

4th Semester. CSE

CSE/CPE-405/IT-404

SCTE/NGL/R-2026-II

rs

(1×10=10)

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7. Which mechanism uses a high-performance disk as an intermed to allow dedicated devices, such as printers, to be shared by multiple users simultaneously?
 A) Paging B) Swapping C) Buffering D) SPOOLing
8. According to the four necessary conditions for deadlock (Coffman's conditions), what is the term for the requirement that resources cannot be forcibly taken from a process?
 A) Mutual Exclusion B) Circular Wait
 C) No Preemption D) Hold and Wait
9. In the traditional Sun Network File System (NFS), what is the primary purpose of designing the server to be "stateless"?
 A) To reduce the amount of RAM required by the server
 B) To allow for easier crash recovery as the server does not need to remember open files
 C) To prevent unauthorized users from accessing the network
 D) To increase the speed of data transmission across the LAN
10. In the Windows NT architecture, which specific layer of code hides hardware differences (such as different CPU architectures) from the rest of the operating system to ensure portability?
 A) The Object Manager B) The Registry
 C) The Hardware Abstraction Layer
 D) The Environment Subsystem

B. Descriptive type questions

11. Explain the monolithic structured operating system with a block diagram. 2
12. Define Operating System. Write two roles of OS. 2
13. Define Process. Explain, with a diagram, the various states of process. 3
14. Explain the application of semaphore to solve classic IPC problem Producer-Consumer problem. 2
15. List four features of Shortest Job First scheduling algorithm. 2
16. Explain the working principles of Priority scheduling algorithm. 4
17. Consider the given table below and find Completion time (CT), Turn-around time (TAT), Waiting time (WT), Average Turn-around time and Average Waiting time using FCFS algorithm. 5

Process ID	Arrival time	Burst time
P1	2	2
P2	5	6
P3	0	4
P4	0	7
P5	7	4

18. What is swapping? List four advantages and disadvantages of swapping. 3
19. Elucidate the causes of fragmentation of memory. Explain the concept of compaction with example. 5
20. Compare and contrast paging and segmentation in OS. Explain the application of paging in virtual memory. 5
21. Define file. List the attributes of a file and explain them. 3
22. Explain the contiguous and linked allocation of a file system implementation methods. 2
23. What is I/O hardware? Differentiate between serial and parallel port access. How is I/O performed using Programmed I/O (polling). 4
24. Explain the three techniques for Device Management – Dedicated, Shared, Virtual. 5
25. What is a deadlock? Write the four necessary conditions for a deadlock to happen. 4
26. Explain the application of Banker's algorithm for deadlock avoidance. 4
27. Define distributed operating system. Explain two types of distributed operating system. 4
28. Explain the core objectives of the SUN NFS file server. 2
29. Write the key technical innovations of the Unix OS. Explain the core management mechanisms of the Windows NT. 4

Marks Distribution

BL – Blooms Level CO – Course Outcome K – Knowledge C – Comprehension
A - Application

Unit	Questions	Marks	BL/KCA	CO	Total
1	1	1	K	CO1	5
	11	2	C		
	12(a)	1	K		
	12(b)	1	A		
2	2	1	K	CO1	6
	13(a)	1	K		
	13(b)	2	C		
	14	2	A		
3	3	1	K	CO2	12
	15	2	K		
	16	5	C		
	17	4	A		
4	4	1	K	CO3	14
	18	3	K		
	19	5	C		
	20	5	A		
5	5	1	K	CO3	6
	21(a)	1	K		
	21(b)	2	C		
	22	2	A		
6	6	1	K	CO3	5
	23(a)	1	K		
	23(b)	2	C		
	23(c)	1	A		
7	7	1	K	CO3	6
	24(a)	3	C		
	24(b)	2	A		
8	8	1	K	CO3	9
	25(a)	1	K		
	25(b)	3	C		
	26	4	A		
9	9	1	K	CO4	7
	27(a)	1	K		
	27(b)	3	C		
	28	2	A		
10	10	1	K	CO4	5
	29(a)	2	C		
	29(b)	2	A		

ENVIRONMENTAL EDUCATION (G307)

Full Mark : 75 SCTE/NGL/R-2026-II

Pass Mark : 30

Time : 3 Hours

S.No.	Questions	Marks	CO
Part-1	I. Choose the correct answer: 1. Which of the following is not a component of the biotic environment: a) soil b) plants c) animals d) micro organisms	1	CO1
	2. World Environment Day is celebrated on: a) 1 st December b) 5 th June c) 5 th May d) 15 th October	1	CO1
	II. Answer the following: 1. Mention the types of environment. 2. List some importance of environment.	2 2	CO1 CO1
Part-2	I. Choose the correct answer: 1. The transfer of matter in biogeochemical cycles involve: a) carbon b) oxygen c) land d) water	1	CO1
	II. Answer the following: 1. Define an ecosystem. Mention the various abiotic factors which can disrupt and ecosystem. OR Categorize the biogeochemical cycles on the basis of their pathways.	3	CO1
	2. Write a note on types of biodiversity.	3	CO1
	1. a. Explain the nitrogen cycle with diagram and explain how it benefits the ecosystem. OR b. Explain the hydrological cycle with diagram and explain how it benefits the ecosystem.	4	CO1

Part-3	I. Choose the correct answer: 1. Which of the following attributes to population: a) sex ratio b) land resources c) age distribution d) Birth and death rates.	1	
	2. Which of the following is the reason for water scarcity: a) deforestation b) rapid urbanization c) afforestation d) biogeochemical cycle	1	
	II. Answer the following: 1. Mention the methods for conservation of forests. 2. Discuss the types of natural resources. 3. Mention the uses and abuses of wetlands.	2 3 3	CO CO CO
Part-4	I. Choose the correct answer: 1. Which of the following is NOT a global environmental problem: a) food security b) water scarcity c) ethnic riots d) climate change 2. The chemical the causes ozone layer depletion. a) CFCs b) CO ₂ c) H ₂ O d) CH ₄	1 1	CO ₃ CO ₃
	II. Answer the following: 1. Discuss some effects of ozone layer depletion. 2. Describe how Green House Effect and global warming go hand in hand. 3. Explain how acid rain is formed. 4. Discuss the steps to be taken to curb global warming.	2 3 3 4	CO ₃ CO ₃ CO ₃ CO ₄

Part-5	I. Choose the correct answer: 1. The unit to measure sound is: a) db b) ppm c) mg/m ³ d) volt	1	CO3
	2. Hearing tests is conducted by a device called: a) audiometer b) audiogram c) hearing threshold level scale d) sonometer	1	CO3
	II. Answer the following: 1. Explain the effects of air pollutants on vegetation.	2	CO3
	2. Discuss the ways in which oxides of Sulphur can be absorbed to reduce pollution. 3. Discuss the principle of water treatment. 4. Identify the places of noise pollution and its effect.	2 4 4	CO4 CO3 CO3
Part-6	I. Choose the correct answer: 1. The conventional source of energy is: a) wind energy b) tidal energy c) solar energy d) petroleum	1	CO4
	II. Answer the following: 1. Mention the various types of pesticides.	2	CO3
	2. Differentiate between conventional and non-conventional energy sources 3. Define Integrated Pest Management and mention its benefits.	3 4	CO2 CO5

Part-7	I. Choose the correct answer: 1. The Environment Protection Act was passed in the year: a) 1970 b) 1981 c) 1986 d) 1987	1	
	II. Answer the following: 1. Discuss how our Laws support the conservation of forests and nature reserves. 2. Mention some major environmental laws in India.	2 3	CO2 CO5
Part-8	I. Answer the following: 1. Write down the importance of Environmental Impact Assessment.	2	CO4
	2. Mention the viewpoints on which Environmental Ethics are based upon.	2	CO5

MICROPROCESSOR & INTERFACING

CSE/CPE-504/IT-406

Full Mark : 75 SCTE/NGL/R-2026-II

Pass Mark : 30

Time : 3 Hours

A. MULTIPLE CHOICE QUESTIONS

(15 × 1 = 15)

1. The first 4-bit microprocessor introduced by Intel was:
a) 8085 b) 8008 c) 8086 d) 4004
2. Which register is mainly used for arithmetic and logical operations in the 8085/8086 microprocessors?
a) Register B b) Accumulator
c) Program Counter d) Stack Pointer
3. Why is the address bus of the 8085 unidirectional?
a) Because it carries both data and address
b) Because it transfers address only from memory to CPU
c) Because it carries address from microprocessor to memory or I/O
d) Because it stores instructions
4. A programmer adds two 8-bit numbers in the Intel 8085. After the operation, the Sign flag (S) becomes 1. What does this indicate about the result stored in the accumulator?
a) The result is zero b) The result is negative
c) A carry occurred d). The result is positive
5. In the Intel 8085/8086, which stage of the instruction cycle is responsible for interpreting the opcode and determining the operation to be performed?
a) Fetch Cycle b) Decode Cycle
c) Execute Cycle d) Memory Cycle
6. A programmer uses the instruction LDA 2050H in the Intel 8085. What type of addressing mode is used?
a) Register Indirect addressing b) Direct addressing
c) Register addressing d) Immediate addressing

7. Why is demultiplexing required in microprocessors like 8085?
 - a) To increase memory size
 - b) To reduce clock speed
 - c) To separate address and data signals
 - d) To store instructions
8. In a system where a keyboard is assigned a port address and accessed using IN instruction, this is an example of:
 - a) I/O mapped I/O
 - b) Memory mapped I/O
 - c) Address decoding
 - d) Bus buffering
9. Which register is commonly used as a counter in block data transfer operations?
 - a) A
 - b) B
 - c) C
 - d) D
10. Which instruction is used to increment the register pair in 8085?
 - a) DCR
 - b) INX
 - c) INR
 - d) DCX
11. In serial communication using 8251, data is transmitted without clock and uses start and stop bits. Which mode is used?
 - a) Synchronous mode
 - b) Asynchronous mode
 - c) DMA mode
 - d) Interrupt mode
12. A system needs to handle multiple interrupt requests with priority control. Which chip should be used?
 - a) 8255
 - b) 8253
 - c) 8257
 - d) 8259
13. A microprocessor system requires periodic pulse generation for timing applications. Which mode of 8253 is most suitable?
 - a) Mode 0
 - b) Mode 2
 - c) Mode 4
 - d) Mode 1
14. Why are stepper motors used in interfacing systems?
 - a) For high-speed rotation only
 - b) For signal transmission
 - c) For precise step-by-step movement
 - d) For storing data
15. A system needs to display numbers from 0–9 using a PC. Which device should be interfaced?
 - a) Relay
 - b) Stepper motor
 - c) 7-segment display
 - d) EPROM

B. SHORT ANSWER QUESTIONS

(15 × 2 = 30)

1. Why are microprocessors low in cost? Give one real-life application where microprocessors are used.

(1+1)

2. Differentiate between the Address Buffer and Address/Data Buffer in the Intel 8085/8086 microprocessor.
3. In the Intel 8085, the status signals are: $IO/M' = 0$, $SI = 1$, $SO = 0$. Identify the operation and justify your answer.
4. Define Compiler and Assembler.
5. Explain in brief the working of address decoding.
6. For a 16-bit Microprocessor say like the Intel 8086. Find the total number of memory locations or the total address space.
7. Name any two data transfer instructions in 8085/8086 microprocessor and state their function.
8. What is the function of the ADD instruction in 8085/8086 microprocessor? Write its syntax.
9. Illustrate a data transfer from register B to memory location 2050H using 8085 or 8086/8088 instruction.
10. What are the types of dot matrix displays? Name any two.
11. Explain how a matrix keyboard detects a key press in a microprocessor system.
12. Why was the Motorola 6800 important in early microprocessor development?
13. A washing machine uses an embedded system. Explain how a microcontroller helps in its operation.
14. How is data transmitted in serial communication between a PC and a trainer kit?
15. A system needs to control a high-voltage device using a PC. Which interfacing component will you use? Justify your answer.

C. LONG ANSWER QUESTIONS

(10 × 3 = 30)

1. Draw and label the internal architecture of the Intel 8085 microprocessor.

OR

Draw and label the pin diagram of the Intel 8085 microprocessor

2. What are interrupts? Mention the different types of interrupts. (1+2)

OR

Write a short note on the different types of data transfer schemes.

3. Explain how a block of data is transferred from one memory location to another in 8085 or 8086/8088 assembly language using a loop.

OR

Explain how a block of data is exchanged between two memory locations in 8085 or 8086/8088 assembly language using a loop.

4. Explain how multiplication of two numbers is performed in 8085/8086 using a loop.

OR

Explain how division of two numbers is performed in 8085/8086 using a loop.

5. Illustrate how two blocks of data can be merged into a single memory area using 8085 or 8086/8088 assembly language.

OR

Illustrate how a simple search operation is performed to find a data element in a list using 8085 or 8086/8088 assembly language.

6. What is the 8255 Programmable Peripheral Interface (PPI)? State its main functions and name its ports.

(1+2)

7. Compare the 8257 and 8237 DMA controllers in terms of their features and explain how the 8237 improves over the 8257.

8. A system needs to convert a temperature signal (analog) into digital form for processing. Which conversion device is used and how does it work?

OR

A microprocessor system is connected to a seven-segment display. If the digit "5" is to be displayed, how will the segments be activated? Explain briefly.

9. Write a short note on the Intel microprocessor family.

OR

Write a short note on the Hewlett-Packard microprocessor family.

10. What is EPROM programming? List the main components and control signals involved in interfacing EPROM with a PC.

(1+2)

OR

What is LED interfacing? List the basic components required for interfacing an LED with a PC.

(1+2)

DATABASE MANAGEMENT SYSTEM

CSE/CPE-408/IT-405

Full Marks : 75 SCTE/NGL/R-2026-II

Pass Marks : 30

Time : 3 Hours

I. Multiple Choice Questions

1x10=10

1. What is defined as a collection of recorded facts that have implicit meaning?
A) Data B) Software C) Network D) Hardware
2. Which data model organizes data into tables consisting of rows and columns?
A) Network Data Model B) Relational Data Model
C) Hierarchical Data Model D) Object-Oriented Model
3. In an Entity-Relationship (E-R) diagram, what does a "Rectangle" symbol represent?
A) Attribute B) Relationship C) Entity D) Key
4. What does the acronym SQL stand for in the context of database management?
A) Simple Queue List B) System Query Logic
C) Standard Quantitative Language D) Structured Query Language
5. Which type of key is used to uniquely identify every single record within a database table?
A) Foreign Key B) Primary Key
C) Secondary Key D) Composite Key
6. Which transaction operation is used to fetch data from the database and store it in a temporary buffer in main memory?
A) Read(X) B) Write(X) C) Commit(X) D) Open(X)
7. The management procedure used to control the simultaneous execution of operations by multiple users is called:
A) Data Normalization B) Database Indexing
C) Concurrency Control D) File Processing

8. What is the process of converting sensitive data into an unreadable format to protect it from unauthorized access?
 - A) Decryption
 - B) Indexing
 - C) Validation
 - D) Encryption
9. Gaining access to a database system without proper credential authorization is referred to as:
 - A) Social Engineering
 - B) Hacking
 - C) Data Tampering
 - D) SQL Injection
10. A collection of multiple logically related databases distributed over a computer network is known as a:
 - A) Distributed Database
 - B) Centralized Database
 - C) Personal Database
 - D) Manual Database

II. Descriptive Type Questions

11. Define database. Mention the advantages of maintaining records in computerized database system over traditional system. 3
12. Explain the roles of database administrator and database designer. Mention and explain the applications of database in various sectors. 4
13. Define data model. How many different types of data model are there? List the various types of data models. 3
14. Explain the three levels of database system. Compare and contrast Relational database and NoSQL database. 4
15. Draw and explain the ER-diagram of the four types of attributes. 3
16. What is SQL? Mention the rules and guidelines of SQL syntax. 3
17. List four DDL SQL commands. Explain them with example. 5
18. List the various data types used in SQL. Explain them with suitable examples. 5
19. Write the SQL commands for the following; 6
 - a. Create organization database

- b. Create Employee_tbl(emp_id, emp_name, dob, salary, dept_id)
 - c. Create Department_tbl(dept_id, dept_name)
 - d. Insert 5 rows in Employee_tbl.
 - e. Insert 3 rows in Department tbl
 - f. Display all the contents of the two tables.
20. What is 'normalization' of a database? Explain 1NF and 2NF with suitable examples. 5
 21. With a neat diagram, elaborate on the states of transaction. 4
 22. What is lost update problem in a dbms transaction? Explain the application of lock-based protocol for addressing various problems in concurrent transactions. 4
 23. What is security violation in a database? List the three types of security violations and explain them. 3
 24. Explain granting of privileges in database. Write the syntax for granting privileges to a database user. Enumerate the types of privileges that may be granted to a database user and explain them. 4
 25. Explain the advantages of distributed databases. 4
 26. What is distributed query processing? Explain the four layers of a distributed query processing. 5

KCA CO Mapping Table

BL – Blooms Level CO – Course outcome K – Knowledge C – Comprehension
A - Application

Unit	Questions	Marks	BL/KCA	CO	Total
1	1	1	K	CO1	8
	11	3	K		
	12(a)	2	C		
	12(b)	2	A		
2	1	1	K	CO1	8
	13	3	K		
	14(a)	2	C		
	14(b)	2	A		
3	1	1	K	CO2	4
	15	3	A		
4	1	1	K	CO2	20
	16	3	K		
	17(a)	1	K		
	17(b)	4	C		
	18(a)	2	K		
	18(b)	3	C		
	19	6	A		
5	1	1	K	CO3	6
	20(a)	1	K		
	20(b)	4	C		
6	1	1	K	CO4	5
	21(a)	1	K		
	21(b)	3	C		
7	1	1	K	CO4	5
	22(a)	1	K		
	22(b)	3	A		
8	1	1	K	CO2	9
	23(a)	2	K		
	23(b)	2	C		
	24	4	A		
9	1	1	K	CO1	10
	25	4	C		
	26(a)	1	K		
	26(b)	4	A		

CSE/CPE-502/IT-501

Pass Mark : 30

Time : 3 Hours

(1X15=15)

1. Which attribute specifies where to send form data?
 - a) method
 - b) action
 - c) target
 - d) name
2. Table header is specifies using ____ Tag:
 - a) <td>
 - b) <tr>
 - c) <th>
 - d) <head>
3. Frames are defined using:
 - a) <frame>
 - b) <frameset>
 - c) <iframe>
 - d) <window>
4. Which attribute increases the distance between cell content and cell border?
 - a) cellspacing
 - b) padding
 - c) cellpadding
 - d) margin
5. Which tag is used for multi-line text input?
 - a) <input>
 - b) <textarea>
 - c) <text>
 - d) <multi>
6. Which method is more secure?
 - a) GET
 - b) POST
 - c) Both same
 - d) None
7. XML tags are:
 - a) Case insensitive
 - b) Case sensitive
 - c) Optional
 - d) Fixed
8. Which of the following is correct XML syntax?
 - a) <name>John</Name>
 - b) <name>John</name>
 - c) <name>John<name>
 - d) <name=John>

9. DTD is used to:
a) Style XML
b) Define structure of XML
c) Execute XML
d) Store data
10. XSLT uses which language?
a) SQL
b) XPath
c) Java
d) Python
11. CSS is used to:
a) Structure web pages
b) Design web pages
c) Store data
d) Create databases
12. Which symbol ends a CSS declaration?
a) . b) ; c) : d) ,
13. JavaScript is mainly used for:
a) Database management
b) Server configuration
c) Client-side scripting
d) OS development
14. Which data type is used to store multiple values?
a) String b) Number
c) Array d) Boolean
15. Which keyword is used to declare a variable in JS?
a) var b) int
c) dim d) letvar

B. Short Answer questions.

(2X12=24)

1. Write the basic structure of an HTML document.
2. Differentiate between <head> and <body>.
3. What is a hyperlink? Give example.
4. What are attributes in HTML?
5. Write HTML code to divide a webpage into multiple frames.
6. Write a simple XML document example.
7. Write the basic syntax of CSS.
8. How to set height and width in CSS?

9. Write the difference between margin and padding.
10. Define JavaScript.
11. List different JavaScript data types.
12. Explain the difference between == and ===.

C. Long Answer questions.

1. Write the HTML code to insert E-Mail address and picture on a web page. 3
2. Explain how radio button is different from checkbox. 3
3. Differentiate between ordered and unordered lists. 3
4. Differentiate between internal and external DTD. 3
5. Write the advantages of XML. 3
6. Explain XSLT with working and example. 3
7. Write a JavaScript program to declares variables of different types, initializes them, and displays their values. 3
8. Explain CSS text properties with examples. 3
9. Write an XML document to store book details (title, author, price). 4
10. Write a JavaScript program to Add two numbers using a function. 4
11. Discuss the different types of operators in JavaScript with examples. 4

Unit Wise Marks Distributions

Unit No	Question No	Marks	KCA	CO	Total Marks
1	A1, A2, A3, A4, A5, A6, B3, B4	10	K	CO1, CO2, CO3	25
	B2, C3, C2	8	C		
	B1, B5, C1	7	A		
2	A7, A8, A9, A10	4	K	CO4	19
	C4, C5	6	C		
	B6, C6, C9	9	A		
3	A11, A12, B9	4	K	CO4	11
	C8	3	C		
	B7, B8	4	A		
4	A.13, A14, A15, B10, B11	7	K	CO4	20
	B12, C11	6	C		
	C10, C7	7	A		

NETWORK ESSENTIALS

CSE/CPE-407/IT-402

Full Mark : 75

SCTE/NGL/R-2026-II

Pass Mark : 30

Time : 3 Hours.

Multiple choice questions -

(1x19=19)

1. The word "bit" is the short form of
 - A. Basic input terminal
 - B. Binary digit
 - C. Binary unit
 - D. Binary table
2. How is a single channel shared by multiple devices in a network?
 - A. Analog modulation
 - B. Digital modulation
 - C. Phase modulation
 - D. Multiplexing
3. Identify the type of transmission mode in which data can be transmitted in one direction only.
 - A. Simplex
 - B. Duplex
 - C. Half-duplex
 - D. Full-duplex
4. What is the number of bits in a standard ASCII character?
 - A. 4
 - B. 8
 - C. 16
 - D. 32
5. Identify the topology in which the entire network breakdown if one computer fails.
 - A. Bus topology
 - B. Star topology
 - C. Ring topology
 - D. Mesh topology
6. How are the nodes connected in a Star topology?
 - A. In circular ring
 - B. To a main cable (backbone)
 - C. To a central hub
 - D. In a mesh configuration
7. Which method is used for accessing the network in a Ring topology?
 - A. CSMA/CD
 - B. Token passing
 - C. Polling
 - D. ALOHA
8. Identify the layer associated with error detection and correction.
 - A. Network Layer
 - B. Transport Layer
 - C. Data Link Layer
 - D. Application Layer
9. E-mail service is provided by which layer?
 - A. Physical layer
 - B. Presentation layer
 - C. Session layer
 - D. Application layer

10. Which layer falls between Presentation layer and Transport layer?
- A. Physical layer
 - B. Data Link Layer
 - C. Session layer
 - D. Application layer
11. Identify the functions of the Presentation layer?
- A. Error detection and correction
 - B. Flow control and error control
 - C. Encryption and compression
 - D. Synchronization of bits
12. Which layer deals with electrical specifications of the interface and transmission media?
- A. Transport layer
 - B. Network layer
 - C. Data Link layer
 - D. Physical layer
13. What is the main purpose of VLAN?
- A. To increase internet speed
 - B. To reduce hardware cost
 - C. To logically segment networks for security and efficiency
 - D. To replace routers
14. TCP/IP model was developed the OSI model.
- A. After
 - B. Prior to
 - C. Simultaneous to
 - D. None of the above
15. Identify the first network which was based on TCP/IP protocol.
- A. NSFNET
 - B. ASAPNET
 - C. ARPANET
 - D. CNNET
16. What is the role of the Internet layer in the TCP/IP model.
- A. Manages end-to-end data communication sessions
 - B. Routes packets across networks
 - C. Format data packets
 - D. Encode and decode data
17. How long is an IPv6 address?
- A. 16 bit
 - B. 32 bit
 - C. 64 bit
 - D. 128 bit
18. Identify the main function of a firewall?
- A. To speed up the network
 - B. To filter incoming and outgoing traffic
 - C. To increase network capacity
 - D. To connect different networks

19. Which of the following is true about the Internet and WWW?

- A. Internet and WWW are the same
- B. WWW is a service that runs on the Internet
- C. WWW is hardware, Internet is software
- D. WWW is older than the Internet

B. Short answer questions –

(2x10=20)

1. Differentiate between adhoc and infrastructure mode of WLAN.
2. What is the primary function of a network switch?
3. Differentiate between Store-and-Forward and Cut-Through switching
4. What is inter VLAN routing, and why is it necessary?
5. What is LAN architecture?
6. Differentiate between IPv4 and IPv6.
7. How does a VPN work to provide secure network communications?
8. Define the term authentication.
9. What is DNS?
10. Write the full form of HTML and XML.

C. Long answer questions –

(6x6=36)

1. Explain Frequency division multiplexing (FDM) and Time division multiplexing (TDM).
2. Illustrate with diagram the hierarchical network topology and explain in brief the three layers.
3. Explain the functions of any three layers of the OSI reference model.
4. Compare and contrast TCP/IP model and OSI model with the help of diagram.
5. Explain in brief the four layers TCP/IP architecture.
6. Explain in brief data confidentiality, data integrity and non-repudiation.

Marks Distribution

Question No.	Unit	K	C	A	Total Marks	Course Outcome
A-1, 4	1	2			10	CO1
C-1			6			CO2
A-2, 3				2		CO1
A-5, 6	2			2	11	CO2
A-7, B-1		3				CO2
C-2			6			CO1
A-8, 9, 11	3			3	11	CO3
A-10, 12		2				CO3
C-3			6			CO3
A-13	4			1	9	CO4
B-2, 5		4				CO4
B-3, 4			4			CO4
A-14, C-5	5	7			18	CO3
A-15,16,17, B-6			5			CO3
C-4				6		CO4
A-18, B-7	6			3	11	CO1
B-8		2				CO1
C-6			6			CO1
A-19	7			1	5	CO1
B-9			2			CO1
B-10		2				CO1
					75	