Question Bank on NLP, COA, ITB



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Question Bank On NLP, COA, ITB

NATURAL LANGUAGE PROCESSING UNIT I

ONE MARKS:

What is full form of NLP?
 a.Natural Language Processing
 c.Natural Language Process

b. Nature Language processingd.Natural Language pages

2. What is the field of Natural Language Processing (NLP)?
a. Computer Science
b. Artificial Intelligence
c. Linguistics
d. All of the mentioned

3. What are the input and output of an NLP system?
a. Speech and noise
b. Speech and Written Text
c. Noise and Written Text
d. Noise and value

4. Choose form the following areas where NLP can be useful.

- a. Automatic Text Summarization
- c. Linguistics d. All of the mentioned
- **5.** What is the primary goal of syntax in Natural Language Processing (NLP)?
 - a. Sentiment analysis b. Speech recognition
 - c.Understanding the structure d. NamedEntity Recognition

& relationships of words

in a sentence

6. Which of the following NLP tasks is most closely associated with

syntax?

- a. Part-of-speech tagging b. Text summarization
- c. Topic modeling
- d. Word embedding

7. What does a syntactic parser do in NLP?

- a. Extract named entities from a text
- b.Identify the sentiment of a sentences
- c. Analyze the grammatical structure & relationships between words in a sentence
- d. Generate human-like text based on input prompts
- 8. What is the main focus of semantics in NLP?
 - a. Identifying parts of speech
 - b. Extracting named entities
 - c. Understanding the meaning of words and sentences
 - d. Detecting sentiment in text
- **9.** Which NLP task is most concerned with capturing the meaning and relationships between words in a sentence?
 - a. Named Entity Recognition b. Sentiment analysis
 - c. Word sense disambiguation d. Part-of-speech tagging

10. What does distributional semantics aim to capture?

- a. Syntactic structure of sentences
- b. The frequency of words in sentences document
- c. Word meanings based on their distributional patterns in a large corpus
 - d. Named entities in a given text
- **11.** Which NLP task is most closely associated with analyzing the contextual use of language to derive meaning?
 - a. Named Entity Recognition b.Sentiment Analysis
 - c. Pragmatic Analysis d. Part-of-Speech Tagging
- 12. What is the primary goal of discourse analysis in NLP?
 - a. Identifying sentiment in a text
 - b. Extracting entity from a document
 - c. Understanding the structure & flow of a conversation or written text
 - d. Analyzing syntactic structures in sentences
- **13.** In the context of NLP, what does presupposition resolution aim to address?
 - a. Determining the sentiment of a text
 - b. Identifying named entities of a text
 - c. Resolving assumptions or background beliefs that are taken for granted in a given statement
 - d. Analyzing the grammatical structure of sentences

14. Which of the following is a customer support and service?	common application of NLP in		
a. Image recognition	b. Sentiment Analysis		
c. Database management	d. Network security		
15. What NLP application is used to extract information such as names, organizations, and locations from a given text?			
a. Sentiment Analysis	b. Named entity recognition		
c. Machine translation	d. Text summarization		
16. In healthcare, what is a potential	application of NLP?		
a. Weather prediction	b. Video game development		
c. Disease diagnosis from medical Records	d. Social media analytics		
17. How does machine learning performance of NLP tasks?	contribute to improving the		
a By creating new programmin	ng languages		
 b. By automating manual data programming languages entry tasks 			
c. By learning patterns and relationships from data to make predictions			
d. By enhancing computer hard	ware capabilities		
18. What is the term used to des machine learning model on language patterns?	cribe the process of training a a large dataset to understand		

- a. Data pre-processing
- b.Word embedding
- c. Feature engineering
- d. Supervised learning
- **19.** In the context of NLP, what is a common type of machine learning algorithm used for text classification tasks, such as spam detection or sentiment analysis?
 - a. Decision trees
 - b. Support vector machines
 - c. Convolutional Neural Networks (CNN)
 - d. Naive Bayes classifiers
- 20. In the context of NLP, what is the purpose of using probability?
 - a. To determine the length of a text document patterns
 - b. To assign likelihood values to different language
 - c. To control the speed of machine learning algorithms
 - d. To identify syntactic errors in sentences
- **21.** Which probability distribution is commonly used in NLP for modeling the likelihood of a sequence of events?
 - a. Uniform distribution b Gaussian distribution
 - c. Poisson distribution d. Conditional probability
 - distribution
- **22.** Which information theory concept is commonly used to measure the uncertainty or surprise associated with an event in NLP?
 - a. Mean Squared Error (MSE) b. Cross-Entropy

c. Euclidean Distance coefficient d. Pearson Correlation

23. What is the term used to describe the phenomenon where certain words tend to occur together more frequently than would be expected by chance in a given language?

a. Lemmatizationb Collocationd Tokenization

24. In the context of N-gram models, what does "N" represent?

- a. The number of sentences in the corpus.
- b. The number of words in a sentence.
- c. The size of the vocabulary.
- d. The number of consecutive words considered as a unit in the model.

25. What is the main limitation of higher-order N-gram models (e.g., trigrams or higher) in language modeling?

- a. computationally expensive to train.
- b. suffers from the curse of dimensionality.
- c. prone to overfitting on small datasets.
- d. cannot capture contextual information.
- **26.** In the context of language modeling, why is smoothing applied to handle unseen n-grams?
 - a. To increase computational efficiency of the language mode
 - b. To reduce the overall complexity of the model.
 - c. To assign zero probability to unseen n-grams.

- d. To redistribute probability mass to unseen n-grams while preserving some
- 27. What is the purpose of parameter estimation in N-gram models?
 - a. To assign equal probabilities to all n-grams in the training data
 - b. To minimize the likelihood of observed n-grams in the training data.
 - c. To determine the optimal size of the n-gram window.
 - d. To calculate the probabilities of n-grams based on their frequency in the training data.
- **28.** What is perplexity commonly used for when evaluating language models in NLP?
 - a. Measuring the speed of language model training.
 - b. Assessing the overall Complexity of the language model.
 - c. Evaluating the predictive power and uncertainty of a language model on a given dataset.
 - d. Calculating the number of parameters in the language model.
- **29.** When evaluating language models, what is the primary goal of using a held-out test set?
 - a. To check the language model's performance on generalization to unseen familiar data.
 - b. To estimate the model's generalization to unseen data.

- c. To fine-tune the model based on additional training data.
- d. To assess the model's efficiency in terms of computation.
- **30.** In the context of language model evaluation, what does BLEU (Bilingual Evaluation Understudy) measure?
 - a. The diversity of vocabulary used by the language model.
 - b. The syntactic structure of Generated sentences.
 - c. The fluency and coherence of generated text.
 - d. The quality of machine-Generated translations by comparing them to reference translations.

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Answers:	100AC	200
1. a	11. c	21. d
2. d	12. c	22. b
3. b	13. c	23. b
4. d	14. b	24. d
5. a	15. b	25. b
6. a	16. c	26. d
7. c	17. c	27. d
8. c	18. b	28. c
9. c	19. d	29. b
10. c	20. b	30. d

TWO MARKS:

- **1.** What is NLP?
- **2.** How does a parse tree represent the syntactic structure of asentence?
- **3.** Define lexical semantics and give an example of how it influences sentence meaning.
- **4.** How does coreference resolution contribute to pragmatic understanding in NLP?
- **5.** How does the lack of interpretability pose challenges in the deployment of NLP systems?
- 6. Discuss the applications of chatbots in customer service and support.
- 7. How does unsupervised learning contribute to NLP tasks like clustering and topic modeling?
- 8. Define the concept of probability and its application in language modeling.
- 9. Define entropy in the context of information theory.
- **10.** Define the term "collocation" and provide an example of collocation in a sentence.
- **11.** What is the significance of the Markov assumption in N-gram language modeling?
- **12.** Define parameter estimation in the context of NLP and why it is necessary.
- **13.** What is perplexity, and how is it used to evaluate the performance of language models?

FIVE MARKS

- 1. Discuss about NLP tasks in Syntax.
- 2. Describe NLP tasks in Semantics.
- **3.** Write notes on NLP tasks in Pragmatics.
- 4. Discuss about the issues of NLP.
- 5. Describe the applications of NLP.
- 6. Describe the role of machine learning in NLP.
- 7. Discuss about Probability Basics.
- 8. Write notes on Information Theory in NLP.
- 9. Describe Collocations.
- 10. Write notes on N-Gram language models.
- 11. Discuss about Estimating Parameters and Smoothing.
- 12. Describe how to evaluate Language models.

TEN MARKS:

- 1. Explain NLP tasks in Syntax and Semantics.
- 2. Describe NLP tasks in Semantics and Pragmatics.
- 3. Explain NLP tasks in Syntax and Pragmatics.
- 4. Explain the issues and applications of NLP.
- 5. Write a brief note on Machine Learning.
- 6. Explain about Probability Basics in NLP.
- 7. Explain about Information theory and Collocations.
- 8. Explain N-gram Language Models.
- 9. Explain about Estimating Parameters and Smoothing in NLP.
- 10. Explain about Evaluating Language Models.

UNIT II

ONE MARKS:

- **1.** What is the term for a word that has the opposite meaning of another word?
 - a. Synonymb. Homonymc. Antonymd. Homophone
- 2. Which of the following best describes the process of breaking down a word into its smallest meaningful units, such as prefixes, roots, and suffixes?
 - a. Syntax analysis b. Morphological analysis
 - c. Semantic analysis d. Phonemic analysis
- 3. What is the primary purpose of using regular expressions in NLP?
 - a. Representing hierarchical structures
 - b. Pattern matching and text manipulation
 - c. Speech recognition
 - d. Sentiment analysis
- **4.** In regular expressions, what does the symbol '^' typically represent?
 - a. End of a line b. Start of a line
 - c. Any character d. Zero or more occurrences
- 5. Which regular expression quantifier represents zero or more

occurrences of the preceding character or group? a. * b. + c. ? d. {n,m}

- 6. What is the primary advantage of using Finite-State Automata (FSA) in NLP?
 - a. Handling context-free grammars
 - b. Efficient modeling of regular languages
 - c. Managing semantic ambiguity
 - d. Supporting deep learning algorithms
- 7. In the context of NLP and Finite-State Automata, what do states represent?
 - a. Individual words in a sentence
 - b. Syntactic structures
 - c. Possible conditions or positions in a process
 - d. Semantic roles
- **8.** Which of the following is a common application of Finite-State Automata in NLP?
 - a. Machine translation
- b. Part-of-speech tagging
- c. Speech recognition
- d. Semantic parsing words and sentences
- **9.** What is the main goal of morphological parsing in NLP? a. Identifying syntactic structures

- b. Analyzing the meaning of sentences
- c. Decomposing words into their Morphemes
- d. Assigning sentiment to text
- **10.** Which of the following is a typical unit of analysis in morphological parsing?
 - a. Sentences b. Words
 - c. Paragraphs d. Documents
- 11. In morphological parsing, what is a morpheme?a. A type of part-of-speechb. The smallest unit of meaning in a word

c. A syntactic structure d. A complex sentence

- **12.** What is the primary purpose of spelling error detection and correction in NLP?
 - a. Improving sentence structure
 - b. Enhancing semantic analysis
 - c. Ensuring grammatical correctness
 - d. Fixing inaccuracies in written text
- **13.** Which NLP technique is commonly used for spelling error detection and correction?
 - a. Sentiment analysis b. Named entity recognition
 - c. Phonetics-based approaches d. Morphological parsing
- 14. What is a common challenge in spelling error detection and

correction that can be addressed using context-based methods?

- a. Homonym confusion
- b. Phonemic variations
- c. Syntactic ambiguity
- d. Semantic drift

15. In NLP, what is the term for the smallest unit of meaning in a language that can stand alone?

a. Morpheme b. Syntactic unit

c. Lexeme d. Sememe

16. Which of the following word classes typically includes words that represent actions, events, or states?

- a. Nouns
- c. Verbs

b. Adjectives

d. Pronouns

17. What is the primary function of adjectives in a sentence?

- a. Expressing actions or events
- b. Modifying nouns or pronouns
- c. Connecting clauses
- d. Indicating location
- **18.** What is the main purpose of Part-of-Speech (POS) tagging in NLP?
 - a. Identifying sentiment in text
 - b. Recognizing the structure of sentences
 - c. Extracting named entities
 - d. Assigning grammatical categories to words

19. Which of the following is a common part-of-speech category that includes words like "dog," "cat," and "house"?

- a. Verb b. Adjective
- c. Noun

- d. Adverb
- **20.** What does the term "tagging" refer to in Part-of-Speech tagging?
 - a. Assigning labels or categories to words
 - b. Removing unnecessary words from a text
 - c. Combining words into phrases
 - d. Translating text from one language to another
- **21.** Which NLP technique is commonly used for syntactic analysis to represent the hierarchical structure of sentences?
 - a. Named Entity Recognition b. Part-of-Speech Tagging
 - c. Dependency Parsing d. Sentiment Analysis

22. What is Context-free Grammar (CFG) primarily used for in NLP?

- a. Tokenization b. Syntactic analysis
- c. Sentiment analysis d. Named entity recognition
- **23.** Which of the following represents a production rule in Context-free Grammar?

a. $A \rightarrow B$	b. A * B
A + B	d. $A = B$

Department of Computer Science

15

24. In the context of Context-free Grammar, what does a non-terminal symbol represent?

- a. A symbol that cannot be expanded further.
- b. A symbol that can be replaced sequence of terminal by symbols
- c. A punctuation mark
- d. A reserved keyword
- 25. What is the main goal of Constituency Parsing in NLP?
 - a. Identifying named entities
 - b. Recognizing part-of-speech tags
 - c. Analyzing the hierarchical structure of Sentences
 - d. Extracting sentiment from text

26. Which data structure is commonly used to represent the output of a constituency parser?

- a. Dependency tree b. Parse tree
- c. Linked list

- d. Hash table
- 27. What does a constituent represent in Constituency Parsing?
 - a. A type of part-of-speech
 - b. A sequence of words that functions as a single unit
 - c. An entity in a sentence
 - d. A sentiment category
- **28.** What is the main advantage of using Probabilistic Parsing in NLP?

- a. Improved runtime efficiency
- b. Enhanced accuracy by considering multiple possible parses
- c. Reduced memory consumption
- d. Simplicity in implementation
- 29. In Probabilistic Parsing, what do the probabilities associated with different parses indicate?
 - a. Execution time
 - b. Likelihood of a parse being correct
 - c. Number of rules in the
 - d. Length of the parse tree grammar
- 30. Which statistical model is commonly used in Probabilistic Parsing to estimate the likelihood of different parses?
 - a. Linear regression b. Hidden Markov Model
 - c. Naive Bayes

d. Maximum Entropy Model

Answers:		11
1. c	11. b	21. c
2. b	12. d	22. b
3. b	13. c	23. a
4. b	14. a	24. b
5. a	15. a	25. c
6. b	16. c	26. b
7. c	17. b	27. b
8. b	18. d	28. b

9. c	19. c	29. b
10. b	20. a	30. D

TWO MARKS:

- 1. Define the term "morpheme" and provide an example.
- 2. What is the difference between a synonym and an antonym, and provide an example for each.
- **3.** Define regular expressions (regex) and their significance in Natural Language Processing (NLP).
- **4.** Provide an example of how a regular expression can be used in NLP for text pattern matching.
- 5. Define Finite-State Automaton (FSA).
- **6.** How can a Finite-State Automaton be applied in the context of tokenization in Natural Language Processing?
- 7. Provide an example of how morphological parsing can be applied in NLP for word analysis.
- 8. Define the concept of spelling error detection in Natural Language Processing (NLP) and give its importance.
- 9. Define Part-of-Speech (POS) tagging
- **10.** Provide an example of how Part-of-Speech tagging can aid in language understanding.
- 11. Define Context-Free Grammar (CFG).
- **12.** What is Constituency Parsing?
- **13.** What is Probabilistic Parsing?

FIVE MARKS

- 1. Explain about role of regular expression in NLP.
- 2. Write short notes on components of regular expression.
- **3.** Discuss the concept of regular languages and their connection to Finite-State Automata. Provide an example of a regular language relevant to NLP.
- **4.** Explain how Finite-State Automata can be used for tokenization in NLP. Provide a simple example to illustrate the tokenization process using FSA.
- 5. Describe Morphological Parsing.
- 6. Write about Spelling Error Detection and correction.
- 7. Write short notes on Words and Word Classes.
- 8. Describe Part-of Speech Tagging.
- 9. Write about Context Free Grammar.
- 10. Discuss about Constituency Parsing.
- 11. Write short notes on Probabilistic Parsing.

TEN MARKS

- 1. Describe Word Level Analysis.
- 2. Explain regular expressions in detail.
- 3. Explain about Finite State Automata.
- 4. Explain about non-FSA.
- 5. Briefly write notes on Morphological Parsing.
- 6. Explain about Spelling Error Detection and correction.
- 7. Explain about Part-of Speech Tagging.

- 8. Explain about Context Free Grammar.
- 9. Explain about Constituency and Probabilistic Parsing.



UNIT III

ONE MARKS

- **1.** Which of the following best defines semantic analysis in natural language processing (NLP)?
 - a. Identifying the structure and grammar of a sentence
 - b. Assigning sentiment to a given text
 - c. Extracting meaning and context from Language
 - d. Analyzing the frequency of words in a document
- 2. In semantic analysis, what is the purpose of entity recognition?
 - a. Detecting the tone of a text
 - b. Identifying and categorizing specific named elements in text
 - c. Assessing the grammar and syntax of a sentence
 - d. Measuring the readability score of a document
- **3.** Which technique in semantic analysis is used for understanding relationships between words in a text?
 - a. Named entity recognition b. Sentiment analysis
 - c. Word embeddings d.Part-of-speech tagging (POS)
- **4.** Which of the following tasks is NOT typically associated with semantic analysis?
 - a. Sentiment analysis b. Syntax parsing

- c. Named entity recognition d. Word sense disambiguation
- **5.** Which method is commonly used for representing words in a vector space for semantic analysis?
 - a. One-hot encoding b. Bag-of-words (BoW)
 - c. Word embeddings
- d. Term Frequency-Inverse Document Frequency

6. What does Word2Vec primarily aim to achieve in semantic analysis?

a. Identifying word frequency in a corpus

b. Assigning a numerical value to the text importance of each word

c. Capturing semantic relationships and word relationships and word similarities

d. Analyzing the syntactic structure of sentences

- 7. What does a syntactic parser do in NLP?
 - a. Extract named entities from a text
 - b. Identify the sentiment of a sentence
 - c. Analyze the grammatical structure & relationships structure& relationships between words in a sentence
 - d. Generate human-like text based on input prompts
- 8. Which approach is used to capture contextual meaning by

considering the surrounding words in semantic analysis?

- a. Latent Semantic Analysis
- b. Singular Value Decomposition
- c. Word2Vec
- d. Bag-of-Words (BoW)
- 9. Which aspect of language does lexical semantics primarily focus on?
 - a. The grammatical structure sentences
 - b.The interpretation and of sentences meaning of individual words
 - c. The emotional tone conveyed in a text
 - d. The syntactic relationships between Words
- 10. What does Polysemy refer to in lexical semantics?
 - a. Words with multiple meanings
 - b. Words with a single, clear meaning
 - c. Words that are not commonly used
 - d. Words that have evolved in recent years
- **11.** Which lexical semantic phenomenon refers to a word's opposite meaning or contradictory sense?
 - a. Synonyms b. Antonyms
 - c. Homonyms d. Hyponyms
- **12.** Which NLP technique aims to disambiguate between the different possible interpretations of a sentence or phrase?

Department of Computer Science

23

- a. Named Entity Recognition b. Part-of-Speech Tagging
- c. Sentiment Analysis d. Semantic Role Labeling
- **13.** What challenge does syntactic ambiguity pose in natural language processing?
 - a. Difficulty in identifying the subject of a sentence
 - b. Complexity in determining the emotional tone of a text
 - c. Ambiguity arising from the structure of a sentence
 - d. Identifying specific named entities in a text
- 14. What is the primary objective of Word Sense Disambiguation (WSD) in Natural Language Processing (NLP)?
 - a. Assigning a sentiment score to a given text
 - b. Identifying the frequency of words in a document
 - c. Resolving ambiguity by determining the correct meaning of a word in context
 - d. Recognizing the grammatical structure of a sentence
- **15.** Which method is commonly used in Word Sense Disambiguation to disambiguate between different word senses?
 - a. Contextual analysis
 - b. Statistical machine learning algorithms
 - c. Rule-based systems
 - d. Semantic networks

- 16. What is the main challenge in Word Sense Disambiguation?
 - a. Limited availability of annotated training data
 - b. Ambiguity only exists in rare cases
 - c. Easy application due to well-defined Word senses
 - d. Context doesn't play a significant role in disambiguation.
- 17. What is the primary goal of discourse analysis in NLP?
 - a. Identifying individual words in a Sentence
 - b. Parsing the grammatical structure of a paragraph
 - c. Understanding the relationship and organization of text beyond sentence Boundaries
 - d. Extracting entities from a given document
- 18. Which NLP technique is commonly used to identify discourse relations between sentences in a text?
 - a. Named Entity Recognition b.Part-of-Speech Tagging
 - c. Coreference Resolution d. Discourse Parsing
- 19. Which aspect of discourse processing involves resolving references to the same entity mentioned earlier in a text?
 - a. Sentence segmentation b. Coherence modeling
 - c. Anaphora resolution d. Semantic role labeling
- **20.** In NLP, cohesion refers to:
 - a. The grammatical correctness of a Sentence.
 - b. The ability of a model to generate diverse text
 - c. The flow of ideas and connections within a text.
 - d. The identification of named entities in a document.

- **21.** Which technique in NLP is commonly used to enhance cohesion in text generation models by ensuring continuity and coherence?
 - a. Entity Recognition
- b. Latent Dirichlet Allocation
- c. Word Embeddings d. Recurrent Neural Networks
- 22. What does lexical cohesion in NLP primarily focus on?
 - a. Grammar and syntax of sentences
 - b. Relationships between words and phrases within a text
 - c. Semantic similarity between documents
 - d. Sentiment analysis in social media text
- 23. What does reference resolution in NLP refer to?
 - a. Identifying and resolving pronouns and Noun phrase to their antecedents.
 - b. Determining the sentiment of a text.
 - c. Analyzing syntactic structures in a Sentence.
 - d. Translating text from one language to another.
- **24.** Which technique is commonly used for reference resolution in NLP?
 - a. Supervised learning algorithms.
 - b. Sentiment analysis.
 - c . Part-of-speech tagging.
 - d. coreference resolution model like neural networks.
- **25.** What is the primary challenge in reference resolution?

- a. Identifying complex sentences.
- b. Resolving ambiguous references.
- c. Tokenizing the text.
- d. Identifying subject-verb agreement.
- **26.** What does Discourse Coherence refer to in Natural Language Processing?
 - a. The grammatical correctness of a sentence
 - b. The flow of ideas and connection between sentences or utterances.
 - c. The extraction of named entities from text.
 - d. The identification of synonyms in a text corpus.
- 27. What is the primary goal of discourse coherence in NLP?
 - a. Enhancing individual sentence clarity and flow
 - b. Improving document-level understanding
 - c. Minimizing word count in
 - d. Maximizing lexical diversity text
- **28.** Which of the following is a common method used for discourse coherence modeling in NLP?
 - a. Random word generation b. Sentiment analysis
 - c. Latent Semantic Analysis d. Text summarization
- **29.** Which of the following is a challenge in discourse coherence that can be addressed through NLP techniques?
 - a. Increasing the font size for better readability in a document

- b. Reducing the number of paragraphs
- c. Handling ambiguous pronouns and references
- d. Using a wider variety of font styles
- **30.** What is the purpose of discourse markers in improving discourse coherence?
 - a. They add complexity to the sentences
 - b. They provide information about named entities.
 - c. They signal relationships between Sentences and help guide the reader
 - d. They are used for sentiment analysis.

Answers:

11. b	21. d
12. b	22. b
13. c	23. a
14. c	24. d
15. b	25. b
16. a	26. b
17. c	27. b
18. d	28. c
19. c	29. c
20. c	30. c
	11. b 12. b 13. c 14. c 15. b 16. a 17. c 18. d 19. c 20. c

TWO MARKS

- 1. Define semantic analysis in the context of NLP
- **2.** What is the significance of semantic analysis in language understanding?
- 3. How does Semantic Analysis contribute to disambiguating word meanings in NLP? Provide a concise example to illustrate its importance.
- 4. How vector space models used in the representation of Semantic Analysis in NLP?
- 5. Define lexical semantics.
- 6. provide an example illustrating Lexical Analysis importance.
- 7. Define lexical ambiguity.
- 8. provide an example to illustrate Ambiguity occurrence.
- 9. What is the challenge of syntactic ambiguity in NLP
- 10. Define Word Sense Disambiguation(WSD).
- 11. why WSD is essential for language processing tasks.
- 12. What is Discourse Coherence?

FIVE MARKS

- 1. Write about Semantic Analysis.
- 2. Describe Meaning of Semantic Analysis.
- 3. Discuss about the representation of Semantic Analysis.
- 4. Write short notes on Lexical Semantics.
- 5. Write about Ambiguity.
- 6. Write about Word Sense Disambiguation.

- 7. Describe Discourse processing.
- 8. Explain about Cohesion in NLP with an example.
- 9. Write about Reference Resolution.
- 10. Describe Discourse Coherence.

TEN MARKS

- 1. Briefly write notes on Semantic Analysis.
- 2. Explain about Meaning and Representation of Semantic Analysis.
- 3. Explain Lexical Semantics in detail.
- 4. Describe Ambiguity and Word Sense Disambiguation.
- 5. Explain Discourse Processing in detail.
- 6. Explain Cohesion and Reference Resolution in detail.
- 7. Explain Discourse Coherence and Structure in Detail.

UNIT IV

ONE MARKS

- **1.** What is the primary purpose of the planning module in the architecture of an NLG system?
 - a. Generating surface forms of sentences.
 - b. Deciding the content and structure of the generated text.
 - c. Handling syntactic and morphological Rules
 - d. Converting input data into a suitable format for NLG.
- 2. Which module in the NLG system architecture is responsible for transforming abstract meaning representations into grammatical structures?
 - a. Realization module.
 - b. Planning module.
 - c. Content Determination module.
 - d. Lexicalization module.
- **3.** What is the role of the microplanning module in NLG system architecture?
 - a. Deciding the overall content and structure of the text.
 - b. Transforming abstract Meaning representations into surface forms.
 - c. Generating detailed syntactic& morphological structures.
 - d. Handling input data preprocessing.

- 4. Which component is responsible for selecting appropriate words and phrases to express the intended meaning in the NLG system architecture?
 - a. Planning module.
 - b. Lexicalization module.

c. Realization module.

- d. Content Determination module.
- 5. Which of the following is a common NLG task that involves generating a human-like summary of a document or set of documents?
 - a. Named Entity Recognition b.Sentiment Analysis
 - c. Text Summarization d. Part-of-Speech Tagging

6. In NLG, what task involves generating coherent and contextually appropriate responses to user queries in a conversational system?

- a. Machine Translation b. Dialogue Generation
- c. Semantic Role Labeling d. Word Sense Disambiguation
- 7. Which NLG task is concerned with converting structured data into natural language text?
 - a. Speech Recognition b. Information Retrieval
 - c. Data-to-Text Generation
- d. Coreference Resolution

- **8.** What is a common approach for representing structured information in NLG?
 - a. Vector space models b. Ontologies
 - c. Named Entity Recognition d. Sentiment Analysis
- **9.** Which type of representation is often used to capture the meaning of words and their relationships in NLG tasks?
 - a. Syntax-based representation b. Ontological representation
 - c. Vector space models <u>d. Rule-based representation</u>
- 10. In NLG, what role do templates play in representation?
 - a. Templates are not used in NLG.
 - b. Templates define the rules for Syntactic Analysis.
 - c. Templates provide a structured way to generate structured way to generate natural language text by filling in placeholders.
 - d. Templates are used for named entity recognition.
- **11.** Which NLP application often relies on NLG to convert raw data into human-readable narratives or reports?
 - a. Named Entity Recognition b. Text Summarization
 - c. Sentiment Analysis d. Part-of-Speech Tagging
- 12. In which scenario would NLG be most beneficial?
 - a. Recognizing entities in a sentence.
 - b. Converting spoken language to written text.
 - c. Determining the sentiment of a user's review.

d. Identifying the grammatical structure of a sentence

13. What NLG application involves automatically generating descriptive and explanatory text based on structured data?

- a. Dialogue Generation b. Data-to-Text Generation
- c. Machine Translation d. Semantic Role Labeling

14. What is the primary goal of Machine Translation (MT) in NLP?

- a. Speech Recognition b. Text Summarization
- c. Translating text from one d. Sentiment Analysis language to another

15. Which approach is commonly used in statistical machine translation models?

- a. Rule-based b. Neural Networks
- c. Genetic Algorithms

d. Markov Models

- **16.** In Neural Machine Translation (NMT), what is the typical architecture used for translating sequences of words?
 - a. Feedforward Neural Network
 - b. Recurrent Neural Network (RNN)
 - c. Convolutional Neural Network (CNN)
 - d. Transformer
- **17.** Which of the following is a common challenge in Machine Translation that arises due to differences in word order and
sentence structure between languages?

- a. Lexical Ambiguity b. Morphological Variation
- c. Syntactic Divergence

- d. Named Entity Recognition
- 18. What is the term for the phenomenon in Machine Translation where a single word in the source language may have multiple possible translations in the target language, leading to uncertainty?
 - a. Polysemy
 - c. Homonymy

b. Ambiguity d. Synonymy

- 19. Which aspect of translation difficulty involves the challenge of accurately capturing the cultural and contextual nuances of a source text in the target language?
 - a. Lexical Variation b. Cultural Idioms
 - c. Ambiguity Resolution d. Domain Adaptation
- 20. What is a common characteristic of Indian languages that poses a challenge in Natural Language Processing tasks such as Machine Translation?
 - a. Lack of linguistic diversity
 - b. Uniform grammatical structures
 - c. Limited vocabulary size
 - d. Morphological complexity
- 21. Which linguistic feature in many Indian languages makes Named Entity Recognition challenging in NLP?

- a. Lack of proper nouns
- b Frequent use of acronyms
- c. Rich inflectional morphology
- d. Consistent word order.
- **22.** In the context of Indian languages, what is a significant challenge for speech recognition systems?
 - a. Consistent pronunciation across regions
 - b Limited phonetic variations
 - c. Code-switching and diglossia
 - d. Homogeneous accent patterns
- **23.** Which traditional approach to Machine Translation relies on linguistic rules and dictionaries to generate translations?
 - a. Statistical Machine translation.
 - b. Neural Machine Translation.
 - c. Rule-based Machine Translation
 - d. Transfer-based Machine Translation.
- 24. What is the primary advantage of Statistical Machine Translation (SMT) over Rule-based Machine Translation (RBMT)?
 - a. Better handling of morphological Variations
 - b. Ability to learn from large bilingual corpora
 - c. Improved real-time translation.
 - d. Simplicity in rule creation.

- **25.** In Neural Machine Translation (NMT), what type of neural network architecture is commonly used to process and generate translations?
 - a. Recurrent Neural Network
 - b. Convolutional Neural Network
 - c. Long Short-Term Memory
 - d. Transformer
- **26.** What is a key limitation of Rule-based Machine Translation (RBMT) systems?
 - a. Dependency on large parallel corpora
 - b. Limited ability to handle syntax and semantics
 - c. Inability to adapt to new language pairs
 - d. High computational complexity
- 27. Which Machine Translation approach has gained prominence in recent years and is known for its parallel processing capabilities and attention mechanisms?
 - a. Statistical Machine Translation
 - b. Neural Machine Translation
 - c. Rule-based Machine Translation
 - d. Transfer-based Machine Translation
- **28.** In the context of Indian languages, what is a common issue that arises in Machine Translation due to the existence of multiple scripts and writing systems?
 - a. Ambiguity in translation

- b. Lack of parallel corpora
- c. Difficulty in script conversion
- d. Consistent pronunciation patterns
- **29.** Which linguistic feature poses a challenge in the translation of Indian languages, particularly when dealing with named entities such as people, places, and organizations?
 - a. Lack of proper nouns
 - b. Frequent use of acronyms
 - c. Rich inflectional morphology
 - d. Consistent word order.
- **30.** In the translation of Indian languages, what term describes the practice of mixing multiple languages within the same sentence or discourse?
 - a. Syncretism
 - c. Code-switching

b. Diglossiad. Polyglotism

Answers:

1.	b	11. c	21. c
2.	a	12. b	22. c
3.	c	13. b	23. c
4.	b	14. c	24. b
5.	c	15. b	25. d
6.	b	16. d	26. b
7.	с	17. c	27. b
8.	b	18. a	28. c
9.	с	19. b	29. a

10. c 20. d 30. c

TWO MARKS

- **1.** What are the key components of the architecture of NLG systems?
- 2. What is the role of linguistic representations in NLG systems?
- **3.** How do linguistic representations contribute to the generation of natural language text?
- **4.** How does polysemy pose a challenge in accurately translating text between languages?
- **5.** Outline two characteristics of Indian languages that make Machine Translation challenging.
- 6. Provide an example of an application where Natural Language Generation (NLG) is commonly used.
- 7. How has the Transformer model improved translation performance?
- **8.** How can advanced Machine Translation models address or mitigate this challenge?
- 9. What are the applications of NLG?

FIVE MARKS

- 1. Provide a brief overview of the generation tasks they perform.
- 2. Discuss the role of linguistic representations in NLG systems.
- 3. Compare and contrast symbolic and statistical representations in

the context of NLG.

- **4.** Identify and elaborate on one syntactic challenge in Machine Translation.
- **5.** Compare and contrast the approaches of Rule-based Machine Translation (RBMT) and Neural Machine Translation (NMT) in the context of translating Indian languages.
- 6. Discuss the significance of NLG in data storytelling.
- 7. Discuss one specific challenge encountered in the translation involving Indian languages.
- 8. Propose strategies to address and incorporate cultural context in the translation process.
- **9.** Explore the role of Natural Language Generation (NLG) in the field of healthcare.
- **10.** Identify and elaborate on three characteristics specific to Indian languages that pose challenges for Machine Translation.

TEN MARKS

- **1.** Explain the key components of the architecture of Natural Language Generation (NLG) systems.
- **2.** Discuss how NLG systems handle various generation tasks such as summarization, text expansion, and creative writing. Illustrate your answer with a real-world NLG application.
- **3.** Explore the evolution of NLG systems with a focus on how advancements in representation learning have influenced their architecture.
- 4. Explain the concept of polysemy in the context of Machine

Translation.

- **5.** Briefly explain the Transformer architecture in the context of Neural Machine Translation (NMT).
- **6.** Analyze the role of contextual information in overcoming ambiguity in Machine Translation.
- 7. Compare and contrast different Machine Translation approaches, including Rule-based Machine Translation (RBMT), Statistical Machine Translation (SMT), and Neural Machine Translation (NMT), in the context of translating Indian languages.
- 8. Examine the role of pre-training and fine-tuning in enhancing the performance of Machine Translation models for Indian languages.



<u>UNIT V</u>

ONE MARKS

- **1.** What is the primary goal of Information Retrieval (IR) in Natural Language Processing?
 - a. Speech recognition
 - b. Document summarization
 - c. Retrieving relevant information from a large dataset
 - d. Machine translation
- 2. Which term is used to describe the process of converting unstructured textual data into a structured representation for efficient retrieval in NLP?
 - a. Parsing

b. Tokenization

c. Indexing

- d. Stemming
- **3.** What is an inverted index in the context of Information Retrieval?
 - a. An index that is sorted in descending order
 - b. An index that maps terms to their document locations
 - c. An index used for encryption in NLP
 - d. An index used for sentiment analysis
- **4.** In the Vector Space Model (VSM) for Information Retrieval, documents and queries are represented as:
 - a. Trees b. Graphs
 - c. Vectors d. Strings

5. Which of the following is a design feature of a good Information Retrieval system in NLP? a. Slow response time b.High precision and low recall c. Limited scalability d. User-friendly interfaces 6. Which of the following is a challenge in designing an effective Information Retrieval system for NLP? b. Ambiguity in language a. Low recall c. Strict tokenization d. Ignoring user feedback 7. What is the term for the process of determining the relevance of a document to a user's query in Information Retrieval? a. Classification b. Clustering d. Tokenization c. Ranking 8. What is the primary function of an inverted index in a classical Information Retrieval system? a. Sorting documents alphabetically locations b. Mapping terms to their document c. Encrypting sensitive information d. Classifying documents based on content. 9. In classical Information Retrieval, what does the term "Boolean retrieval" refer to?

a. Retrieval based on mathematical functions(AND, OR, NOT)

b. Retrieval using Boolean operators

- c. Retrieval with probabilistic models
- d. Retrieval using neural networks
- **10.** Which term is used to describe the measure of the proportion of relevant documents retrieved by an Information Retrieval system?
 - a. Precision b. Recall
 - c. F1 score /d. Accuracy

11. What is the purpose of the term frequency-inverse document frequency (TF-IDF) weighting scheme in classical Information Retrieval?

a. To prioritize long documents over short documents.

b.To calculate the overall accuracy of the system.

c. To measure the importance of a term.

d.To encrypt documents for secure retrieval in a document collection.

- **12.** Which classical Information Retrieval model focuses on assigning weights to terms based on their importance for document representation?
 - a. Vector Space Model b. Boolean Model
 - c. Probabilistic Model d. Bayesian Model
- **13.** What is a key characteristic of non-classical information retrieval systems?
 - a. Reliance on Boolean logic

- b. Emphasis on structured databases
- c. Flexibility in handling unstructured data
- d.Strict adherence to standardized query languages
- **14.** Which of the following is a common feature of non-classical information retrieval algorithms?
 - a. Exact match keyword search
 - b. Tokenization based on stop words
 - c. Machine learning and natural language processing
 - d. Network security Strict relevance ranking
- **15.** In non-classical information retrieval, what does the term "relevance feedback" refer to?
 - a. The use of precise Boolean Operators rankings based on user feedback.
 - b. Dynamic adjustment of document
 - c. Scanning and indexing of documents
 - d. Restriction of search queries to predefined categories
- **16.** Which type of data is typically challenging for classical information retrieval but well-suited for non-classical systems?
 - a. Structured databases
 - b. Numerical data
 - c. Unstructured text and multimedia content
 - d. Categorical data

- **17.** What role does machine learning play in non-classical information retrieval systems?
 - a. It is not applicable to information retrieval
 - b. Machine learning is used for irrelevant document filtering
 - c. Machine learning is employed for documentranking and relevance prediction
 - d. It is only used for query expansion.
- **18.** What is the primary purpose of valuation lexical resources in NLP?
 - a. To identify syntactic structure. in text.
 - b. To evaluate the emotional sentiment of words
 - c. To classify documents into categories
 - d. To analyze the phonetic features of Speech
- **19.** Which of the following is an example of a valuation lexical resource commonly used in sentiment analysis?
 - a. Word embeddings b. Part-of-speech taggers
 - c. Named entity recognizers d. Affective lexicons
- 20. How are valuation lexical resources utilized in NLP?
 - a. They assist in identifying grammatical errors in sentences.
 - b. They provide a structured database of words with their associated sentiments or emotions

c. They help in speech recognition by mapping phonetic variations.

d. They primarily aid in translating text between

languages.

- **21.** What is WordNet primarily used for in Natural Language Processing (NLP)?
 - a. Identifying the grammatical structure of sentences
 - b. Creating deep learning model for language translation
 - c. Organizing words into a lexical database and showing their semantic relationships
 - d. Analyzing sentiment in social media text

Which of the following does Word Net provide to its users?

- a. A list of trending words in real-time
- b. Synonyms, antonyms, and word definitions
- c. Image recognition for objects described in text
- d. Analysis of sentence structure and grammar

22. How are synsets represented in WordNet?

- a. As a list of phonetic variations of a word or senses
- b. As a hierarchical structure of word meanings
- c. As a collection of words with the same length and number of syllables.

d As a mapping of words to the is grammatical categories.

- **23.** What is the primary focus of FrameNet in Natural Language Processing (NLP)?
 - a. Identifying the root forms of words in text.
 - b. Analyzing the syntactic structures of sentences

- c. Describing the frames and their semantic roles of words
- d. Classifying documents based on their topics.
- 24. How does Frame Net organize lexical information?
 - a. Alphabetically based on word frequency
 - b. By mapping words to the corresponding phonetic sounds of semantic frames
 - c. Through hierarchical structured.
 - d. Based on the length of the words.
- **25.** What is the primary purpose of a stemming algorithm in Natural Language Processing (NLP)?
 - a. Identifying synonyms of word
 - b. Normalizing words to their base or root forms
 - c. Analyzing sentence structures
 - d. Classifying sentiment in text
- **26.** How does a stemming algorithm treat words?
 - a. It converts words into their past tense forms.
 - b. It reduces words to their base forms by removing affixes
 - c. It identifies words that have similar meanings
 - d. It sorts words based on their frequencies in a corpus
- **27.** What is the primary purpose of a POS tagger in natural language processing?
 - a. To identify the structure of a sentence e
 - b. To assign labels to words indicating their grammatical

types.

- c. To perform sentiment analysis
- d..To generate summaries of text
- **28.** Why is a high-quality Research Corpus important for training SSAS models like POS Taggers?

a. It provides labeled data for training and evaluation

b. It speeds up real-time processing

c. It enhances the visual representation

d. It ensures compatibility with hardware of text accelerators

- **29.** Which of the following is a challenge often encountered in building a Research Corpus for training POS Taggers in NLP?
 - a. Including only common words in the corpus
 - b. Using a single genre of text for diversity
 - c. Omitting punctuation marks in the labeled data
 - d. Handling ambiguity and variability in language usage

Answers:

c	11. c	21. c
с	12. a	22. b
b	13. c	23. b
с	14. c	24. c
d	15. b	25. c
b	16. c	26. b
с	17. c	27. b
	c c b c d b c	c 11. c c 12. a b 13. c c 14. c d 15. b b 16. c c 17. c

8.	b	18. b	28. b
9.	b	19. d	29. a
10.	. b	20. b	30. d

TWOMARKS

- 1. What are the key components of an Information Retrieval System (IRS)?
- 2. What is the importance of user interface design in Information Retrieval Systems?
- **3.** What are the key principles of the Boolean model in Information Retrieval?
- **4.** What is the vector space model, and how does it represent documents in Information Retrieval?
- **5.** What is the probabilistic model of Information Retrieval, and how does it differ from the Boolean model?
- 6. What is the concept of language models in the context of Information Retrieval?
- 7. What is the role of machine learning models in modern Information Retrieval Systems?
- **8.** How does the learning-to-rank model improve the effectiveness of Information Retrieval?
- **9.** What are the common metrics used for evaluating the performance of Information Retrieval Systems?
- **10.** Why is relevance feedback important in the evaluation of Information Retrieval Systems?

- **11.** What is WordNet, and how does it organize lexical information?
- **12.** What is the concept of FrameNet and its use in Information Retrieval?
- **13.** How do stemmers contribute to improving Information Retrieval efficiency?
- 14. Define the role of POS (Part-of-Speech) taggers in Information Retrieval applications.
- **15.** Why is the construction of high-quality research corpora essential for training SSAS models in Information Retrieval?

FIVE MARKS

- 1. Discuss the importance of user-centered design principles in the development of Information Retrieval Systems.
- 2. Compare and contrast the Boolean model and the vector space model in Information Retrieval. Highlight their strengths and weaknesses.
- **3.** Explain the probabilistic model of Information Retrieval. How does it address he limitations of classical models? Provide examples of scenarios where it may be more suitable.
- **4.** Evaluate the role of machine learning models in modern Information Retrieval Systems.
- **5.** Describe the common metrics used for evaluating the performance of Information Retrieval Systems.
- 6. Explore the structure and organization of WordNet.
- 7. Describe the purpose of stemmers in Information Retrieval and

provide examples of situations where they are beneficial.

- **8.** Elaborate on the significance of research corpora in training SSAS models for Information Retrieval.
- **9.** Briefly describe the key principles of the Boolean model in Information Retrieval.
- **10.** Explain the concept of FrameNet and its use in Information Retrieval.

TEN MARKS

- **1.** Provide a comprehensive overview of the design features that contribute to the effectiveness of Information Retrieval Systems.
- **2.** Compare and contrast the Boolean model, the vector space model, and the probabilistic model in Information Retrieval.
- **3.** Explore the concept of language models in Information Retrieval. How do language models differ from classical models, and what advantages do they offer in capturing semantic relationships?
- 4. Evaluate the role of deep learning models in Information Retrieval.
- **5.** Critically analyze the limitations of traditional evaluation metrics (precision, recall, F1-score) in assessing the performance of Information Retrieval Systems.
- **6.** Provide a detailed explanation of WordNet and FrameNet. How do these lexical resources contribute to improving the semantic understanding and retrieval capabilities of Information Retrieval Systems?

- **7.** Discuss the role of stemmers and POS taggers in pre-processing textual data for Information Retrieval.
- **8.** Investigate the process of constructing research corpora for Information Retrieval.



COMPUTER ORGANIZATION AND ARCHITECTURE UNIT I

ONE MARKS:

1. W	hat is a digital signal in the co	ontext of digital principles?
a.	Continuous and analog	b. Discrete and analog
c .	Discrete and digital	d. Continuous and digital
2. W	hich of the following best de	scribes a digital waveform?
a.	Continuous and smooth	b. Discrete and step-like
c	Analog and variable	d. Irregular and unpredictable
3. W	hat is the fundamental unit of	f information in digital systems?
a	Analog	b. Voltage
c	Bit	d. Hertz
4. W	hat does the term "digital" mals?	refer to in the context of digital
a.	Continuous variation	b. Analog representation
c.	Discrete values	d. Variable frequency
5. Wi	hich characteristic distingui nals?	shes digital signals from analog
a.	Voltage levels	b. Continuous waveforms
c.	Quantized representation	d. Susceptibility to noise
	D	
	Department of Comput	ter Science 54

6. Which of the following is the fundamental building block of digital circuits? a. Transistor b. Resistor c. Capacitor d. Inductor 7. In digital systems, what is the primary function of a flip-flop? a. Signal amplification b. Data storage c. Voltage regulation d. Frequency modulation 8. What is the binary representation of the decimal number 25? a. 11001 b. 10011 d. 11010 c. 11101 9. Which logic gate performs the operation of addition in binary arithmetic? a. AND gate b. OR gate c. XOR gate d. NAND gate 10. What is the purpose of an ALU (Arithmetic Logic Unit) in a digital computer? a. Memory storage b. Data input c. Arithmetic and logic operations d. Output display **11.** Which logic gate outputs a high signal (1) only when both of its inputs are high?

b. OR gate
d. NAND gate
gate if both of its inputs are low
b. High (1)
d. Cannot be determined
e used to implement addition in
b. OR gate
d. NAND gate
b. Low (0)
d. Calmot be determined
gates is considered a universal
b. OR gate
d. NAND Gate
f a universal gate that allows it to

Department of Computer Science

56

c. It can perform addition

d. It can be used to create AND,OR and NOT functions.

17. Which combination of universal gates can be used to implement any digital circuit?

a. NAND gates only

b. NOR gates only

c. XOR gates only

d. AND gates and OR gates

18. What is the advantage of using universal gates in digital circuit design?

- a. They are faster than other gates
- b. They require less power
- c. They simplify circuit design by reducing the number of gate types
- d. They have higher fan-out capabilities

19. If you have only NOR gates, which logic gate can you implement?

a. AND gate b. c. XOR gate d.

b.OR gate d. NAND gate

20. What is the output of an inverter gate when the input is high (1)?

- a. High (1)
- b. Low (0)

c. It depends on other factors algorithms

Department of Computer Science

57

d. Cannot be determined

- **21.** Which of the following is the symbol commonly used to represent an inverter gate?
 - a. Σ b \oplus c. \wedge d. $\neg O$
- **22.** What is the primary function of an inverter gate in digital circuits?
 - a. Signal amplification **b** Data storage
 - c. Voltage regulation d. Signal inversion
- 23. In positive logic, a logic level '1' represents:
 a. High voltage or true b Low voltage or false
 c. Either high or low voltage d None of the above

24. Which of the following statements is true for negative logic?

- a. Logic '1' is represented by high voltage
- b. Logic '0' is represented by low voltage
- c. Both a and b
- d. None of the above
- **25.** A NAND gate operates with negative logic. What is the output of a NAND gate when both inputs are at logic '1'?
 - a. Logic '0'
 - b. Logic '1'
 - c. Logic 'X' (indeterminate)
 - d. It depends on the gate implementation

26. What is the primary unit of digital information storage?

a. Byteb. Bitc. Kilogramd. Megahertz

27. What is the term for the rate at which bits are transmitted over a communication channel?

a. Amplitude	b. Frequency
c. Bit rate	d. Phase

28. In digital logic, what is the basic building block that performs a logical operation and has one output and one or more inputs?

a. Flip-Flop c. Logic Gate d. Decoder

29. What is the Boolean expression for the AND gate?

a. A + B c. A – B b. A * B d. A / B

- **30.** What is the purpose of a multiplexer in digital logic?
 - a. To perform addition operation
 - b. To select one of many input signals and direct it to a
 - c. To invert the input signal
 - d. To perform logical AND operations

Answers:

1.	c	11. a	21. d
2.	b	12. a	22. d

3. c	13. c	23. a
4. c	14. b	24. c
5. c	15. d	25. b
6. a	16. d	26. a
7. b	17. a	27. с
8. a	18. c	28. c
9. c	19. b	29. b
10. c	20. b	30. b

TWOMARKS

- 1. What are the fundamental characteristics of digital signals?
- 2. How digital signals differ from analog signals?
- 3. What are the key features of digital waveforms?
- 4. Define digital logic.
- 5. What are the differences between short-term and long-term storage?
- 6. Provide examples of basic digital operations.
- 7. What are the essential characteristics of digital computers?
- 8. What is the role of digital integrated circuits in digital systems
- 9. Define the basic logic gates (NOT, OR, AND).
- 10. What are the functions of NOR and NAND gates.
- 11. Differentiate between positive logic and negative logic.
- 12. What are the significance of logic gates in digital systems

FIVE MARKS

1. Define digital signals and explain how they differ from analog signals.

Department of Computer Science

60

- **2.** Discuss the key characteristics of digital signals and their importance in digital systems.
- 3. Describe the basic properties of digital waveforms.
- **4.** Explain how digital waveforms are used in communication systems.
- **5.** Discuss the role of digital logic in processing and manipulating binary data.
- **6.** Explain the process of moving digital information within a digital system.
- 7. Discuss the methods and technologies used for storing digital information.
- **8.** Discuss the importance of digital operations in computing and communication.
- 9. Explain the basic components of a digital computer.
- **10.** Discuss the role of digital computers in various applications.
- **11.** Discuss the advantages and challenges of using digital integrated circuits.
- **12.** Explain the functions of basic digital logic gates NOT, OR, and AND.
- **13.** Define universal logic gates and explain why NOR and NAND gates are considered universal.
- 14. Describe the structure and function of AND-OR-invert gates.
- **15.** Discuss the advantages and disadvantages of using positive and negative logic.
- **16.** Discuss how digital logic contributes to the functionality of modern electronic devices.

TEN MARKS

- **1.** Explain the concept of digital signals and their significance in modern communication systems.
- **2.** Discuss the characteristics of digital waveforms and how they are generated in digital systems.
- **3.** Discuss the fundamental principles of digital logic design.
- **4.** Describe the processes involved in moving digital information within a digital system.
- **5.** Explain the various methods and technologies used for storing digital information, including their advantages and limitations.
- **6.** Explore the fundamental digital operations performed within a computer system.
- 7. Discuss the architecture of digital computers, emphasizing the role of key components.
- 8. Discuss the different types of digital ICs and their applications.
- **9.** Provide a detailed explanation of the functions of basic digital logic gates: NOT, OR, and AND.
- **10.** Provide examples of how NOR and NAND gates can be used to implement various logic functions.
- **11.** Discuss the structure and function of AND-OR-invert gates, emphasizing their role in digital circuit design.
- **12.** Compare and contrast the advantages and disadvantages of positive and negative logic.

UNIT II

ONE MARKS

- 1. What is the Sum-of-Products (SOP) method primarily used for in combinational logic circuits?
 - a. Simplifying expressions b. Generating truth tables
 - c. Implementing sequential logic d. Analyzing timing diagrams
- 2. According to Boolean algebra, what is the identity element for the AND operation? b. 1
 - a. 0
 - d. Both a and b c. X (Don't Care)
- **3.** Which Boolean theorem is expressed as A+A'B=A+B?
 - a. Idempotent Law b. Absorption Law
 - c. De Morgan's Law d. Complement Law
- 4. What is the result of applying the Absorption Law to the expression A(B + B')? a. A b.B c. 1 d. 0

5. If F = AB + C'D, which Boolean law or theorem can be applied to simplify the expression further?

a. Absorption Law b. De Morgan's Law c. Idempotent Law d. Complement Law

Department of Computer Science

63

- **6.** What is the purpose of a Karnaugh Map (K-map) in digital circuit design?
 - a. To simulate circuit behavior
 - b. To visualize circuit layout
 - c. To simplify Boolean expressions
 - d. To generate random numbers.
- 7. In a Karnaugh Map, what does a "1" represent for a specific cell?
 - a. The corresponding term is present in the simplified expression
 - b. The corresponding term is absent in the simplified.
 - c. The output is always 1 for that of inputs.
 - d. There is an error in the truth Combination table.
- **8.** How many cells in a Karnaugh Map form a pair for grouping in the simplification process?
 - a. 1
 - c. 4

- b. 2 d. 8
- 9. What is the maximum number of cells that can be combined in a Karnaugh Map simplification using the quad grouping method?a. 1b. 2
 - c. 4 d. 8
- **10.** What is the term for a group of eight adjacent cells in a Karnaugh Map?
 - a. Quartet b. Octet
 - c. Duo d. Single

Department of Computer Science

64

- **11.** What is the purpose of using "Don't-care" conditions in digital circuit design?
 - a. To complicate the circuit
 - b. To simplify the circuit
 - c. To increase power consumption
 - d. To ensure fault tolerance
- 12. In a truth table, what does a "Don't-care" condition indicate?
 - a. A condition that cannot occur
 - b. A condition that is not relevant to the circuit behavior
 - c. A condition that is critical for circuit operation.
 - d. A condition that always produces a "1"
- **13.** What is the primary advantage of using "Don't-care" conditions in simplifying Boolean expressions?
 - a. It reduces the number of terms in the expression.
 - b. It increases the complexity of the expression.
 - c. It ensures that all possible conditions are covered.
 - d. It has no impact on simplification
- **14.** In product-of-sums simplification, what is the result when a term contains both "Don't-care" conditions and "1" values?
 - a. The term is excluded from the simplified expression.
 - b. The term is included in the simplified expression.
 - c. The term is treated as a "Don't-Care" condition
 - d. The term is treated as a "1" value.

- **15.** How does the inclusion of "Don't-care" conditions affect the size of the simplified Boolean expression?
 - a. It makes the expression larger.
 - b. It has no effect on the expression size.
 - c. It makes the expression smaller.
 - d. It makes the expression more complex.
- **16.** What is the primary function of a 16-to-1 multiplexer?
 - a. Combining multiple inputs into a single output
 - b. Distributing a single input to multiple output
 - c. Performing arithmetic operations on data
 - d. Storing data temporarily.
- **17.** In a 16-to-1 multiplexer, how many select lines are needed to choose between 16 input channels?
 - a. 2
 - c. 8

- b. 4 d. 16
- 18. What is the primary purpose of a 1-to-16 demultiplexer?
 - a. Combining multiple inputs into a single output
 - b. Distributing a single input to multiple outputs
 - c. Performing arithmetic operations on data
 - d. Storing data temporarily.
- **19.** In a 1-to-16 demultiplexer, how many select lines are needed to determine the output channel?
 - a. 2

b. 4

c. 8

- d. 16
- 20. What is the main function of a BCD-to-decimal decoder?
 - a. Combining multiple inputs operations on data into a single output
 - b. Distributing a single input to multiple output
 - c. Converting binary-coded decimal (BCD)to decimal representation
 - d. Converting decimal to binary-coded decimal (BCD)
- **21.** How many control lines (select lines) are needed in a 16-to-1 multiplexer?

b. 4

d. 16

- a. 2
- c. 8
- **22.** If each data input of a 16-to-1 multiplexer is 8 bits, what is the size of the output?
 - a. 8 bits c. 32 bits d. 64 bits

23. How many output channels does a 16-to-1 multiplexer have?

- a. 1 b. 4 c. 8 d. 16
- 24. How many output channels does a 1-to-16 demultiplexer have?
 - a. 1 b. 4
 - c. 8 d. 16

25. If a BCD-to-decimal decoder has 4 inputs, what is the maximum decimal output value it can represent?

a. 9	b. 15
c. 99	d. 9999

26. If a BCD-to-decimal decoder converts a 4-bit BCD input, how many output pins are needed for the decimal representation?

b. 2

d. 10

b. 1

- a. 1
- c. 4
- **27.** What is the output of an XOR gate when both of its inputs are different?
 - a. 0
 - b. X (Don't care)

d. It depends on the input states

28. In the context of parity generation, what is the purpose of using XOR gates?

- a. To add a constant value to the data
- b. To ensure even parity
- c. To invert the data bits
- d. To perform multiplication

29. How is odd parity achieved using XOR gates?

- a. The XOR of all data bits is set to 1
- b. The XOR of all data bits is set to 0
- c. The XOR of all data bits and the parity bit is set to1

d. The XOR of all data bits and the parity bit is set to 0

30. In what type of binary addition is an XOR gate commonly used?

- a. Unsigned addition b. Signed addition
- c. Two's complement addition d. Floating-point addition

Answers:

1. a	11. b	21. b
2. b	12. b	> 22. a
3. b	13. a	23. a
4. a	14. b	24. d
5. a	15. c	25. c
6. c	16. b	26. d
7. a	17. c	27. b
8. b	18. b	28. b
9. c	19. b	29. a
10. b	20. c	30. c

TWO MARKS

- 1. Define a combinational logic circuit.
- **2.** State the Boolean laws that are commonly used in simplifying Boolean expressions.
- **3.** What is the Sum-of-products (SOP) method in combinational logic.
- 4. What is a truth table, and how is it used in combinational logic

design?

- 5. What is the process of mapping truth tables to Karnaugh maps.
- **6.** What are the terms "pairs," "quads," and "octets" in the context of Karnaugh maps.
- 7. How is Karnaugh map simplification performed in combinational logic design?
- 8. What is 1-to-16 De- multiplexer?
- 9. What are "don't-care" conditions, and how are they used in circuit simplification?
- 10. What is a 16-to-1 multiplexer, and how does it function?
- 11. Define a BCD-to-decimal decoder and its applications.
- **12.** Define the function of a Decimal-to-BCD encoder and provide a scenario where it might be employed.
- **13.** What are Exclusive –OR gates?
- 14. What is Parity Generator?

FIVE MARKS

- 1. Explain the primary Boolean laws and theorems used in simplifying logic expressions.
- **2.** Define and explain the sum-of-products (SOP) form in Boolean algebra.
- **3.** Detail the process of converting a truth table to a Karnaugh map representation.
- **4.** Describe how pairs, quads, and octets are identified and utilized in Karnaugh map simplification.
- 5. Explain the concept of "don't-care" conditions in Karnaugh map
simplification.

- **6.** Compare and contrast the SOP and POS forms in terms of implementation and complexity.
- 7. Illustrate the internal structure and functioning of a 16-to-1 multiplexer.
- 8. Detail the architecture and operation of a 1-to-16 demultiplexer.
- **9.** Explain the purpose and functionality of a BCD-to-decimal decoder.
- **10.** Describe the function and operation of a decimal-to-BCD encoder.
- **11.** Discuss practical applications of XOR gates in data processing or signal manipulation.
- **12.** Explain how parity generation is achieved using XOR gates.

TEN MARKS

- 1. Explain the fundamental Boolean laws (commutative, associative, distributive, etc.) and how they apply to logic expressions.
- **2.** Compare and contrast the Sum-of-Products (SOP) method and Karnaugh maps in terms of their applications and efficiency.
- **3.** Demonstrate step-by-step the process of converting a truth table into a Karnaugh map.
- **4.** Discuss the significance of identifying and utilizing pairs, quads, and octets in Karnaugh maps for logic minimization.
- 5. Explain the role of don't-care conditions in Karnaugh map

simplification and how they affect the final minimized expression.

- **6.** Detail the internal structure, operation, and applications of both a 16-to-1 multiplexer and a 1-to-16 de-multiplexer.
- 7. Explain the design and operation of a BCD-to-decimal decoder and a Decimal-to-BCD encoder.
- 8. Elaborate on the functionality and truth table of exclusive-OR (XOR) gates.
- **9.** Discuss the advantages of combining different types of circuits in solving real-world problems efficiently.
- **10.** Explain the process of parity generation using XOR gates. Discuss how parity is used for error detection in data transmission systems, providing a real-world example.



<u>UNIT III</u>

ONE MARKS:

1. What base does the binary number system use? a. Base 8 b. Base 10 c. Base 2 d. Base 16 2. How many digits are used in the binary system? a. 8 b 10 c. 2 d. 16 3. What is the decimal equivalent of the binary number 1101? a. 13 b. 11 d. 15 c. 14 4. In binary, what does each digit represent? a. Tens place b. Hundreds place c. Ones place d. Twos place 5. What is the result of converting the decimal number 25 to binary? a. 11001 b. 11101 c. 10101 d. 11011 6. Which of the following is a valid binary representation? a. 10201 b. 1102 **Department of Computer Science** 73

St. Joseph's College of Arts and Science for Women, Mookandapalli, Sipcot, Hosur-635126. c. 2011 d. 1111 7. What is the decimal equivalent of the binary number 101101? a. 45 b. 53 c. 37 d. 29 8. How many bits are in a nibble? a. 4 b. 8 d. 2 c. 16 9. What is the result of converting the decimal number 18 to binary? b. 11010 a. 10010 d. 10110 c. 11100 10. Which of the following is a valid decimal representation of the binary number 110110? a. 27 b. 54 c. 42 d. 51 11. Which base is associated with octal numbers? a. Base 8 b. Base 10 c. Base 2 d. Base 16 12. In the hexadecimal number system, what is the value represented by the digit 'A'? a. 10 b. 11 **Department of Computer Science** 74

c. 12

d. 15

- 13. What does ASCII stand for?
 - a. American Standard Code for Information Interchange
 - b. Alphanumeric Standard Code for Information Integration
 - c. Automated System Code for Information Interface
 - d. All Standard Code for Internal Interaction

14. Which of the following is an Excess-3 code representation of the decimal number 7?

b. 0011

d. 1101

- a. 0000 c. 1000
- 15. What is the decimal equivalent of the hexadecimal number 2F?
 a. 47
 b. 50
 c. 37
 d. 45
- 16. What is the binary representation of the decimal number 19 in Excess-3 code?
 a. 1001
 b. 1010
 d. 1110
- 17. Which of the following is a Gray code sequence?

 a. 0101
 b. 1011

 c. 1111
 d. 0010
- **18.** In binary addition, what is the result of 1 + 1?

Department of Computer Science

75

b. 1 a. 2 d. 10 c. 0 **19.** What is the result of subtracting 1011 from 1101 in binary? b. 110 a. 10 c. 100 d. 0 **20.** In binary subtraction, what is the result of 1001 - 0110? b. 1011 a. 0011 c. 0101 d. 1101 **21.** What is the main purpose of using sign-magnitude representation in computer arithmetic? a. Efficient addition and subtraction b. Efficient multiplication c. Efficient division d. Efficient bitwise operations 22. In sign-magnitude representation, how is the sign of a number indicated? a. By the leftmost bit b. By the rightmost bit c. By the magnitude of the number d. By the exponent 23. What is the advantage of using 2's complement representation over sign-magnitude representation?

- a. Simplicity in hardware implementation
- b. Efficient multiplication
- c. Easier human interpretation
- d. Better precision
- **24.** In 2's complement representation, how is the negative of a number obtained?
 - a. Flipping all the bits and adding 1
 - b. Flipping all the bits
 - c. Adding 1
 - d. Subtracting 1
- **25.** Which of the following statements is true about 2's complement arithmetic?
 - a. It requires a separate circuit for addition and subtraction,
 - b. Addition and subtraction are the same operation in 2's complement
 - c. Subtraction is not defined in 2's complement
 - d. It is only applicable to positive numbers
- **26.** What is the advantage of using 2's complement over 1's complement in arithmetic operations?
 - a. Less hardware complexity
 - b. Higher precision
 - c. Easier human interpretation
 - d. Better performance in multiplication.

- 27. In 2's complement addition, what does an overflow indicate?
 - a. The sum is positive
 - b. The sum is negative
 - c. The result is too large to be represented with the given number of bits
 - d. It depends on the input states with the given number of bits.

28. How do you perform subtraction using 2's complement arithmetic?

- a. Add the two numbers normally.
- b. Subtract the smaller number from the larger number
- c. Subtract the larger number from the smaller number.
- d. Add the numbers with the sign of the second number inverted
- **29.** Which of the following is true about the representation of zero in 2's complement?
 - a. There are multiple representations for zero
 - b. Zero has a unique representation
 - c. Zero cannot be represented in 2's complement
 - d. Zero is represented as all ones.
- **30.** What is the significance of the leftmost bit in a 2's complement representation?
 - a. It represents the sign of the number
 - b. It is always 0

c. It is always 1

d. It indicates the magnitude of the number.

Answers:

1.	c	11. a	21. a
2.	c	12. a	22. a
3.	a	13. a	23. a
4.	d	14. d	24. a
5.	a	15. a	25. b
6.	b	16. c	26. a
7.	b	17. b	27. c
8.	a C	18. d	28. d
9.	a 🥢	19. c	29. b
10.	. b	20. c	30. a

TWO MARKS

- 1. What is the basic concept of the binary number system?
- 2. What is binary-to-decimal conversion, and how is it performed?
- 3. What is the process of decimal-to-binary conversion?
- 4. Differentiate between octal and hexadecimal numbers.
- **5.** How is the ASCII code used to represent characters in computers?
- 6. What is the Gray code, and how is it different from binary code?
- 7. Define binary addition and provide a simple example.
- 8. What are the steps involved in binary subtraction?

- 9. Differentiate between unsigned and signed binary numbers.
- **10.** What is the significance of 2's complement representation in binary?
- 11. how to perform 2's complement arithmetic for binary numbers?
- **12.** What are the advantages of using 2's complement representation in arithmetic circuits?
- **13.** How does binary subtraction using 2's complement differ from binary addition?

FIVE MARKS

- 1. Discuss the importance of the binary number system in
- computer science and digital electronics.
- **2.** Provide a step-by-step explanation of the binary-to-decimal conversion process. Include an example.
- **3.** How is decimal-to-binary conversion carried out? Illustrate with an example.
- 4. Compare and contrast octal and hexadecimal number systems. Provide examples of each.
- **5.** Explain the ASCII code and its role in character encoding. Give examples of ASCII representations for a few characters.
- **6.** Describe the Excess-3 code and highlight its applications in digital systems.
- 7. Discuss the unique properties and applications of the Gray code in digital communication.
- **8.** Detail the algorithm for binary addition and provide a comprehensive example.

- **9.** Walk through the steps of binary subtraction, emphasizing the borrow concept. Provide an example.
- **10.** Explain the concept of sign-magnitude representation in binary arithmetic. Provide an example.
- **11.** Outline the significance of 2's complement representation in binary arithmetic. Include advantages and applications.
- **12.** Demonstrate how to perform 2's complement arithmetic for binary numbers. Include subtraction and addition examples.
- **13.** Explain the role of overflow in binary arithmetic and how it is handled in 2's complement representation.

TEN MARKS

- 1. Explain the binary number system and its importance in digital systems.
- **2.** Discuss the advantages of using binary representation in computer architecture.
- **3.** Provide examples of binary numbers and their decimal equivalents.
- **4.** Elaborate on the steps involved in binary-to-decimal conversion.
- **5.** Provide examples of conversions between binary, octal, and hexadecimal.
- 6. Explain the ASCII code and its role in character encoding.
- 7. Describe the Excess-3 code and its applications.
- **8.** Provide a detailed explanation of binary addition, including carry propagation.

- **9.** Provide examples of arithmetic operations with unsigned binary numbers.
- 10. Explain sign-magnitude representation in binary arithmetic.
- 11. Explain how 2's complement arithmetic is performed.



UNIT IV

ONE MARKS

- **1.** What is the primary function of an Arithmetic Logic Unit (ALU)?
 - a. Memory storage
 - b. Data transmission
 - c. Arithmetic and logic operations
 - d. Control signal generation.
- 2. Which arithmetic building block is responsible for both addition and subtraction operations?a. Adderb Subtractor

c. Arithmetic Logic Unit (ALU) d. Fast Adder

- **3.** What is the primary purpose of a subtractor in arithmetic circuits?
 - a. To perform addition b. To perform subtraction
 - c. To perform multiplication d. To perform division
- **4.** What is a Fast Adder designed to improve in comparison to a regular adder?

a.	Speed	b. Accuracy
c.	Energy efficiency	d. Size

5. Which of the following is NOT a type of adder design?

- a. Ripple Carry Adder b.Carry Lookahead Adder c. Fast Subtractor d. Carry Select Adder 6. In an Arithmetic Logic Unit (ALU), what does the term "Logic" refer to? a. Mathematical operations b. Decision-making operations c. Arithmetic operations d. Data storage operations 7. Which adder/subtractor architecture can efficiently handle both addition and subtraction operations? a. Parallel Adder b. Serial Adder d. Carry Lookahead Adder c. BCD Adder 8. What is the primary advantage of a Carry Lookahead Adder over a Ripple Carry Adder? a. Reduced size b. Improved speed c. Lower power consumption d. Increased accuracy 9. Which operation is NOT typically performed by an Arithmetic Logic Unit (ALU)? a. Multiplication b. Division c. Comparison d. Data storage 10. What is the purpose of an Arithmetic Logic Unit (ALU) in a computer system? a. Memory management
 - b. Input/output operations

Department of Computer Science

84

- c. Handling arithmetic and logic operations.
- d. Control flow operations.

11. What is the result of multiplying binary numbers 1101 and 1010?

a. 11110	b. 11010
c. 10010	d. 10110

12. When dividing binary number 10110 by 11, what is the quotient?a. 101b. 110

d. 100

- b. 111
- **13.** What is the result of the binary division 100011 / 11?

 a. 1111
 b. 1101

 c. 1011
 d. 1001

14. In binary multiplication, what is the result when you multiply any number by 0?a. The Number Itselfb. 0c. 1d. Undefined

- 15. What is the product of binary numbers 110 and 101?
 a. 11100
 b. 11000
 c. 10010
 d. 11110
- **16.** What is the duty cycle of a clock waveform?
 - a. The time period of one complete cycle
 - b. The ratio of the pulse width to the period

- c. The amplitude of the waveform
- d. The number of cycles per second
- **17.** In a digital system, what is the primary purpose of a clock signal?
 - a. To carry data

- b. To synchronize operations
- c. To provide power
- d. To control voltage levels

18. What is the role of the rising edge of a clock signal?

- a. Initiates data transmission
- b. Ends data transmission
- c. Marks the beginning of a new cycle
- d. Indicates the end of a cycle

19. What is the frequency of a clock signal with a period of 10 ns?

a. 10 MHz c. 100MHz b. 50 MHz d. 1GHz

- **20.** How does a square wave clock signal differ from a sine wave clock signal?
 - a. Square wave has a higher frequency
 - b. Square wave has a constant amplitude
 - c. Sine wave has a duty cycle
 - d. Sine wave has a higher harmonics content
- 21. What is the basic function of an RS flip-flop?a. Data storageb. Clock generation

c. Data manipulation

d. Sequential logic

22. In an RS flip-flop, what is the forbidden state?

- a. Both inputs set to 0
- b.Both inputs set to 1
- c. One input set to 0, the other set to 1
- d. No forbidden state
- **23.** What is the advantage of using a clocked RS flip-flop over an asynchronous one?
 - a. Faster response time b. Simplicity in design
 - c. Elimination of race conditions d. Lower power consumption
- 24. In a D flip-flop, what is stored at the Q output on the rising edge of the clock?
 - a. The current D input
 - b.The complement of the D input
 - c. The previous Q output
 - d. The inverted clock signals
- 25. What is the main advantage of using edge-triggered D flip-flops?a. Simplicity in designb. Faster operationc. Lower power consumptiond.Greater flexibility
- **26.** What is the primary advantage of using JK flip-flops over RS flip-flops?

- a. Simplicity in design
- b. Elimination of race conditions
- c. Reduced power consumption
- d. Bi-stability
- 27. What is the behavior of a JK flip-flop when both J and K inputs are set to 1?
 - a. Toggle

b.Set

c. Reset

- d. Hold
- 28. What is the purpose of the master-slave configuration in a JK flip-flop?
 - a. Synchronization of inputs b. Elimination of race conditions
 - c. Improved stability d. Enhanced data storage

29. What is the key advantage of using a JK master-slave flip-flop? a. Simplicity in design b. Higher clock frequency

- c. Improved noise immunity d. Lower power consumption
- 30. In a JK master-slave flip-flop, when is the master latch enabled?
 - a. On the rising edge of the clock
 - b. On the falling edge of the clock
 - c. Throughout the clock cycle
 - d. When the clock is low

Answers:

1. c	11. c	21. a
2. c	12. a	22. b
3. b	13. b	23. c
4. a	14. b	24. a
5. c	15. b	25. b
6. b	16. b	26. b
7. d	17. b	27. а
8. b	18. c	28. b
9. d	19. c	29. c
10. c	20. b	30. b
		-0)

TWO MARKS

- 1. What is the basic function of an adder in digital circuits?
- 2. Differentiate between a half-adder and a full-adder.
- 3. What is the purpose of a subtractor circuit in digital systems?
- 4. What is the concept of a fast adder and how it improves the speed of addition?
- **5.** What is an Arithmetic Logic Unit (ALU), and what role does it play in a computer's central processing unit (CPU)?
- 6. What is the process of binary multiplication.
- 7. How does binary division differ from binary multiplication?
- 8. What is the significance of the duty cycle in a clock waveform?
- **9.** Differentiate between synchronous and asynchronous operations in digital circuits.
- 10. What is the basic function of an RS flip-flop?

- 11. What is the significance of edge-triggering in D flip-flops?
- **12.** How does the falling edge-triggered JK flip-flop differ from the rising edge-triggered one?

FIVE MARKS

- 1. Explain the working principle of a full-adder circuit.
- **2.** Compare and contrast ripple carry adders with carry-lookahead adders in terms of speed and complexity.
- **3.** Discuss the role of an Arithmetic Logic Unit (ALU) in a computer's central processing unit (CPU).
- **4.** Explain the concept of binary multiplication. Provide a step-by-step example of multiplying two binary numbers.
- **5.** Discuss the advantages and disadvantages of binary division compared to binary multiplication. Provide examples to illustrate both operations.
- 6. Define the term "clock waveform" in digital systems. Explain its importance in synchronous circuits and how it aids in synchronization.
- 7. Describe the key characteristics of a clock waveform, including frequency, period, and duty cycle.
- 8. Explain the operation of an RS flip-flop.
- **9.** Compare and contrast edge-triggered D flip-flops with RS flip-flops.
- **10.** Explain the concept of race conditions in digital circuits.
- **11.** Describe the behavior of a JK flip-flop when both J and K inputs are set to 0.

12. Discuss the purpose of the master-slave configuration in a JK flip-flop.

TEN MARKS

- 1. Explain the basic function of an Adder-Subtractor circuit.
- 2. Differentiate between a Half Adder and a Full Adder.
- **3.** Provide examples of binary numbers and their decimal equivalents.
- 4. Describe the operation of an Arithmetic Logic Unit (ALU) in a computer.
- 5. Discuss the key steps in Binary Division. Give an example.
- 6. Explain the concept of clock waveforms and their role in synchronization.
- 7. Differentiate between synchronous and asynchronous counters.
- 8. Explain the operation of an RS flip-flop. Provide its truth table.
- **9.** Compare and contrast edge-triggered JK flip-flops with D flip-flops.
- **10.** Describe the operation of JK Master-Slave flip-flops. What advantages do they offer?

UNIT V

ONE MARKS

- 1. What is the primary characteristic of a Serial-In Serial-Out (SISO) register?
 - a. Parallel input and parallel output
 - b. Serial input and parallel output
 - c. Parallel input and serial output
 - d. Serial input and serial output
- 2. In a Serial-In Parallel-Out (SIPO) register, data is shifted in:
 - a. Serially and output in parallel
 - b. In parallel and output serially
 - c. Serially and output serially
 - d. In parallel and output in parallel
- 3. Which type of register allows data to be loaded in parallel and shifted out serially?
 - a. Serial-In Serial-Out (SISO)
 - b. Serial-In Parallel-Out (SIPO)
 - c. Parallel-In Serial-Out (PISO)
 - d. Parallel-In Parallel-Out (PIPO)
- 4. A Parallel-In Serial-Out (PISO) register is often used for:

 - a. Parallel data storage b. Serial data transmission
 - c. Both a and b

d. Neither a nor b

- 5. How is data input in a Parallel-In Parallel-Out (PIPO) register? a. Serially b. In parallel
 - c. Both a and b d. Neither a nor b
- 6. In a Serial-In Parallel-Out (SIPO) register, what happens during each clock cycle?

 - a. Data is loaded in parallel b. Data is shifted in serially
 - c. Both a and b

- d. Neither a nor b
- 7. Which type of register is suitable for parallel data transfer between two systems with different clock speeds?
 - a. Serial-In Serial-Out (SISO)
 - b. Serial-In Parallel-Out (SIPO)
 - c. Parallel-In Serial-Out (PISO)
 - d. Parallel-In Parallel-Out (PIPO)
- 8. What is the advantage of using a Serial-In Serial-Out (SISO) register in certain applications?
 - a. Simplicity in design b. Faster data transfer
 - c. Reduced power consumption d. All of the above
- 9. In a Parallel-In Serial-Out (PISO) register, how is data outputted?
 - a. In parallel
 - b. Serially
 - c. Alternating between parallel
 - d. Both a and b sand serial

- **10.** Which type of register is commonly used in shift registers for data storage and retrieval applications?
 - a. Serial-In Serial-Out (SISO)
 - b. Serial-In Parallel-Out (SIPO)
 - c. Parallel-In Serial-Out (PISO)
 - d. Parallel-In Parallel-Out (PIPO)
- 11. What is the primary function of computer memory?
 - a. Data processing
 - b. Storage and retrieval information
 - c. Power supply
 - d. Cooling system
- 12. Which of the following is an example of magnetic memory?
 - a. RAM (Random Access Memory)
 - b. ROM (Read-Only Memory)
 - c. Hard Disk Drive (HDD)
 - d. Flash Memory
- **13.** What is the main advantage of optical memory over magnetic memory?
 - a. Higher storage capacity b.Fa
 - b.Faster data access
 - c. Greater durability d. Lower cost
- 14. In a computer system, what is the purpose of a memory address?
 - a. To store data temporarily memory

- b. To retrieve data from
- c. To execute instructions
- d. To connect external devices
- **15.** What is the term for the smallest unit of data in computer memory?
 - a. Byte b. Bit
 - c. Kilobyte // d. Megabyte
- **16.** Which magnetic memory type allows for both reading and writing operations?
 - a. Magnetic Tape b. Magnetic Disk
 - c. Magnetic Bubble Memory d. Magnetic Drum
- **17.** Which optical memory technology uses a laser to write and read data?
 - a. CD-ROM
 - c. Blu-ray Disc

b. DVD-RW d.Magnetic Optical Disc

- 18. What is the purpose of a memory address bus?
 - a. To carry data between the CPU and Memory
 - b. To select a specific memory location for read or write operations
 - c. To execute arithmetic operations
 - d. To connect external peripherals

- 19. What is the role of cache memory in a computer system?
 - a. Long-term storage of data
 - b. Temporary storage for frequently accessed data
 - c. Execution of arithmetic operations
 - d. Addressing specific memory locations
- **20.** Which characteristic is a disadvantage of magnetic storage compared to solid-state storage?
 - a. Higher cost **b.** Slower access times
 - c. Greater durability d. Lower storage capacity
- 21. What is the primary characteristic of ROM?
 - a. Read and write capabilities b. Volatile storage
 - c. Permanent storage of data d. Random access

22. How is a PROM different from a standard ROM?

- a. It is not programmable using a special deviceb.
- b. It can be written to once
- c. It allows random access to data
- d. It is used for temporary storage
- **23.** What feature distinguishes EPROM from other types of memory?
 - a. It is volatile
 - b. It can be electrically erased and reprogrammed
 - c. It is read-only
 - d. It is permanently fixed during manufacturing

- 24. How is EEPROM different from EPROM?
 - a. It is not erasable
 - b. It can be electrically erased and reprogrammed without removing it from the circuit
 - c. It is a type of RAM
 - d. It is used for temporary storage
- **25.** What is the main characteristic of RAM?
 - a. Permanent storage of data b. Volatile storage
 - c. Read-only access d. Sequential access
- 26. Which of the following is an example of a ROM?a. Flash Memoryb. Hard Disk Drive (HDD)c. CD-ROMd. Magnetic Tape
- 27. In a simple computer design, what is the function of the ALU (Arithmetic Logic Unit)?
 - a. To store data permanently logical operations
 - b. To perform arithmetic and
 - c. To control input devices
 - d. To manage memory access
- **28.** What is the role of the CPU (Central Processing Unit) in a simple computer design?
 - a. To store data temporarily
 - b. To execute instructions and perform calculations
 - c. To control output devices
 - d. To provide long-term storage

- 29. Which of the following is a characteristic of volatile memory?
 - a. Retains data even when power is off
 - b. Loses data when power is off
 - c. Has slow access time
 - d. Is read-only
- **30.** What is the purpose of the control unit in a simple computer design?
 - a. To perform arithmetic operations
 - b. To manage memory access
 - c. To control input devices
 - d. To store data permanently

Answers:

1. b	11. b	21. c
2. a	12. c	22. b
3. c	13. a	23. b
4. b	14. b	24. b
5. b	15. b	25. b
6. c	16. b	26. c
7. c	17. c	27. b
8. a	18. b	28. b
9. b	19. b	29. b
10. d	20. b	30. b

TWO MARKS

- **1.** Define a Serial-In Serial-Out register and provide an example of its use.
- **2.** What is the operation of a Serial-In Parallel-Out register with an illustration?
- 3. Compare and contrast Serial-In Serial-Out and Serial-In Parallel-Out registers.
- 4. What are the advantages of using a Parallel-In Serial-Out register in data processing?
- 5. What is the functionality of a Parallel-In Parallel-Out register and its application.
- 6. Provide a brief introduction to memory and its role in computing systems.
- 7. What are the principles behind magnetic memory and its common applications?
- **8.** What distinguishes optical memory from other types of memory, and where is it commonly employed?
- 9. Define memory addressing and its significance in computer architecture.
- **10.** Differentiate between ROMs, PROMs, EPROMs, and EEPROMs in terms of their functionalities.
- **11.** What are the primary characteristics and uses of RAMs in computing?
- **12.** Outline the essential components of a basic computer architecture.
- 13. What are the role and significance of the CPU in a computer

system?

14. How the control unit interacts with memory and other components in a computer.

FIVE MARKS

- 1. Explain the architecture and operation of a Serial-In Serial-Out register.
- 2. Detail the structure and functioning of a Serial-In Parallel-Out register.
- **3.** Describe the design and working principle of a Parallel-In Serial-Out register.
- **4.** Explain the functionalities and applications of a Parallel-In Parallel-Out register.
- 5. Compare and contrast the operations and applications of SISO, SIPO, PISO, and PIPO registers.
- **6.** Discuss the importance of memory hierarchy in optimizing system performance.
- 7. Detail the working principles and characteristics of magnetic memory.
- **8.** Explain the underlying technology and applications of optical memory.
- **9.** Illustrate the addressing schemes used in modern computing architectures.
- **10.** Explain the functionalities and differences between Read-Only Memories (ROMs), Programmable ROMs (PROMs), Erasable Programmable ROMs (EPROMs), and Electrically Erasable

Programmable ROMs (EEPROMs).

- **11.** Outline the fundamental components of a simple computer architecture, including CPU, memory, and I/O devices.
- **12.** Discuss how the design choices in registers, memory types, and architecture affect the overall performance and efficiency of a computer system.

TEN MARKS

- 1. Describe the internal structure and operation of a SISO register in detail.
- **2.** Explain the architecture and functioning of a SIPO register with examples.
- **3.** Analyze the significance of PISO registers in serial data transmission systems.
- **4.** Discuss the structure and operation of a PIPO register, emphasizing its data handling capabilities.
- **5.** Conduct a comprehensive comparative analysis of SISO, SIPO, PISO, and PIPO registers.
- 6. Elaborate on the role of cache memory, primary memory (RAM), and secondary memory (like hard drives) within this hierarchy.
- 7. Compare and contrast different types of magnetic memory technologies (e.g., magnetic tapes, magnetic disks) regarding their storage capacities, access times, and durability.
- **8.** Explore the underlying principles behind various optical memory technologies (e.g., CDs, DVDs, Blu-rays).

Department of Computer Science

101

- **9.** Discuss the roles and interactions of these components in executing instructions and processing data.
- **10.** Evaluate the performance of a simple computer design based on the chosen registers, memory types, and architecture.
- **11.** Design a memory organization layout considering different memory types (e.g., RAM, ROM) and their addressing schemes.



INFORMATION TECHNOLOGY IN BUSINESS UNIT I

ONE MARKS

- **1.** Which of the following is not a characteristic of a computer?
 - a. Speed b. Reliability
 - c. Human emotions
- d.Storage capacity
- 2. What defines the ability of a computer to store and retrieve data?
 - a. Processing power b. Input devices
 - c. Memory capacity d. Output devices
- **3.** Which characteristic refers to a computer's capability to execute multiple tasks simultaneously?
 - a. Efficiency b. Multi-tasking
 - c. Speed

- d. Accuracy
- 4. Which component is primarily responsible for executing

instructions and performing calculations in a computer?

- a. Monitor b. CPU (Central ProcessingUnit)
- c. Keyboard d. Printer
- **5.** The accuracy of a computer system is primarily determined by its:
 - a. Processing speed b. Input devices

Department of Computer Science

103

c. Error-checking mechanisms d. Output devices

6. What term refers to a computer's ability to understand and interpret human-readable data?

- a. Storageb. Processingc. Inputd. Output
- 7. Which characteristic refers to a computer's capability to remember previously stored information?
 - a. Storage b. Processing c. Input d. Output

8. Which type of computer is known for its ability to process huge volumes of data and complex calculations, often used in weather forecasting and scientific research?

- a. Personal computer b. Mainframe computer
- c. Supercomputer d. Tablet

9. What category of computers serves as a network server, handling numerous users and managing extensive databases?a. Personal computerb. Mainframe computer

c. Supercomputer d. Tablet

10. Which field often employs computers for tasks such as patient record management, diagnostic imaging, and drug research?

- a. Education b. Entertainment
- c. Medicine d. Business

Department of Computer Science

104

- **11.** In which area are computers frequently used for tasks like financial analysis, inventory management, and customer relationship management?
 - a. Education

b. Entertainment

c. Medicine

- d. Business
- **12.** Which component stores data permanently even when the computer is turned off?
 - a. RAM (Random Access Memory)
 - b. CPU (Central Processing Unit)
 - c. Hard drive
 - d. Motherboard
- **13.** What is responsible for managing communications between the CPU and other components?
 - a. RAM (Random Access Memory)
 - b. CPU (Central Processing Unit)
 - c. Hard drive
 - d. Motherboard
- **14.** Which component temporarily stores data and instructions for the CPU to access during operation?
 - a. RAM (Random Access Memory)
 - b. CPU (Central Processing Unit)
 - c. Hard drive
 - d. Motherboard

- **15.** What unit executes instructions provided by computer programs by performing basic arithmetic, logic, control, and input/output operations?
 - a. RAM (Random Access Memory)
 - b. CPU (Central Processing Unit)
 - c. Hard drive
 - d. Motherboard
- **16.** Which part of a computer system interprets and carries out instructions provided by software programs?
 - a. RAM (Random Access Memory)
 - b. CPU (Central Processing Unit)
 - c. Hard drive
 - d. Motherboard
- 17. Which of the following is an example of a pointing device?
 - a. Keyboard c. Mouse b. Monitor d.Printer
- **18.** What type of input device is used to capture and convert handwritten or drawn images into digital format?
 - a. Scanner b.Stylus
 - c. Joystick d. Webcam
- **19.** Which input device is commonly used for gaming and navigation, providing control in multiple directions?

Department of Computer Science

106
- a. Trackball
- c. Touchpad

b. Joystickd. Barcode Reader

- 20. What is the purpose of a barcode reader as an input device?
 - a. To capture and digitize printed text
 - b. To read and decode information from barcoded labels
 - c. To convert voice into text
 - d. To scan and capture images
- **21.** Which of the following is an example of an output device used for producing a hard copy of documents?
 - a. Monitor b Printer c. Speaker d. Plotter
- 22. What is the primary function of a monitor as an output device?
 - a. To produce printed documents
 - b To display visual information on a screen
 - c. To generate sound output
 - d. To scan and capture images
- **23.** Which output device is commonly used for producing highquality graphical prints, such as architectural drawings?
 - a. Printer b Plotter c. Speaker d Monitor
- 24. Which output device is responsible for converting digital

signals into sound waves? a. Printer **b** Plotter d Monitor c. Speaker 25. Which output device is responsible for converting digital signals into sound waves? a. Printer **b** Plotter c. Speaker d Monitor **26.** What is the purpose of a microphone as a device? a. Input b. Output c. Both Input and Output d. Neither Input or Output 27. Which device can serve both as an input and an output device? a. Printer b. Scanner c. Touchscreen d. Joystick 28. A digital camera is primarily considered which type of device? b. Output a. Input c. Both Input and Output d. Neither Input or Output 29. What type of device is used to convert analog signals from a microphone into digital form for processing? a. Modem b. Scanner c. Analog-to-Digital Converter d. Printer 30. Which device is used for capturing images of printed text and

Department of Computer Science

converting them into digital text?

- a. Printer b. Scanner
- c. Plotter d. Webcam

Answers:

1. c	11. d	21. b
2. c	12. c	> 22. b
3. b	13. d	23. b
4. b	14. a	24. c
5. c	15. b	25. c
6. d	16. b	26. a
7. a	17. c	27. c
8. c	18. b	28. a
9. b	19. b	29. c
10. c	20. b	30. b

TWO MARKS

- **1.** Abbreviate COMPUTER and give the two principle characteristics of a computer.
- 2. Define Hardware and Software.
- 3. Give definition for any two-hardware component.
- 4. What is meant by Versality?
- 5. What is the working of super computer?

Department of Computer Science

- 6. Distinguish between a mini computer and a microcomputer.
- 7. Differentiate between a laptop and a subnotebook.
- 8. List down the basic function of a computer.
- 9. What is so special about ergonomic keyboards?
- **10.** Give definition for joystick and digitizer.
- 11. What is function of a scanner?
- 12. Define monitor and how does it work?
- 13. Give definition for PCL and postscripts.
- 14. How the plotter works?
- 15. What is meant by interlaced?
- 16. List down the video standards for PCs.

FIVE MARKS

- 1. What is the difference between an impact printer and a non-impact printer?
- 2. Write briefly about Laser printer.
- 3. What are the characteristics of a monitor and discuss it briefly.
- 4. Give short notes on dot matrix, ink-jet, and thermal printer.
- 5. Define Scanners, Trackball, Joystick and how the scanner works?
- 6. Discuss briefly about mouse and its types.
- 7. Describe about keyboard with neat diagram.
- 8. Give short notes on Central Processing Unit.
- 9. What computers can do and can't do?
- 10. Explain briefly about the characteristics of computers.

TEN MARKS

- **1.** Describe in detail about the classification of digital computer system.
- 2. Explain the working of CPU with neat diagram.
- 3. Discuss about the parts of the CPU in detail.
- 4. Define Input devices and discuss about Keyboard and Mouse.
- 5. Write in detail about the classification of monitors based on signals.
- 6. Describe about the video standard in detail.
- 7. Explain the types of Printers in detail.



UNIT II

ONE MARKS

- 1. What is the primary function of RAM in a computer?
 - a. Long-term storage
 - b. Temporary storage and quick access
 - c. Graphics processing
 - d External data transfer
- 2. Which of the following is a type of volatile memory?
 - a. Hard Disk Drive (HDD) b. CD-ROM
 - c. RAM

3. What does ROM stand for in computer terms?

- a. Random Output Memory b. Read-Only Memory
- c. Rapid Operation Mode d. Remote Output Module

d. Flash Drive

- 4. Which memory retains its data even when the power is turned off?
 - a. RAM

b. ROM

c. Cache Memory

d. Virtual Memory

- 5. What is the purpose of the CPU cache?
 - a. Long-term storage
 - b. Temporary storage for frequently accessed data
 - c. Optical data reading
 - d. External data transfer

Department of Computer Science

- **6.** Which of the following is an example of a magnetic storage device?
 - a. USB Flash Drive
 - c. Hard Disk Drive (HDD)

b. DVD-RWd. SSD (Solid State Drive)

- 7. What is the main advantage of SSD over HDD?
 - a. Higher storage capacity
 - b. Lower cost
 - c. Faster data access and transfer
 - d. Longer lifespan
- 8. Which optical storage medium typically stores the most data?
 a. CD-ROM
 b. DVD-RW
 b. DVD-RW
 - c. Blu-ray Disc (BD) d. Floppy Disk
- 9. What is the purpose of a USB Flash Drive?
 - a. Long-term storage
 - b. Temporary storage for frequently accessed data
 - c. Portable data transfer
 - d. Optical data reading
- 10. Which of the following is a cloud-based storage solution?
 - a. External Hard Drive b. Dropbox
 - c. DVD-RW d. Zip Disk

- 11. What is the purpose of system software?
 - a. To perform specific tasks for the user
 - b. To manage hardware resources and provide essential services
 - c. To create documents and presentations
 - d. To connect to the internet
- **12.** Which of the following is an example of application software?
 - a. Operating System b.
 - c. Device Drivers

b. Microsoft Wordd. BIOS

- 13. What is the role of device drivers in a computer system?
 - a. Manage application software
 - b. Control peripheral devices
 - c. Organize file storage
 - d. Execute system commands
- **14.** Which type of software is designed to protect a computer from malicious software and security threats?
 - a. System software b. Application software
 - c. Utility software d. Security software
- 15. What is the purpose of utility software?
 - a. Word processing
 - b. System maintenance and optimization
 - c. Graphic design d. Internet browsing

Department of Computer Science

Department of Comput	ter Science 115	
c. Development software	d. Security software	
a. System software	b. Application software	
writing code?	h Annlingting of former	
20. Which type of software is d	esigned to assist programmers	s in
d. Database management		
c. Manage communication be	tween computers	
b. System optimization		
a. Graphic design		
19. What is the main purpose of r	network software?	
c. Linux Operating System	d. AutoCAD	
a. Microsoft Office	b. Adobe Acrobat	
Software?		
18. Which of the following is an e	example of open-source	
d. To manage system resource	es	
c. To create multimedia conte	ent	
b. To provide a user interface		
a. To control hardware device	2S	
17. What is the primary function	of firmware?	
c. Utility software	d. Security software	
a. System software	b. Application software	
16. Which category does Adobe I	Photoshop belong to?	

21. What is the primary function of an operating system? a. Running applications b. Managing hardware and software resources c. Creating documents d. Designing user interfaces 22. What is the role of the kernel in an operating system? a. User interface b.Resource management c. Application execution d. File storage 23. Which of the following is not an example of an operating system? b.Linux a. Windows c. Microsoft Office d.macOS 24. What is the purpose of a file system in an operating system? a. Managing memory b Organizing and storing data c. Running applications d Controlling the CPU 25. Which of the following is a function of the memory management system? a. File organiza.tion b. Process scheduling c. Disk formatting d. Allocating and deallocating memory

26. Which programming language is known for its portability and is often used for system-level programming?

- a. Java b. C++
- c. Python d. Assembly Language
- **27.** What type of programming language is Python considered to be?
 - a. Low-level language //b. High-level language
 - c. Assembly language d. Machine language
- **28.** Which programming paradigm is associated with the objectoriented programming (OOP) paradigm?
 - a. Procedural programming
 - b. Functional programming
 - c. Object-oriented programming
 - d. Declarative programming
- **29.** What is the purpose of a compiler in the context of programming languages?
 - a. Executing code
 - b. Translating source code into machine code
 - c. Debugging programs
 - d. Managing memory allocation
- **30.** Which programming language is commonly used for web development and is known for its client-side scripting capabilities?

a. Java c. JavaScript	b. (d.)	b. C# d. Ruby	
Answers:			
1. b	11. b	21. b	
2. c	12. b	22. b	
3. b	13. b	23. c	
4. b	14. d	24. b	
5. b	15. b	> 25. d	
6. c	16. b	26. b	
7. c	17. a	27. b	
8. c	C 18. c	28. c	
9. c	19. c	29. b	
10. b	20. c	30. c	

TWO MARKS

- 1. Define Registers and addresses.
- 2. What are the two basic types of RAM.
- 3. How EEPROM is different from EPROM and PROM?
- 4. Define flash memory.
- 5. Compare Random and sequential access.
- 6. Define Winchester Disk.
- 7. What is meant by Auxiliary Storage devices?
- 8. How the optical disk works?
- 9. List down any two disadvantages of magnetic tapes.
- 10. Define the two categories of software.

- 11. What is meant by compilers and interpreters?
- **12.** Give definition for DBMS.
- **13.** What is the use of image processors?
- **14.** How the OS works?
- **15.** Write the advantage of Assembly language.
- 16. List down the types of high level languages.
- 17. How the compilation process works?
- 18. Define object linking and embedding.
- 19. Differentiate between data and information.

FIVE MARKS

- 1. What are optical disks and how do they work?
- 2. Distinguish between a random access and sequential access devices.
- 3. Explain the working of magnetic tapes.
- 4. How the floppy disk is different from hard disk and differ it?
- 5. Give the advantages and disadvantages of magnetic tape.
- 6. Write down the importance of RAM, ROM, PROM, EPROM, and EEPROM.
- 7. What are the problems with file processing and explain its types shortly.
- 8. Describe about machine language, Assembly language and natural language.
- 9. Discuss about the functions of operating system?
- 10. How the operating system classified?

TEN MARKS

- **1.** What is known as auxiliary memory and explain about magnetic tapes and floppy disk?
- **2.** What is meant by software and explain its types with neat diagram.
- 3. Elucidate the high-level language and its types.
- 4. Describe about the five levels of languages.
- 5. Explain in detail about software features.
- 6. Explain the functions of Operating System.
- 7. Explain the types of Operating System.



UNIT III

ONE MARKS

- **1.** What is the primary purpose of a Database Management System (DBMS)?
 - a. Web browsing
- b. Data storage and retrieval
- c. Graphic design
- d. Word processing
- 2. Which of the following is not a component of a DBMS?
 - a. Database
 - c. Hardware

b. Software

- d. Printer
- 3. What is the function of the Data Dictionary in a DBMS?
 - a. Stores data records
 - b. Manages database connections
 - c. Describes the structure of the database
 - d. Executes SQL queries
- 4. What is normalization in the context of database design?
 - a. Reducing redundancy and dependency
 - b. Increasing data redundancy
 - c. Deleting data records
 - d. Ignoring data dependencies
- **5.** Which language is commonly used to interact with a relational database?

Department of Computer Science

- a. Java
- c. SQL

b. HTMLd. Python

- 6. What is the purpose of an Index in a database?
 - a. Sorting records b. Speeding up data retrieval
 - c. Storing large files d. Creating tables
- 7. Which of the following is an example of a relational database model?
 - a. NoSQL
 - c. SQL Server

b. MongoDB d.Redis

- 8. What does ACID stand for in the context of database transactions?
 - a. Atomicity, Consistency, Isolation, Durability
 - b. Aggregation, Compatibility, Integrity, Dependability
 - c. Association, Concurrency, Inheritance, Division
 - d. Access, Control, Isolation, Dependency
- 9. In a database, what does a foreign key represent?
 - a. A key used for encryption
 - b. A unique identifier for a record
 - c. A link between two tables
 - d. A primary key in another database
- 10. What is the role of a Transaction Manager in a DBMS?
 - a. Managing hardware resources

Department of Computer Science

- b. Ensuring data integrity in transactions
- c. Creating database reports
- d. Designing database tables
- **11.** W0hat type of DBMS is best suited for handling complex relationships and queries?
 - a. Hierarchical DBMS b. Network DBMS
 - c. Relational DBMS d. Object-Oriented DBMS
- 12. Which type of DBMS organizes data in a tree-like structure with parent-child relationships?
 - a. Relational DBMS b. Hierarchical DBMS
 - c. Object-Oriented DBMS d. NoSQL DBMS

13. In a Distributed DBMS, data is stored:

- a. On a single server b. Across multiple servers
- c. On a cloud-based platform d.Only in memory
- 14. What is the primary advantage of using an Object-Oriented DBMS?
 - a. Improved security
 - b. Enhanced scalability
 - c. Efficient handling of complex data types
 - d. Faster transaction processing
- **15.** Which function of a DBMS ensures that data remains accurate and consistent even in the event of a system failure?

a. Data Retrieval

b. Data Security

c. Data Recovery

d. Data Integrity

- 16. What role does the Query Language play in a DBMS?
 - a. Defines the structure of the database
 - b.Manages user access and permissions
 - c. Facilitates communication with the database
 - d. Encrypts data for storage

17. Which function of a DBMS involves controlling access to data based on user permissions?

- a. Data Storage b. Data Retrieval
- c. Data Security d. Data Integrity
- **18.** What is the purpose of the Backup and Recovery function in a DBMS?
 - a. Sorting data for efficient retrieval
 - b. Preventing unauthorized access
 - c. Ensuring data availability after a failure
 - d. Creating new database instances
- **19.** Which type of DBMS is suitable for handling unstructured and semi-structured data?
 - a. Relational DBMS b. NoSQL DBMS
 - c. Hierarchical DBMS d. Object-Oriented DBMS
- 20. What is the primary function of a Data Definition Language

Department of Computer Science

(DDL) in a DBMS?

- a. Manipulating data
- b. Retrieving data
- c. Defining database structure
- d. Securing data
- **21.** What is a LAN?
 - a. Local Area Network

c. Large Array Network 🥌

- b.Longitudinal Access Node d.Linked Application Node
- **22.** Which of the following is a characteristic of a Wide Area Network (WAN)?
 - a. Limited geographic area
 - b. High data transfer rates
 - c. Interconnects devices within a single building
 - d. Spans a large geographical area
- 23. In networking, what is the purpose of a router?
 - a. Connects devices within the same LAN
 - b.Filters and forwards data between networks
 - c. Manages network security
 - d. Provides a physical connection between computers

24. Which network topology connects all devices in a circular fashion?

- a. Bus Topology b. Star Topology
- c. Ring Topology d. Mesh Topology

Department of Computer Science

25. What is the main advantage of a Star Topology?

- a. Robust and fault- tolerant
- b. Easy to install and manage
- c. Requires less cabling
- d. Provides direct communication between all devices

26. In a Mesh Topology, what is the term used to describe a dedicated communication line between two devices?

a. Node c. Hub b. Link d. Switch

27. Which network topology offers high fault tolerance and redundancy but requires more cabling?

a. Bus Topologyb. Ring Topologyc. Mesh Topologyd. Star Topology

28. What does the term "PAN" stand for in networking?

a. Public Area Network

b.Personal Area Network

c. Private Access Node

d.Primary Authentication Network

29. In a Bus Topology, what happens if the main cable is severed or a device fails?

a. Only the affected device is affected

b.The entire network is affected

Department of Computer Science

- c. Data is automatically rerouted
- d. The network becomes faster
- **30.** What is a disadvantage of a Ring Topology?
 - a. Difficult to install b. High cabling cost
 - c. Requires a central hub d. Data collisions can occur

Ans	W	er	s:

1.b	11. c	21. a
2.d	12. b	22. d
3.c	13. b	23. b
4.a	14. c 🔍	24. c
5.c	15. d	25. b
6.b	16. c	26. b
7.c	17. c	27. c
8.a	18. c	28. b
9.c	19. b	29. b
10.b	20. c	30. d

TWO MARKS

- **1.** What is data processing, and why is it essential in the realm of information systems?
- **2.** Define batch processing and provide an example of an application that uses this method.
- 3. List three components of a typical Database Management

System (DBMS).

- **4.** Differentiate between data and information in the context of a DBMS.
- **5.** Name two types of keys commonly used in a relational database.
- 6. What is the main advantage of using an Object-Oriented Database Management System (OODBMS) over a relational DBMS?
- 7. What are the two primary functions of a DBMS?
- 8. Define a computer network and provide an example of a network type.
- 9. Differentiate between LAN (Local Area Network) and WAN (Wide Area Network).
- **10.** Name two common types of network topologies and briefly describe each.

FIVE MARKS

- **11.** Explain the stages of the data processing cycle, highlighting the significance of each stage.
- **12.** Compare and contrast online transaction processing (OLTP) and online analytical processing (OLAP) in the context of data processing.
- **13.** Elaborate on the three-level architecture of a DBMS, highlighting the purpose and functions of each level.
- **14.** Discuss the ACID properties in the context of database transactions.

Department of Computer Science

- **15.** Compare and contrast the relational database model with the object-oriented database model.
- **16.** Discuss the role of a query language in a DBMS and provide an example of a commonly used query language.
- **17.** Explain the differences between a client-server network architecture and a peer-to-peer network architecture.
- **18.** Discuss the advantages and disadvantages of wireless networks compared to wired networks.
- **19.** Compare and contrast the star topology with the mesh topology in computer networks.
- 20. Describe the purpose of the OSI model in networking and
- 21. Briefly explain the functions of each layer.

TEN MARKS

- 1. Explain the concept of data governance and its role in effective data processing. Provide examples of data governance practices.
- 2. Explore the concept of normalization in the context of database design. Provide examples and discuss the benefits of normalization.
- **3.** Compare and contrast the advantages and disadvantages of centralized and distributed database systems.
- 4. Explain the functions of DBMS.
- 5. Describe the components of DBMS.
- 6. Explain the types of DBMS.
- 7. Explore the role of transactions in a database system. Discuss

the properties of transactions and their importance in ensuring data consistency and integrity.

- **8.** Investigate the concept of network protocols and their role in facilitating communication in computer networks.
- **9.** Compare and contrast the characteristics of a bus topology and a ring topology.
- **10.** Discuss the security considerations associated with wireless networks. Identify potential vulnerabilities and strategies for securing wireless communication.



UNIT IV

ONE MARKS

- 1. What does the term "ISP" stand for in the context of Internet access? a. Internet Service Provider b. Internet Security Protocol c. Internet Signal Processor //d. Internet Search Platform 2. Which protocol is commonly used for sending emails over the Internet? b. FTP a. HTTP d. DNS c. SMTP 3. What does the acronym "IP" stand for in the context of networking? a. Internet Provider b. Internet Protocol c. Information Packet d. Interconnected Platform 4. How many bits are in an IPv4 address? a. 16 bits b. 32 bits c. 64 bits d. 128 bits
- 5. What is the purpose of DNS in the context of the Internet?
 - a. Dynamic Network Security b.Dynamic Network Security
 - c. Data Networking Service d.Digital Naming Standard

- 6. Which of the following is not a valid top-level domain (TLD)? a. .com b. .net
 - d. .ftp c. .web
- 7. What is the role of NAT (Network Address Translation) in Internet addressing?
 - a. Assigning private IP addresses
 - b. Translating public IP addresses to private IP addresses
 - c. Assigning domain names to IP addresses
 - d. Verifying the authenticity of IP addresses

8. Which version of the Internet Protocol is the most widely used today? b. IPV4

d. IPV8

a. IPV2

c. IPV6

9. What is the purpose of a subnet mask in IP networking?

- a. To hide the IP address
- b. To identify the network an host portions of an IP addres
- c. To encrypt data during transmission.
- d. To control access to a network.
- 10. What is the purpose of DHCP (Dynamic Host Configuration Protocol) in networking?
 - a. Encrypting data packets
 - b. Assigning dynamic IP addresses to devices on a network
 - c. Verifying the integrity of network connections
 - d. Managing domain name registrations.

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- 11. What does "IRC" stand for?
 - a. Internet Relay Chat
 - b. Internet Resource Center
 - c. International Relay Communication
 - d. Internet Radio Connection Communication
- **12.** Which protocol is commonly used for sending and receiving emails?

b. FTP

d. UDP

- a. HTTP
- c. SMTP
- 13. What is the purpose of the "CC" field in an email?
 - a. Carbon Copy b. Closed Caption
 - c. Counter Check

d. Copy Count

- 14. Which of the following is NOT an example of an email service provider?
 - a. Gmail c. IRC d. Outlook
- 15. In IRC, what does "OP" stand for?
 - a. Online Presenceb. Operatorc. Overpowerd. Open Protocol
- 16. What is the purpose of the "BCC" field in an email?a. Blind Carbon Copy Code b.Business Communication

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c. Broadcast Copy Check d.Browser Cache Control

17. Which of the following is a common use of mailing lists?

a. Sending spam emails b. Sharing recipes

c. Organizing online meetings d. All of the above

18. What is the default port for the SMTP protocol?

a. 25	b. 80
c. 110	d. 443

19. Which protocol is commonly used for retrieving emails from a mail server to a client?

a. POP3	b. IMAP
c. SMTP	d. FTP

20. In the context of email, what does "HTML" stand for?

a. HyperText Markup Language

b. High-Throughput Mail Link

c. Hidden Text Mail Log Messaging Language

d.Hyperlink and Text

21. What is the primary purpose of including a clear and concise subject line in an email?

- a. To make the email look formal
- b. To grab the recipient's attention and convey the main idea
- c. To confuse the recipient d. To increase the word count

- **22.** Which of the following is an example of an appropriate use of CC (carbon copy) in an email?
 - a. Including everyone in the organization in every email
 - b.CC-ing your boss without a reason
 - c. CC-ing relevant stakeholders for transparency
 - d. CC in Never using emails
- **23.** What should you do if you receive an email with confidential information that was sent to you by mistake?
 - a. Share it with colleagues
 - b. Ignore it
 - c. Notify the sender and delete the email
 - d. Post it on social media
- 24. What does the term "multimedia" refer to?
 - a. Text-only content
 - b. Content that includes a combination of text, images, audio video, and interactive elements
 - c. Only video content
 - d. Static images only
- **25.** Which multimedia element is used to represent visual data in a two-dimensional space?

a. Audio	b. Text
c. Image	d. Video

26. What is the purpose of hyperlinks in multimedia content?

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- a. To slow down the navigation
- b. To provide additional information
- c. To confuse the user
- d. To make the content static
- 27. Which of the following is a vector graphics editing software?
 - a. Photoshop b. Illustrator
 - c. GIMP d. CorelDRAW
- 28. What is the primary function of video editing software?
 - a. Creating vector graphics footage
 - b. Editing and arranging video
 - c. Enhancing audio quality
 - d. Designing web pages
- **29.** Which tool is commonly used for creating and editing audio files?
 - a. Adobe Premiere Pro c. Final Cut Pro d. Blender
- **30.** What is the purpose of a content management system (CMS) in the context of multimedia?
 - a. Editing images
 - b. Managing and organizing multimedia content
 - c. Creating animations
 - d. Recording audio

Answers:

1.	а	11. a	21. b
2.	c	12. c	22. c
3.	b	13. a	23. c
4.	b	14. c	24. b
5.	b	15. b	25. c
6.	d	16. a	26. b
7.	b	17. c	27. b
8.	с	18. a 🧼	28. b
9.	b	19. b	29. B
10	. b	20. a	30. b

TWO MARKS

- 1. Define Internet access.
- 2. Name two common methods of accessing the Internet.
- 3. What does IP stand for in the context of networking?
- 4. Differentiate between IPv4 and IPv6.
- 5. What is the purpose of an IP address.
- 6. What is the significance of domain names in internet addressing?
- 7. Define the World Wide Web.
- 8. Name one protocol commonly used for accessing websites.
- 9. What is Internet Relay Chat?
- 10. Mention one use of IRC in the online community.
- 11. Expand the term "Email."
- **12.** What is an email attachment?

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- 13. Define email etiquette.
- **14.** What is multimedia?
- **15.** Name a common graphic editing tool used in multimedia.

FIVE MARKS

- 1. Explain the concept of Internet access and its significance.
- 2. Compare and contrast broadband and dial-up as methods of Internet access.
- 3. Describe the role of IP addresses in network communication.
- 4. Discuss the differences between TCP (Transmission Control Protocol) and UDP (User Datagram Protocol).
- 5. Discuss the importance of domain names in internet addressing.
- 6. Provide an overview of the World Wide Web and its components.
- 7. Describe the features and functionalities of Internet Relay Chat.
- 8. Explain the basic components of an email header.
- **9.** Describe the steps involved in composing and sending an email.
- **10.** Discuss the importance of professional email etiquette in the workplace.
- **11.** Define multimedia and explain its significance in various applications.
- **12.** Discuss the elements that make up multimedia content.

13. Explain the role of video editing software in multimedia content creation.

TEN MARKS

- **1.** Discuss the evolution of Internet access methods, from dial-up to broadband.
- **2.** Explain the impact of high-speed Internet access on businesses and individuals.
- **3.** Provide a detailed explanation of how the Internet Protocol (IP) works in data transmission.
- **4.** Explain the hierarchical structure of the Domain Name System (DNS).
- 5. Discuss the role of Network Address Translation (NAT) in Internet addressing.
- 6. Discuss the principles of web design and user experience in the context of WWW.
- 7. Discuss the role of IRC in fostering online communities and collaboration.
- 8. Explore the concept of mailing lists and their applications.
- **9.** Provide a comprehensive guide to professional email etiquette in various business scenarios.
- **10.** Explore the interdisciplinary nature of multimedia and its applications in education, entertainment, and business.
- **11.** Provide an overview of multimedia authoring tools and their role in content creation.

<u>UNIT V</u>

ONE MARKS

- **1.** What is the primary focus of Business-to-Consumer (B2C) e-commerce?
 - a. Business-to-Business transactions
 - b. Consumer-to-Consumer transactions
 - c. Business-to-Consumer transactions
 - d. Consumer-to-Business transactions
- 2. Which of the following is an example of a mobile commerce (m-commerce) transaction?
 - a. Online shopping through a desktop computer
 - b. Purchasing goods using mobile app
 - c. In-store cash transactions business
 - d. Faxing an order form to a business
- **3.** What is the primary characteristic of Social Commerce (s-commerce)?
 - a. Direct selling through social media platforms
 - b. Traditional brick-and-mortar store operations
 - c. E-commerce transactions through email
 - d. Phone-based transactions
- **4.** In which type of e-commerce does a third party facilitate transactions between buyers and sellers?

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- a. Business-to-Consumer
- b. Consumer-to-Business
- c. Consumer-to-Consumer
- d. Business-to-Business
- 5. What does the term "m-payment" refer to in e-commerce?
 - a. Mobile payment b.Mail payment
 - c. Manual payment d.Multi-payment
- 6. What is the main purpose of a feasibility study in the system development life cycle?
 - a. To design system interfaces
 - b. To analyze system requirements
 - c. To assess the viability of a proposed system
 - d. To implement the system.

7. Which phase of the system development life cycle involves defining user requirements and system specifications?

- a. Implementationb. Designc. Analysisd.Maintenance
- 8. What is the primary goal of system design in the system development life cycle?
 - a. To identify user requirements
 - b. To create a detailed blueprint for the system
 - c. To conduct a feasibility study
 - d. To implement the system

- **9.** Which of the following is a characteristic of the implementation phase in the system development life cycle?
 - a. Coding and programming
 - b. Defining user requirements
 - c. Creating system specifications
 - d. Conducting a feasibility study
- **10.** What is the primary focus of the maintenance phase in the system development life cycle?
 - a. Designing the system architecture
 - b. Identifying user requirement
 - c. Enhancing and supporting the implemented system
 - d. Conducting a feasibility study

11. What is Mobile Commerce (m-commerce)?

- a. Mail-order shopping mobile device
- b. Online shopping using a
- c. Traditional brick-and- mortar shopping
- d. Telephone-based shopping
- **12.** In the context of E-Commerce, what does the term "B2C" stand for?
 - a. Business to Customer b. Business to Competition
 - c. Buyer to Customer d. Banking to Commerce
- **13.** Which industry has widely adopted mobile commerce for services like account management and fund transfers?
- a. Retail
- c. Healthcare

b. Bankingd.Travel and Tourism

- **14.** What is the primary advantage of using mobile wallets in mobile commerce transactions?
 - a. Lower internet speed requirements
 - b. Increased physical security
 - c. Faster checkout process
 - d. Enhanced screen resolution
- **15.** Which E-Commerce application is commonly used for the online payment of utility bills?
 - a. Mobile Banking b. Mobile Wallets
 - c. Electronic Funds Transfer d. Mobile Shopping Apps

16. How does mobile commerce benefit the insurance industry?

- a. Improved claim processing b.Enhanced policy drafting
- c. Reduced policy premiums d.Increased agent commissions

17. What is the term for the process of using mobile devices to make in-store payments at the point of sale (POS)?

- a. Mobile Shopping b. Mobile Banking
- c. Mobile Checkout d. Mobile Point of Sale
- 18. In E-Commerce, what does the acronym "SSL" stand for?
 - a. Secure Sockets Layer b. Software System Language
 - c. Systematic Security Level d. Secure Shopping Link

- **19.** Which technology is crucial for secure mobile commerce transactions?
 - a. NFC (Near Field Communication)
 - b. Bluetooth
 - c. Infrared
 - d. Radio Frequency Identification (RFID)
- **20.** How does E-Commerce impact the retail industry in terms of customer reach?
 - a. Limited reach compared to traditional retail
 - b. High-Throughput Mail Link Localized customer base
 - c. Global reach and outreach
 - d. Minimal impact on customer
- **21.** What is the primary reason for the growing popularity of e-tailing?
 - a. Limited product variety b. Lower prices
 - c. Lack of convenience d. Slow shipping times
- **22.** Which of the following is a potential benefit of e-tailing for consumers?
 - a. Limited product information
 - b. Restricted shopping hours
 - c. Convenient access to a wide range of products
 - d. Higher in-store prices

23. What is a common challenge or problem associated with e-

tailing?

- a. Limited product selection prices
- b. Difficulty in comparing
- c. Instant gratification
- d. High in-store foot traffic
- **24.** Which online service is primarily associated with financial transactions?

a. Online Travel Booking b.Online Learning Platforms

- c. Online Shopping d. Online Banking
- **25.** What type of services can one expect from online travel platforms?
 - a. Stock trading

b. Flight and hotel bookings

c. Online courses

- d. Grocery delivery
- **26.** Which of the following is a common feature of online career services?
 - a. Physical job fairs
 - b. Limited job postings
 - c. Personalized career assessments
 - d. Manual resume submissions

27. What is a significant advantage of online learning?

- a. Limited course options b. Fixed class schedules
- c. Flexibility in study hours d. High travel expenses
- 28. Which platform is known for providing Massive Open Online

Courses (MOOCs)? a. LinkedIn Learning c. Udacity

b. Courserad. Khan Academy

29. Which e-commerce platform is known for its global reach and diverse product range?

a. Snapdeal	b.Amazon
a. Shapacai	0.7 11102011

c. Alibaba / d. Flipkart

30. What sets Amazon apart as an online shopping platform?

- a. Limited product categories
- b. Slow shipping times

c. Prime membership with fast shipping

d. High prices

Answers:

1.	c	11. b	21. b
2.	b	12. a	22. c
3.	a	13. b	23. b
4.	c	14. c	24. d
5.	a	15. c	25. b
6.	c	16. a	26. c
7.	c	17. d	27. с
8.	b	18. a	28. b
9.	a	19. a	29. c
10.	с	20. c	30. c

TWO MARKS

- 1. What is Electronic Commerce (e-commerce)?
- 2. List the main classifications of e-commerce.
- **3.** Define Mobile Commerce and provide an example of its application.
- 4. What is System Analysis and Design in the context of e-commerce?
- 5. How does e-commerce benefit the banking industry?
- 6. What is the role of e-commerce in the insurance sector?
- 7. What is the significance of e-commerce in the payment of utility bills?
- 8. What are the key features of e-tailing?
- 9. List three benefits of e-tailing.
- 10. Identify two common problems associated with e-tailing.
- **11.** Discuss the popularity of online services in the financial industry.
- 12. How has e-commerce impacted the travel industry?
- 13. What is the role of e-commerce in online learning?
- 14. Provide an overview of the features of popular online shopping platforms like Amazon, Snapdeal, Alibaba, and Flipkart.

FIVE MARKS

1. Explain the five main classifications of e-commerce and

provide an example for each.

- **2.** Discuss the phases involved in the life cycle of an e-commerce system, highlighting the significance of each phase.
- **3.** Describe the key components of System Analysis and Design in the context of developing an e-commerce platform.
- **4.** Explore the applications of Mobile Commerce in the business landscape, citing specific examples.
- 5. Evaluate the impact of e-commerce on traditional brick-andmortar businesses, emphasizing the concept of 'Business on the Internet.'
- 6. Analyze the role of e-commerce in the banking industry, considering both advantages and potential challenges.
- 7. Examine the ways in which e-commerce is applied in the insurance sector, illustrating with relevant examples.
- 8. Discuss the significance of e-commerce in the payment of utility bills, highlighting the benefits for both consumers and service providers.
- **9.** Provide a detailed overview of e-tailing, including its popularity, benefits, common problems, and distinctive features.
- **10.** Compare and contrast the e-commerce applications in the financial, travel, and career sectors, emphasizing the unique features of each.
- **11.** Explore the role of e-commerce in online learning, discussing its impact on education and the key benefits it offers.
- **12.** Analyze the strategies employed by popular online shopping platforms like Amazon, Snapdeal, Alibaba, and Flipkart to

attract and retain customers.

- **13.** Examine the challenges faced by e-commerce platforms in ensuring the security and privacy of online transactions.
- **14.** Discuss the ethical considerations associated with ecommerce, particularly in the context of online services and online learning.
- **15.** Evaluate the future trends and developments in the field of ecommerce, considering advancements in technology and changing consumer behaviors.

TEN MARKS

- 1. Provide a comprehensive overview of Electronic Commerce, covering its definition, historical evolution, and major drivers of growth.
- **2.** Examine in detail the classifications of e-commerce, discussing the characteristics and examples of each type.
- **3.** Elaborate on the System Analysis and Design process as it applies to the development of an e-commerce system, emphasizing its stages and methodologies.
- **4.** Discuss the life cycle of an e-commerce system, breaking down each phase and explaining the critical activities involved in the development and maintenance of such systems.
- **5.** Explore the evolution and current state of Mobile Commerce, detailing its key features, advantages, and challenges. Provide examples of successful mobile commerce applications.
- 6. Analyze the impact of e-commerce on traditional business

models, especially focusing on the concept of 'Business on the Internet' and the transformations it brings to various industries.

- 7. Evaluate the role of e-commerce in the banking industry, considering its effects on customer service, transaction processing, and overall business strategies.
- 8. Examine the applications of e-commerce in the insurance sector, paying attention to how it enhances efficiency, customer experience, and risk management.
- 9. Provide an in-depth analysis of e-commerce applications in utility bill payment.
- **10.** Explore e-tailing as a significant aspect of e-commerce, delving into its popularity, benefits, common problems, and unique features that distinguish it from traditional retail.
- 11. Compare and contrast the role and impact of e-commerce in the financial, travel, and career sectors, highlighting specific examples and trends.
- **12.** Examine the role of e-commerce in online learning, discussing its implications for education, skill development, and the challenges associated with virtual learning platforms.
- **13.** Analyze the business strategies of major online shopping platforms such as Amazon, Snapdeal, Alibaba, and Flipkart, considering their approaches to customer acquisition, retention, and innovation.
- 14. Discuss the ethical considerations associated with ecommerce, focusing on issues such as privacy, security, and responsible business practices.

15. Provide an outlook on the future of e-commerce, considering emerging technologies, potential challenges, and the evolving landscape of online business.



About the Author



Mrs. M. Suguna was born in 1982 in Virudhunagar. She is currently working as an Assistant Professor in the Department of Computer Science, at St.Joseph's College of Arts and Science for Women, Hosur. She has completed her M.C.A., and M.Phil., in Madurai Kamaraj University and also cleared NET. She has a versatile experience of 10 years. She has published many papers in National and International Journals. Her areas of interest include Machine Learning and Data mining. Received the Best Senior Faculty Award from Novel Research Academy, Registered under the Ministry of MSME, Government of India. She published book Programming has a on in Java(ISBN:9789355773333). She has published a lecture notes on Natural Language Processing (ISBN: 9789360764272). She has published a Guide Book to Wisdom Pursuers on Operating System, Management Information System, Internet and its Application, Internet of Things (ISBN: 9789360767259). She has published a lecture notes on Advanced Software Engineering (ISBN: 9789361280207).

