

PROGRAMMING WITH JAVA
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1.   Explain multilevel inheritance with the help of abstract class.

2.   Discuss public, private, protected and default access modifier with example.

3.   Compare byte streams and character streams.

4.   Write a program to create a screen which contains three check boxes (DOS, Linux and Windows) and displays the selected items in the text box.

5.   What is JRE and JDK?

6.   Define constructor.

7.   What is use of Garbage collection?

8.   What is stream?

9.   Define polymorphism.

_____

(DMCA 203)

ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

COMPUTER NETWORKING
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Explain about Error detection and recovery mechanism in detail.

2. Write the functions of Media Access Control sub layer. And Compare pure ALOHA and slotted ALOHA.

3. Discuss different issues in hierarchical naming and addressing in detail.

4. Explain about Hierarchical routing and Link state routing procedures.

5. Explain in detail about Data Encryption Standard.

6. Apply binary, Manchester and differential Manchester encoding on following bit pattern 10110111.

7. Briefly explain about Wide Area Network (WAN).

8. State the different network components.

9. What is CSMA? Describe the difference between p – persistent CSMA and non–persistent CSMA.

(DMCA 203)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

COMPUTER NETWORKING
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Write about ATM switching.

2. Explain spanning tree bridges.

3. Explain the concept and need of tunneling with example.

4. Explain the IP addressing scheme in detail.

5. Define Parity Check.

6. What is circuit switching?

7. What is bridge and hub?

8. Define datagram.

9. Define plain text and cipher text.

—————

(DMCA 204)

ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION,
DECEMBER 2020

Second Year

COMPUTER ALGORITHMS
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1.   (a)   What is pseudo code? How to analyze efficiency of algorithm with help of pseudo code notation? Explain with suitable example.

(b)   What is weighting rule? Discuss about the union algorithm using weighting rule.

2.   Write the quick sort algorithm. Trace the same on data set: 4, 3, 1, 9, 8, 2, 4, 7 and also analyze its complexity.

3.   Using Single source shortest path algorithm to Find a Shortest Path from a to z.
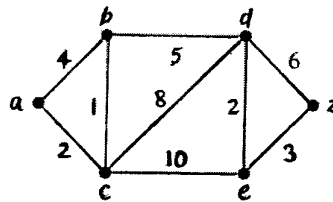
4.   What is optimal binary search tree? Using dynamic programming, construct an optimal binary search tree for the following items with probabilities given in the table below.

Items	1	2	3	4	5
Probability	0.24	0.22	0.23	0.3	0.01

5.   Explain how the traveling salesperson problem is solved by using LC Branch and Bound.

.

6. Express the following functions in terms of Big (O) and Omega (Ω) notation:

(a) $f(n) = \dfrac{(2n^3 + n)}{(n+5)}$

(b) $f(n) = 4n^{1.5} + (\sqrt{n})^3 + \log n.$

7. Describe different disjoint set operations with example.

8. Give the equations for perform Strassen's matrix multiplication.

9. Explain Prim's algorithm with suitable example.

(DMCA 204)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION,
DECEMBER 2020

Second Year

COMPUTER ALGORITHMS
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Illustrate subset sum problem with suitable example.

2. Constrict Huffman code for the following data.

Character	A	B	C	E	–
Probability	0.35	0.1	0.2	0.2	0.15

3. Find optimal solution for 0/1 knapsack problem $(w_1, w_2, w_3, w_4) = (10, 15, 6, 9)$, $(p_1, p_2, p_3, p_4) = (2, 5, 8, 1)$ and m = 30.

4. What arc the differences between backtracking and branch and bound solutions?

5. What is the asymptotic lower bound in determining the complexity of an algorithm?

6. Define transitive closure.

7. What is mechanism of divide and conquer strategy?

8. What is meant by Hamilton Cycles?

9. State graph coloring problem.

——————

(DMCA 205)

ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

DISTRIBUTED OPERATING SYSTEMS
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Explain about the key design issues of Distributed Operating Systems.

2. Explain in detail about the Open Systems Interconnection Reference Model.

3. Explain about various types of Election Algorithms.

4. Explain about the Fault Tolerance Using Active Replication and Using Primary Backup.

5. Explain about the Directory Server Interface.

6. What is an open distributed system and what benefits does openness provide?

7. What is the role of middleware in a distributed system?

8. Explain about the basic operations of remote procedure call.

9. Explain about Machine Process Addressing, Process Addressing with Broadcasting and Addres Lookup via a name server.

(DMCA 205)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

DISTRIBUTED OPERATING SYSTEMS
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Explain about properties of Transactions.

2. Explain about the Real-Time Distributed Systems.

3. Explain about the Semantics of File Sharing.

4. Compare and contrast between stateless and stateful servers.

5. Explain about the fault tolerance.

6. What is parameter marshaling?

7. Does using timestamping for concurrency control ensure serializability?

8. What is Deterministic and Heuristic algorithms.

9. Explain about the Cache Consistency.

—————

(DMCA 206)

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

COMPUTER GRAPHICS

MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. (a) Explain in detail Raster scan display system with complete architecture diagram.

   (b) Illustrate the midpoint circle drawing algorithm.

2. Explain Sutherland-Hodgeman Polygon Clipping with example.

3. What is window and view-port? Retrieve equation for the scaling factor to map the window   to view-port in 2D viewing system.

4. Write an algorithm for the generation of B-spline and also explain Hermit curve with necessary equations.

5. Describe the classification of the visible surface detection algorithms and explain depth buffer method.

6. Explain working principle of Plasma panel display.

7. Plot the line (–4, –4) to (8, 4) using DDA algorithm.

8. Explain   reflection   with   respect   to   any   plane   in 2D transformations.

9. What is called parallel projection? Briefly explain all types of parallel projection.

(DMCA 206)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

COMPUTER GRAPHICS
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1.   What is composite transformation? Give proper example.

2.   Explain non zero winding rule.

3.   List the properties of Bazier curves.

4.   Explain the hidden surfaces and line removal methods with their relative merits.

5.   Define pixel and aspect ratio.

6.   What is boundary filling?

7.   Define perspective projection.

8.   What is shearing?

9.   What is polygon clipping?

——————

(DMCA 207)

ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION,
DECEMBER 2020

Second Year

E-COMMERCE
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. Discuss the differences between E-Business and E-Commerce.

2. Discuss the importance of e-marketing.

3. Discuss different types of E-payment systems.

4. Define E-CRM. Discuss the methods in CRM.

5. Write the present status of mobile commerce. Also discuss the future trends in mobile commerce.

6. History of E-commerce.

7. Discuss the features of BLB.

8. What is E-security?

9. Discuss the demerits of E-payment system.

(DMCA 207)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION,
DECEMBER 2020

Second Year

E-COMMERCE
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1.   Write the importance of SCM.

2.   Write a short note on E-strategy.

3.   Discuss about web design.

4.   Role of internet in E-Commerce.

5.   What is WWW?

6.   What is E-advertising?

7.   Virus.

8.   Data mining.

9.   Internet.

———————

ASSIGNMENT 1

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

PROBABILITY AND STATISTICS
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1. (a) A class had 10 boys and 5 girls. Three students are selected at random one after the other. Find the probability that (i) first two are boys and third is girl (ii) first and third of same gender and second is of opposite gender.

   (b) Two bolts are drawn from a box containing 4 good and 6 bad bolts. Find probability that the second bolt is good if the first one found to be bad.

2. Let X be a continuous random variable with distribution:

$$f(x)\begin{cases} x & for\ 0 < x < 1 \\ 2 - x & for\ 1 \le x < 2 \\ 0 & elsewhere \end{cases}$$

Find

   (a) $p(0.2 \le X \le 0.8$

   (b) $p(0.6 \le X \le 1.2$

3. (a) Determine the mean and variance of normal distribution.

   (b) In a test on 2000 electric bulbs, it was found that the life of a particular make was
   normally distributed with average life of 2040 hours and S.D of 60 hours. Estimate the number of bulbs likely to bum for

   (i) More than 2150 hours,

   (ii) Less than 1950 hours and

   (iii) More than 1920 hours and but less than 2160 hours.

4. (a) Two batteries are tested for their length in life and the following data are obtained:

	No.of sample	Mean life in hours	Variance
Type A	9	600	121
Type B	8	640	144

   Is there a significant difference in two means? Value of A for 15 degrees of freedom at 5% level is 2.131

(b)   Fit a curve of the form y = a e^{bx} from the following data:

x :   1   2   3   4   5   6

y :   1.6   4.5   13.8   40.2   125   300

5.   The following data gives reading 10 samples of size 6 each in the production of a certain component.

Sample   1   2   3   4   5   6

Mean   383   508   505   582   557   337

Range   95   128   100   91   68   65

Sample   7   8   9   10

Mean   514   614   707   753

Range   148   28   37   80

Draw control Charts for $\bar{x}$ (for n 6, A2 0.483 what is your conclusion.)

6.   If A and B are the any two arbitrary events of the sample space, then prove that

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

7.   What's the probability of getting a total of 7 or 9 when a pair of fair dice is tossed?

8.   Fit a Poisson distribution to the following data:

x	0	1	2	3	4	5	6	7
$f(x)$	365	305	210	80	28	9	2	1

9.   In a referendum submitted to the students body at a university, 850 men and 566 women voted. 530 of the men and 304 of the women noted yes. Does this indicate a significant difference of opinion on the matter at 1% level, between men and women students?

(DMCA 208)

ASSIGNMENT 2

M.C.A. DEGREE EXAMINATION, DECEMBER 2020

Second Year

PROBABILITY AND STATISTICS
MAXIMUM MARKS : 30
ANSWER ALL QUESTIONS

1.   Discuss types of error of statistical hypothesis and give example.

2.   If the average fraction defective of a large sample of products is 0.1537, calculate the control limits.

3.   Describe analysis of variance (ANOVA) for two-way classification.

4.   Write about C - chart and R control charts.

5.   Define random variable.

6.   Mean and variance of binomial distribution is 4 and 4/3. Find n and p.

7.   What is the Statistical quality control?

8.   What are S – control charts?

9.   What is significance of t–test?

_____