Code No.1731

FACULTY OF SCIENCE

MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023

SOFTWARE ENGINEERING

PAPER – I

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Explain about Component Software Processes.
2. What are the components of good SRS? Explain.
3. Write a short note on Object Oriented Design.
4. What are the testing concepts? Explain.
5. Write about SPI trends.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Discuss about rational unified process and time boxing model.

(OR)

b) What are the five project management processes? Explain.

7. a) What are architectural styles for C&C view ? Explain.

(OR)

b) Explain the functional specification with Use case.

8. a) Give a brief note on Risk Management Planning.

(OR)

b) Briefly explain design modularization criteria.

9. a) Briefly explain Black Box testing .

(OR)

b) Discuss about programming principles and guidelines.

10. a) Discuss the process of Reverse Engineering .

(OR)

b) Explain the following:

(i) Business processing reengineering.

(ii) PCMM.

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Code No.1732

FACULTY OF SCIENCES

MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023

COMPUTER NETWORKS

PAPER – II

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Line coding
2. Hamming code
3. Distance Vector Routing
4. Multiplexing
5. SMTP

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Compare OSI model and TCP/IP model in detail.

(OR)

b) Write about direction of data flow.

7. a) Explain Error detection and correction in detail.

(OR)

b) Explain stop and wait protocol in detail.

8. a) Write about Subnetting and IPv4 addressing in detail.

(OR)

b) Explain ICMP, IGMP and BGP.

9. a) Explain Congestion Control and User Datagram Protocol (UDP) in detail.

(OR)

b) Explain the services of transport layer in detail.

10. a) Explain about the socket system calls used at the server and client side and there functions.

(OR)

b) Write about Domain Name Space (DNS) in detail.

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Code No.1733

FACULTY OF SCIENCES

MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023

DATA SCIENCE

PAPER – III

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. How to handle packages in R? Explain.
2. Explain functions related to missing values.
3. What is Regression? Explain its role in prediction.
4. Write about the issues associated with Decision Tree.
5. Write about common methods used with arules package.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Explain Data Types of R.

(OR)

b) Explain methods for reading various types of Data (file formats) in R.

7. a) What is Data Frame? Explain R functions for understanding Data in Data Frames.

(OR)

b) What is Visualization? Explain various Visualization methods available in R.

8. a) Explain model fitting and validation of Linear Regression.

(OR)

b) What is Logistic Regression? Explain the role of Maximum Likelihood Estimator.

9. a) i) How Decision Tree is represented in R? Explain.
   ii) Discuss about Entropy and Information Gain with example.

(OR)

b) i) Explain Basic R Commands used for Time Series Data Manipulation.
   ii) Discuss about Decomposition of Time Series Data.

10. a) Explain K-Means algorithm in detail.

(OR)

b) Explain Association Rules. How Apriori Algorithm is used in solving frequent itemset generation?

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Code No.1734

FACULTY OF SCIENCES

MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023

WEB TECHNOLOGIES

PAPER – IV

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Write a program by using all HTML test styling tags.
2. Write a DHTML program for Table.
3. Write a program for if , if-else in java Script
4. Write a VB script program for classes and objects.
5. Write about XML Parsers.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Write a program for nested ordered and unordered list .

   (OR)

   b) Write a program for text flow and Box model using cascading style sheets.

7. a) what is an event model write a program for any two key events.

   (OR)

   b) Explain about filters write a program for any two filters in DHTML.

8. a) Explain in details all java script Math objects, String and Boolean and Number.

   (OR)

   b) Write a program for two dimensional arrays in java script

9. a) Discuss about Data Types and Control Structure in VB Script.

   (OR)

   b) What is Web Server and what are the functions of Web Server.

10. a) Differentiate between Client Side scripting and Server side scripting.

    (OR)

    b) Write XML DTD for a student information which as the following details name, Father name, address, city, state, pin code, & phone number.

--oOo--

Code No.1735A

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023
INFORMATION SECURITY
PAPER – V (a)

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Write the History of Information Security.
2. Explain the role of Law and Ethics in Information Security.
3. Explain Security Architecture.
4. How Packet Sniffers are used? Explain.
5. Certification versus Accreditation.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Explain Characteristics and Components of an Information System.

(OR)

b) Discuss in detail security systems development life cycle.

7. a) Write about most important U.S. Laws that apply to Information Security.

(OR)

b) What is Risk Management? Explain Components of Risk Management.

8. a) What is Issue Specific Security Policy? Explain in detail.

(OR)

b) Describe Firewall Technology and various approaches to firewall implementation.

9. a) Identify and Describe the Categories and Operating Models of Intrusion Detection and Prevention Systems.

(OR)

b) Explain various Cipher Methods used in Encrypting Plaintext.

10. a) Describe technical strategies and models for implementing a project plan.

(OR)

b) Explain the Issues and Concerns related to staffing the information security function.

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Code No.1735B

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023
NETWORK SECURITY
PAPER – V (b)

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. IP spoofing
2. Key distribution
3. Message Authentication Code (MAC)
4. Digital Certificates
5. Kerberos

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Write the Attributes of Security in detail.

(OR)

b) Explain Types of Attacks in detail.

7. a) What is Triple DES? Explain in detail.

(OR)

b) Write about Diffie-Hellman Key Exchange in detail.

8. a) Discuss about the Hash Function (MD5, SHA5) in detail.

(OR)

b) Describe the Digital Signature (RSA, DSA Signatures) in detail.

9. a) Explain System Security using Firewalls and VPN's in detail.

(OR)

b) Write about the Zero Knowledge Protocols and their use in Smart Cards and Explain the Attacks on Smart Cards.

10. a) Write about the IPSec, Electronic Payments and E-cash.

(OR)

b) Describe the Web Security Protocols (SSL) and Secure Electronic Transaction (SET).

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Code No.1736A

FACULTY OF SCIENCES

MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023

DISTRIBUTED SYSTEMS

PAPER – VI (a)

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. What is the role of middleware in Distributed Systems? Explain.
2. Explain Clock Synchronization.
3. Write about Failure Masking and Redundancy.
4. How Secure RPCs will work? Explain.
5. What is Dynamic Replication? Explain.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) Discuss about Centralized and Decentralized Organizations.

(OR)

b) What is Thread? How Threads are used with Distributed Systems? Explain.

7. a) What is an Identifier? Discuss in detail about FLAT Naming.

(OR)

b) What is Consistency? Explain Client-Centric Consistency Models.

8. a) What is the role of Reliable Group communication in Distributed systems? Discuss in detail.

(OR)

b) Describe Distributed Object Based Systems Architecture.

9. a) Explain Network File System (NFS) in detail.

(OR)

b) Explain most important Processes used in Web-based systems with their Internal Organization.

10. a) Explain various Architectures used in Distributed Coordination-Based Systems.

(OR)

b) What is Map Reduce? Explain Amazon Elastic Map Reduce.

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Code No.1736D

FACULTY OF SCIENCES
MCA III – SEMESTER REGULAR EXAMINATIONS, MAR- 2023
NATURAL LANGUAGE PROCESSING
PAPER – VI (d)

Time: 3 hours] [Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Write about Noisy channel model.
2. What is Mutual information?
3. Write about Pseudo Words.
4. POS tagging.
5. Explain the Term weighting.

Section – B

Answer the following questions in not more than **FOUR** page each: (5x10=50)

6. a) What is Joint Entropy? Explain Baye's theorem.

(OR)

b) Write about Morphology and Phrase Structure in detail.

7. a) Describe the Hypothesis Testing and Notion of Collocation.

(OR)

b) Explain the process of building n-gram Models.

8. a) Explain Supervised and Unsupervised Learning in detail

(OR)

b) Describe Bayesian classification in detail.

9. a) Explain the role of Lexical Acquisition in statistical NLP.

(OR)

b) Write about Hidden Markov Models and Explain general forms of a HMM.

10. a) Write about K-means algorithm in detail.

(OR)

b) Explain Features of P C F Gs in detail.

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