CSE 4th / Lib

Roll No. ..... Total Pages : 4

BT-4/M-26 **44151**

DISCRETE MATHEMATICS

Paper–PC-CS-202A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all by selecting at least *one* question form each unit. All questions carry equal marks.

UNIT–I

1. (a) In a class of 60 students, some students like Mathematics (M), Computer Science (C), and Statistics (S). The following information is given :

- 30 students like Mathematics.
- 28 students like Computer Science.
- 25 students like Statistics.
- 12 students like both Mathematics and Computer Science.
- 10 students like both Mathematics and Statistics.
- 8 students like both Computer Science and Statistics.
- 5 students like all three subjects.

Questions :

(i) Draw a Venn diagram to represent the given information.

(ii) Find the number of students who like only Mathematics.

(iii) Find the number of students who like exactly two subjects.

(iv) Find the number of students who do not like any of the three subjects. (8)

(b) Prove principle of Inclusion and Exclusion for n sets. (7)

2. (a) By Mathematical Induction, prove :

$$1 + a + a^2 + \ldots\ldots\ldots\ldots a^n = \frac{1 - a^{n+1}}{1 - a}.$$ (6)

(b) Construct Truth Table for :

(i) $(p \rightarrow p) \vee (p \rightarrow \bar{p})$.

(ii) $(p \rightarrow (q \rightarrow r)) \rightarrow (p \rightarrow q) \rightarrow (q \rightarrow r)$.

(iii) $p \leftrightarrow (\bar{p} \vee \bar{q})$. (9)

UNIT–II

3. (a) Let A = {1, 2, 3} and B = {a, b} (8)

(i) Find the Cartesian product A × B.

(ii) Define a relation R from A to B such that $(x, y) \in$ R if $x + y$ is even (consider $a = 1$, $b = 2$).

(iii) Represent the relation using a diagraph and matrix representation.

(b) (i) What is transitive closure of a relation? (2)

(ii) Explain Warshall's Algorithm for finding the transitive closure of a relation. (3)

(iii) Find the transitive closure of the relation represented by the matrix

$$M = \begin{bmatrix} 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 0 \end{bmatrix}$$

using Warshall's Algorithm. (2)

4. (a) Explain the following with suitable examples : (8)

(i) Equivalence Relation and Equivalence Classes.

(ii) Partition of a Set and explain the relationship between equivalence relations and partitions.

(b) (i) Define a relation on a set.

(ii) Explain different properties of relations : reflexive, symmetric, antisymmetric, and transitive with suitable examples. (7)

UNIT–III

5. (a) (i) Define the following types of functions with suitable examples :

1. Injective (One-One) function.
2. Surjective (Onto) function.
3. Bijective function.

(ii) Explain the relationship between bijective functions and inverse functions. (8)

(b) (i) Explain the concept of permutation and combination.

(ii) State the difference between permutation and combination with suitable examples. (7)

6. (a) (i) Define composition of functions and identity function.

(ii) If $f : A \rightarrow B$ and $g : B \rightarrow C$, explain the composition gof with an example.

(iii) State the conditions under which a function has an inverse. (8)

(b) (i) Explain the principle of mathematical induction.

(ii) Describe the steps involved in proving a statement using mathematical induction. (7)

UNIT–IV

7. (a) (i) Define a semigroup, monoid, and group.

(ii) Explain the differences among them with suitable examples. (10)

(b) Let G = {1, −1, i, −i} be the set of fourth roots of unity under multiplication.

(i) Verify that G forms a group under multiplication.

(ii) Find the order of each element in G. (5)

8. (a) (i) Define group homomorphism and group isomorphism.

(ii) Explain the properties of homomorphism with suitable examples.

(iii) What is an automorphism? (10)

(b) Let G = (Z, +) and H = (Z_6, +). Define a mapping f : G $\rightarrow$ H by $f(x) = x$ mod 6.

(i) Show that f is a group homomorphism.

(ii) Find the kernel of f. (5)

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BT-4/M-26 **44152**

INTERNET TECHNOLOGY AND MANAGEMENT

Paper–PC-CS-204A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.All questions carry equal marks.

UNIT-I

1. Describe W3 problem.Discuss Internet congestion and its impact on performance. 15

2. Describe different modes of connecting to the Internet and the role of ISPs. 15

UNIT-II

3. (a) Explain the architecture and working of the World Wide Web.

   (b) Discuss different types of web browsers and their features. 15

4. Explain plug-ins and the role of FrontPage Express in web development. 15

UNIT-III

5. Discuss e-mail addressing, message composition, and mailer features. 15

6. Describe HTML as a scripting language and differentiate between XML, DHTML. 15

UNIT-IV

7. Explain the role and types of web servers such as PWS, IIS, and Apache. 15

8. Discuss digital signatures, firewalls, and intrusion detection systems. 15

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BT-4/M-26 **44153**

OPERATING SYSTEMS

Paper–PC-CS-206A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all by selecting at least *one* question from each unit. All questions carry equal marks.

UNIT–I

1. (a) Explain Operating System services provided to users and programs. (7)

(b) What are system calls? Explain their types with examples. (8)

2. (a) Describe the I/O structure of an operating system. (7)

(b) Discuss different operating system structures. (8)

UNIT–II

3. A set of processes arrive at time 0 with the following burst times :

Process	Burst Time (ms)
P1	6
P2	8
P3	7
P4	3

Using Non-Preemptive Shortest Job First (SJF) scheduling:

(a) Draw the Gantt Chart.

(b) Calculate Waiting Time for each process.

(c) Calculate Turnaround Time.

(d) Find Average Waiting Time and Average Turnaround Time. (15)

4. (a) Explain the process concept and process states with a diagram. (7)

(b) Explain Round Robin scheduling algorithm with advantages and disadvantages. Explain with example. (8)

UNIT–III

5. Consider a system with 5 processes (P0-P4) and 3 resource types (A, B, C). (15)

Allocation Matrix

Process	A	B	C
P0	0	1	0
P1	2	0	0
P2	3	0	2
P3	2	1	1
P4	0	0	2

Maximum Matrix

Process	A	B	C
P0	7	5	3
P1	3	2	2
P2	9	0	2
P3	2	2	2
P4	4	3	3

Available

Available = (3, 3, 2)

Find :

(a) Need Matrix

(b) Whether the system is in safe state

(c) Safe sequence.

6. (a) Explain paging with diagram. (7)

(b) Explain the difference between :

(i) Internal Fragmentation.

(ii) External Fragmentation. (8)

UNIT–IV

7. (a) Describe different file allocation methods. (7)

(b) Describe DMA (Direct Memory Access) and its working. (8)

8. The disk has 200 tracks (0-199).
The disk head is currently at track 50 and moving toward higher-numbered tracks.
The queue of pending requests is:
95, 180, 34, 119, 11, 123, 62, 64

Using C-SCAN disk scheduling algorithm, find:

(a) The order in which requests are serviced.

(b) Draw the seek sequence.

(c) Calculate the total head movement. (15)

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BT-4/M-26 **44154**

Design and Analysis of Algorithms
Paper–PC-CS-208A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.

UNIT–I

1. Discuss all types of asymptotic notation with example. 15

2. What is recurrence relation? Solve the recurrence $T(n) = 2T(n/2) + n$ by Substitution method. 15

UNIT–II

3. Create the Huffman coding tree for the following set of data:

Character :	*a*	*b*	*c*	*d*	*e*	*f*
Frequency :	55	100	20	6	88	29

15

4. What is difference between Fibonacci heap and Binomial heap? Discuss all properties of Fibonacci heap. 15

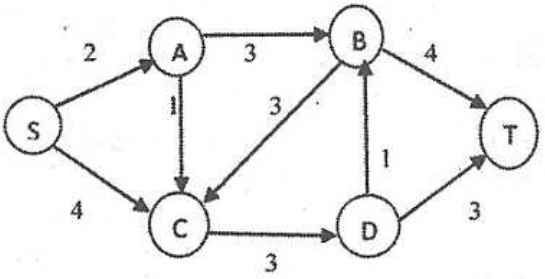
UNIT–III

5. What is a spanning tree? Explain Kruskal algorithm with the help of suitable example. 15

6. Compare BFS and DFS algorithm with an example and analyse time complexities. 15

UNIT–IV

7. Illustrate the execution of the Ford-Fulkerson algorithm in the flow network. 15



8. Write short note on the following :

   (a) Bitonic Sorting Network.

   (b) Comparison Network. 15

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BT-4/M-26 **44215**

UNIVERSAL HUMAN VALUES-II : UNDERSTANDING HARMONY

Paper–HTM-901A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt any *five* questions selecting at least *one* from each unit.

UNIT–I

1. Discuss the concept of skill and value education. Discuss the process of self exploration with the one proposal you explored in your own life. (5+10=15)

2. Discuss the priority order of right understanding, relationship and physical facility for animals and human beings. Discuss the concept of happiness and prosperity. (8+7=15)

UNIT–II

3. Discuss the concept of co-existence for a human being. List and classify your desires based on self and body and further classify on the basis of source of imagination. (5+10=15)

4. Discuss the program of self regulation for harmony of self with the body. Discuss the effects of considering human being as body in today's lifestyle. (10+5=15)

UNIT–III

5. Discuss the feeling of trust and respect in human-human relationships. (15)

6. Discuss the human goal and various systems to achieve harmony in the society in detail. (15)

UNIT–IV

7. Discuss the various order of nature and harmony between them. Discuss the role of human being in maintaining/disturbing harmony. (9+6=15)

8. Discuss the concept of existence as coexistence in detail with various elements in it. Discuss the process to achieve universal human order at all level of existence. (10+5=15)

CSE 6th/Library

Roll No. ..... Total Pages : 02

BT-6/M-26 46165

COMPILER DESIGN

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question *one* question from each Unit.

Unit I

1. Explain various phases of compiler with suitable diagram in detail. Desccribe how various phases could be combined as a pass in a compiler. **15**

2. Illustrate term regular expression. Show step by step construction of DFA for the given : **15**

$$(a + b) * abb$$

Unit II

3. Define LALR parsers. Construct LALR parsing table for the following grammar : **15**

$$S \rightarrow AA$$

$$A \rightarrow aA \mid b$$

4. (a) Eliminate left recursion in the following grammar :

$$A \rightarrow ABd \mid Aa \mid a$$
$$B \rightarrow Be \mid b$$

(b) Construct predictive parsing table for the grammar :

$E \rightarrow E + T/T$, $T \rightarrow T * F/F$, $F \rightarrow (E)/id$.

Unit III

5. (a) Write the translation scheme to generate intermediate code for assignment statements with array references.

(b) What is type system ? Discuss static and dynamic checking of types. **15**

6. (a) What is an activation record ? Explain how it is related with run time storage organization.

(b) Explain various ways to access non local variables. **15**

Unit IV

7. What is Principal Sources of Optimization and also explain about the sources and criterias of code optimization as machine dependent and independent types. **15**

8. (a) Explain in detail about Loop Optimization. **15**

(b) Explain in brief about Peephole optimization techniques. **15**

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Roll No. ..... Total Pages : 03

BT-6/M-26 46166

COMPUTER NETWORKS

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

Unit I

1. (a) What is a computer network ? What are its goals ? **6**

(b) What are differences between broadcast and point-to-point networks ? Explain the terms protocols, interfaces and services. **9**

2. (a) What are various types of multiplexing techniques ? Explain in detail. **9**

(b) Discuss physical and application layer functionality of OSI-Reference Model. **6**

Unit II

3. (a) What are different error detection and error correction techniques used in computer networks ? Also, explain error handling in various layers. **9**

(b) Explain the working of CSMA/CD. How is it related to Ethernet ? 6

4. (a) Explain, how sliding window protocols work ? Is it used in selective repeat ARQ also ? Discuss in detail. 8

(b) Give the working of LLC protocol. Describe functioning of switch, bridge and router. 7

Unit III

5. (a) Explain the contents of a routing table. How does a router learn a routing table ? Discuss various approaches. 8

(b) Draw IP header and describe various fields. 7

6. (a) Describe the concept of packet switching and the working Asynchronous Transfer Mode (ATM) networks. 9

(b) Explain working of ARP protocols. Can we spoof ARP ? Discuss issues in ARP. 6

Unit IV

7. (a) Why do we need congestion control algorithms ? Discuss leaky bucket and token bucket schemes. 8

(b) What is cryptography ? Explain the working of public key encryption. 7

8. (a) What are the issues and challenges in network security ? How are they addressed in internet ? 7

(b) What is role of TCP ? Explain the terms advertised window and congestion window. 8

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BT-6/M-26 46167

ADVANCED COMPUTER ARCHITECTURE

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain basic computational models and describe computer architecture as a multilevel hierarchical framework. 7

   (b) Discuss types and levels of parallelism. Explain Instruction Level Parallelism (ILP) and pipeline performance measures. 8

2. (a) Describe pipelined processing of instructions and explain different types of instruction dependencies. 8

   (b) Explain VLIW architecture and discuss code scheduling techniques for ILP processors. 7

Unit II

3. (a) Explain the basic architecture of superscalar processors. 7

   (b) Discuss superscalar instruction issue, register renaming and preservation of sequential execution. 8

4. (a) Compare VLIW and superscalar processors with suitable examples. 7

   (b) Explain branch handling techniques including delayed branching and branch prediction schemes. 8

Unit III

5. (a) Explain static connection networks with suitable diagrams such as mesh, torus, tree and hypercube. 8

   (b) Describe MIMD architectures and explain distributed and shared memory models. 7

6. (a) Discuss dynamic interconnection networks and the concept of shared buses. 7

   (b) Explain multistage interconnection networks including omega and butterfly networks with their advantages. 8

Unit IV

7. (a) Discuss virtual memory technology and its role in system performance. 8

   (b) Explain advanced processor technology and memory hierarchy organization. 7

8. (a) Describe cache coherence problems in multiprocessor systems. 7

   (b) Explain hardware and software-based cache coherence protocols. 8

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BT-6/M-26 46173

UNIX AND LINUX PROGRAMMING

Time : Three Hours] [Maximum Marks : 75

Note : Attempt any *Five* questions selecting at least *one* question from each Unit.

Unit I

1. Explain the utilities used for file management : zip, unzip, compress, uncompress. Provide examples for each to demonstrate their usage. 15

2. Discuss the Unix File System architecture. Explain the concept of i-nodes and list five essential file system-related commands with their syntax. 15

Unit II

3. (a) Define Regular Expressions. Explain the syntax, character classes and quantifiers used to build search patterns.

   (b) Compare the grep and egrep utilities. Provide three examples for each showing how they search for simple and extended regular expressions. 15

4. Explain AWK and PERL programming within the Unix environment. How are these tools used for data manipulation and report generation ? **15**

Unit III

5. Compare Static Libraries and Shared Libraries. Explain the roles of the dynamic loader and the process of dynamic linking and loading. **15**

6. Explain the various modes of the vi editor (Command, Insert, and Ex modes). Provide a list of essential commands for navigating and editing text in vi editor. **15**

Unit IV

7. What are the responsibilities of System Administration regarding authentication, password administration, and network security ? **15**

8. What are uses of Networking Tools : Ping, Telnet, FTP, Routers, and Firewalls ? Explain the function of each tool in managing a network. **15**

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Roll No. ..... Total Pages : 02

BT-6/M-26 **46175**

SOFT SKILLS AND INTERPERSONAL COMMUNICATION

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Enumerate different types of communication patters and its applications in detail with examples. **15**

2. (a) Describe the role of good communication. How can it be helpful in developing a communication flow ?

   (b) Discuss salient features of speaking skills.

Unit II

3. Critically analyze major communication barriers. Propose solutions to overcome these barriers. **15**

4. What is the process of communication ? Explain the objectives and characteristics of good communication. **15**

Unit III

5. What is role of personality in communication ? What personality traits are considered as important for good communication ? **15**

6. What are interpersonal skills and intrapersonal skills ? Explain various interpersonal skills with its importance. **15**

Unit IV

7. How is body language vital to a presenter ? Describe significance of facial expression and eye contact in oral communication in reference to group discussion. **15**

8. "A resume is a persuasive summary of one's qualifications for employment." Examine the statement. **15**

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CSE 7th/ Library

Roll No. ..... Total Pages : 2

BT-7/M-26 **47244**

SOFTWARE VERIFICATION AND VALIDATION AND TESTING

Paper–(PE-CS-D-403A)

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT–I

1. (a) Define Verification and Validation. Explain the different techniques used for each with suitable examples. 9

(b) Explain the Software Development Life Cycle (SDLC) architecture. 6

2. (a) Discuss the principles of software testing and how they influence test planning. 8

(b) Define software failure. Explain the difference between error, fault, and failure with examples. 7

UNIT–II

3. (a) Explain Boundary Value Analysis and Equivalence Class Testing with examples. 8

(b) Define Cyclomatic Complexity and explain its significance in structural testing. 7

4. Discuss various functional testing techniques with suitable examples. 15

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UNIT–III

5. (a) What is Regression Testing? Explain its importance and challenges. 7

   (b) Discuss guidelines for test case prioritization and reduction with examples. 8

6. (a) Explain debugging techniques and their role in testing. 7

   (b) Describe Risk-Based Testing and Slice-Based Testing methodologies. 8

UNIT–IV

7. (a) Explain the concepts of Software Quality Management and its importance in the software life cycle. 7

   (b) Write short notes on McCall's and Boehm's quality models. 8

8. Explain various software quality models in detail. 15

Roll No. ..... Total Pages : 2

BT-7/M-26 **47246**

NEURAL NETWORKS AND DEEP LEARNING

Paper–PE-CS-D-411A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.

UNIT–I

1. (a) What are the key characteristics of neural networks? Explain with examples. (7)

(b) Describe the model of an artificial neuron and compare it with the human brain. (8)

2. (a) Define neural network taxonomy. Briefly explain different neural network architectures. (8)

(b) Discuss real-world applications of artificial neural networks in detail. (7)

UNIT–II

3. (a) Explain the perceptron architecture and its training algorithm. (8)

(b) Describe the Associative Memory Network architecture and its training process. (7)

4. (a) Write short notes on Counter Propagation Networks with their training algorithm. (7)

(b) Explain Hopfield Networks in detail with their architecture and training process. (8)

UNIT–III

5. (a) Explain the Learning Vector Quantization (LVQ) algorithm with an example. (7)

(b) Discuss the Cognitron Network and its significance in advanced neural networks. (8)

6. (a) Write a short note on Kohonen Self-Organizing Maps. (8)

(b) Explain Neocognitron Networks and highlight their role in pattern recognition. (7)

UNIT–IV

7. (a) Explain the basics of Support Vector Machine (SVM) as a supervised learning approach. (7)

(b) Discuss Deep Recurrent Neural Networks (RNNs) and their applications. (8)

8. (a) Write a short note on Deep Boltzmann Machines. (7)

(b) Discuss applications of deep learning in speech recognition with suitable examples. (8)

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BT-7/M-26 **47249**

CYBER LAW AND ETHICS

Paper–OE-CS-401A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt any *five* questions, selecting at least *one* question from each unit.

UNIT–I

1. What are the legal and technological significance of Domain Names in the digital economy. 14

2. What are key differences between Civil and Criminal jurisdictions as they relate to online activities. 14

UNIT–II

3. Explain the role of Digital Signatures and cryptography in ensuring the authenticity of electronic records. 14

4. What are the limitations of the current IT Act in addressing modern cyber threats. 14

UNIT–III

5. Explain how Patent Law applies to software and technological innovations. 14

6. Explain the relationship between the IT Act and the Criminal Procedural Code and their use. 14

UNIT–IV

7. Explain the significance of Cyber Ethics and how it differs from Cyber Law? 14

8. (a) Identify the primary Ethical Issues in Artificial Intelligence (AI).

   (b) Explain the core principles of AI Ethics, such as transparency and accountability. 14

CSE 8th / Library

Roll No. ..... Total Pages : 3

BT-8/M-26 **48245**

CLOUD COMPUTING

Paper–PE–CS–A402A

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT–I

1. (a) Discuss the advantages and disadvantages of cloud computing in modern enterprises. How can organizations mitigate the limitations while leveraging the benefits? 7

   (b) Compare and contrast Grid Computing and Cluster Computing in terms of system architecture, resource management, scalability, fault tolerance and performance. 8

2. Explain the various cloud deployment models such as public, private, hybrid and community clouds. Discuss how each model suits different organizational requirements in terms of security, control and cost. 15

UNIT–II

3. (a) Discuss the role of networks in Cloud computing, highlighting how they support connectivity, data transfer and resource access? 7

   (b) Compare cloud computing architecture with traditional client-server architecture. Discuss the differences in terms of resource utilization, scalability, maintenance and cost efficiency. 8

4. Compare and contrast Platform as a Service (PaaS) and Software as a Service (SaaS). Describe their technical architecture, deployment approaches and key features. Discuss their advantages and limitations from both business and operational perspectives. 15

UNIT–III

5. (a) How do cloud-based databases differ from traditional on-premises databases in terms of scalability, reliability and maintenance? 7

   (b) Discuss in detail how hardware scaling is handled in traditional computing environments compared to cloud-based environments. 8

6. Explain the role of billing and accounting mechanisms in Cloud computing service management. How do these systems ensure transparency, fair usage and alignment with Service Level Agreements (SLAs)? 15

UNIT–IV

7. (a) How do physical security, virtualization, and hypervisor protections prevent unauthorized access and ensure system integrity? 8

   (b) Discuss network-level security mechanisms in cloud environments, including firewalls, VPNs and intrusion detection systems. 7

8. (a) How does DROPS differ from traditional data replication and what additional benefits does it offer in Cloud computing? 8

   (b) Discuss the commercial and business considerations in Cloud contracting models. Discuss how these considerations impact costs, scalability and service delivery for organizations? 7

Roll No. ..... Total Pages : 2

BT-8/M-26 **48249**

CYBER SECURITY

Paper–OE-CS-402A

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT–I

1. Define cyber-crime? Give two examples of crimes against individuals. Differentiate between crime against property and cyber terrorism with suitable examples. 15

2. (a) Examine the role of Shannon's theory in the design of secure encryption algorithms. 8

   (b) Explain differential and linear cryptanalysis of DES with proper steps. 7

UNIT–II

3. (a) Explain the MD5 message digest algorithm with a neat diagram. 5

   (b) Differentiate between SHA-1 and SHA-256. 5

   (c) Discuss the proof of Digital signature algorithm. 5

4. (a) Write note on Kerberos authentieation system. 8

(b) Discuss the working of S/MIME and how it enhances secure Electronic Mail Communication. 7

UNIT–III

5. (a) Discuss Cyber-crime prevention methods with suitable examples. 8

(b) What do you understand by Hardware Protection Mechanism? Explain OS-level Security Mechanisms. 7

6. (a) Explain Secure Electronic Transaction (SET) in detail. How does it ensure safe e-commerce transactions? 8

(b) Discuss the principles of firewall design. How do they ensure strong network defense? 7

UNIT–IV

7. Discuss the need, scope, and challenges of digital forensics. Explain various tools and techniques used in digital forensics. 15

8. Discuss the Indian IT Act with respect to Digital signatures and punishments for cybercrimes. Evaluate the challenges faced in implementing cybercrime laws effectively in India. 15

Roll No. ..... Total Pages : 2

BT-8/M-26 **48253**

WEB AND INTERNET TECHNOLOGY

Paper–OE-CS-410A

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT–I

1. Explain the impact of the Internet on the Society with reference to Internet applications, e-commerce and Cyber crime. 15

2. What is the role of an Information Architect in Organizing Websites and Intranets ? 15

UNIT–II

3. Differentiate between HTML5 and XHTML with examples. Explain basic text markup, images, lists and forms in HTML. 15

4. Explain the process of setting up an Internet connection, detailing Hardware requirements, Modem configuration and Common Network Terminologies. 15

UNIT–III

5. Discuss the concepts of functions and scooping in Python. What are Global variables and how are they used ? 15

6. (a) Explain branching and control structures in Python with suitable code examples.

   (b) Describe Python data types with examples. How does Python handle arrays, Strings and Dictionaries? 15

UNIT–IV

7. What are regular expressions in Python? Explain their use in pattern matching with suitable examples. Also, describe how plotting is done in Python ? 15

8. Explain how Python can be used to interact with a MySQL database ? Illustrate with an example for checking a file, creating a table, and inserting and deleting data. 15