H.T No: | | | | | | | | | | | **R18** **Course Code: A30534**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech VII Semester Regular/Supplementary Examinations November-2024
Course Name: Design Patterns
(Common for CSE & IT)

Date: 26.11.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	What is design pattern?	2 M
2.	Why are design patterns important in software development?	2 M
3.	List the responsibilities of GLYPH.	2 M
4.	Explain "look-and-feel" in user interface design?	2 M
5.	Draw the Structure of abstract factory design pattern.	2 M
6.	Give an example of a real-world use case for the Singleton pattern.	2 M
7.	Summarize main components or participants in the Decorator pattern?	2 M
8.	What are the key participants in a Proxy pattern?	2 M
9.	What is the purpose of the Iterator design pattern?	2 M
10.	In the Mediator pattern, what is the role of the Mediator interface?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	i) How to use design patterns? Explain in detail.	5M
	ii) Explain about selection of a design pattern.	5M
	OR	
11. B).	What is Design pattern? Explain about the catalog of design patterns.	10M
12. A).	Explain the spelling checking hyphenation. Design problem in detail.	10M
	OR	
12. B).	Explain in detail about "supporting multiple window systems".	10M
13. A).	Discuss the Motivation, Structure, Collaborations and Implementation of the following Patterns: i) Abstract Factory ii) Builder.	10M
	OR	
13. B).	Discuss the Intent, Applicability, Sample code, and Known uses of the following Patterns: i) Prototype ii) Factory Method.	10M
14. A).	What is Composite? Describe in detail about structure, participants and collaborations of Composite.	10M
	OR	
14. B).	Explain in detail about Flyweight Design pattern.	10M
15. A).	i) Write about the intent, motivation, structure and applicability of chain of responsibility.	5M
	ii) Explain the implementation issues of Strategy pattern and write a sample code.	5M
	OR	
15. B).	i) Discuss the structure and participants of state design pattern.	5M
	ii) Write some of the benefits of Visitor pattern.	5M

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H.T No: | | | | | | | | | | | **R18** | **Course Code: A30535**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Machine Learning

(Computer Science & Engineering)

Date: 26.11.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	What is the inductive bias in machine learning?	2 M
2.	What is the purpose of a decision tree in machine learning?	2 M
3.	Define back propagation in neural networks.	2 M
4.	Why face recognition is considered an appropriate problem for neural network learning? Justify.	2 M
5.	State the purpose of Naïve Bayes classifier.	2 M
6.	What is the mistake bound model of learning?	2 M
7.	List the different sequential covering algorithms.	2 M
8.	Explain the concept of temporal difference learning in reinforcement learning.	2 M
9.	What is the primary goal of using prior knowledge in analytical learning?	2 M
10.	Define PROLOG-EBG in the context of learning with perfect domain theories.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Explain the concept learning task and describe how concept learning can be viewed as a search problem with a suitable example.	10M
	OR	
11. B).	Compare and contrast the Find-S algorithm and the Decision Tree Learning algorithm in terms of their hypothesis space search strategies and inductive biases. Provide a suitable example.	10M
12. A).	Explain the concept of K-Nearest Neighbor with sampling theory of context.	10M
	OR	
12. B).	Illustrate with an example how confidence intervals are used to compare the error rates of two different hypotheses. Explain the significance of these intervals in hypothesis testing.	10M
13. A).	Compare and contrast lazy learning and eager learning methods in machine learning. Provide examples of algorithms for each and discuss their respective strengths and weaknesses.	10M
	OR	
13. B).	Explain how the Bayes theorem is applied in concept learning. Provide an example to illustrate your explanation.	10M

(P.T.O..)

14. A). Describe the basic components of Reinforcement learning and provide an illustrative example. 10M

OR

14. B). Explain Q-learning algorithm steps in detail and discuss its relationship to dynamic programming with a suitable example. 10M

15. A). Explain the concept of Explanation-Based Learning (EBL) and its application in search control knowledge. Provide an example to illustrate how EBL works in practice. 10M

OR

15. B). Compare and contrast inductive learning and analytical learning. How can these two approaches be combined to enhance learning performance? Provide examples of inductive-analytical learning approaches. 10M

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H.T No: | | | | | | | | | | | **R18** | **Course Code: A30539**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Ethical Hacking

(Common for CSE & CSM)

Date: 28.11.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	Define IP Spoofing.	2 M
2.	List two common types of firewalls briefly.	2 M
3.	What are malware threats, and how do they affect computer systems?	2 M
4.	Define a privacy attack in the context of web hacking.	2 M
5.	Define cryptography and write its main purpose in cyber security.	2 M
6.	What role does a digital signature play in data security?	2 M
7.	Outline the steps for Email Security.	2 M
8.	What is DNS poisoning?	2 M
9.	Define hardware Trojans with its effects.	2 M
10.	What is the role of automated penetration testing tools in cyber security?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Discuss the different models of Distributed Denial of Service (DDoS) attacks with examples.	10M
	OR	
11. B).	Explain the process of IP addressing and routing in IPv4. Include a comparison with IPv6.	10M
12. A).	What is vulnerability assessment, and how does it differ from penetration testing? Discuss the steps involved in a vulnerability assessment and the role of tools like OpenVAS and Nessus.	10M
	OR	
12. B).	Explain the impact of buffer overflow attacks on system security. Discuss how these attacks work, including their potential effects on software, and methods used to prevent them.	10M
13. A).	Explain the concepts of private-key and public-key encryption and discuss the advantages and disadvantages of each in securing communications.	10M
	OR	
13. B).	Explain the strategic planning process for managing cyber security threats in an organization with examples.	10M
14. A).	Demonstrate the process of sniffing and how Wireshark can be used to capture network traffic. List its advantages.	10M
	OR	
14. B).	Compare and contrast Network-based Intrusion Detection Systems (NIDS) and Host-based Intrusion Detection Systems (HIDS).	10M

(P.T.O..)

15. A). Discuss the importance of the Penetration Testing Legal Framework. Explain key legal and ethical considerations that must be followed during a penetration test. 10M

OR

15. B). Demonstrate the steps involved in conducting a vulnerability assessment for a web application with an example. 10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30540

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Big Data Analytics

(Common for CSE, IT & AIM)

Date: 03.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1. Mention the applications of Big data analytics. 2 M
2. Define the big data? 2 M
3. Why Hadoop is used in Big data analytics? 2 M
4. What happens when a data node fails? 2 M
5. What is Shuffle phase in Map Reduce jobs? 2 M
6. How does Map Reduce achieve fault tolerance? 2 M
7. Specify the necessity of Apache Pig in Hadoop ecosystem. 2 M
8. How to script with pig Latin? 2 M
9. What is an external table in Hive? 2 M
10. List out HiveQL features? 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Describe the primary characteristics of Big Data with examples of how they impact data collection, storage, and analysis in modern organizations. 10M

OR

11. B). What is a NoSQL data base and write the features of NoSQL data base? 10M

12. A). Draw a neat sketch explain the typical architecture of Hadoop cluster. 10M

OR

12. B). Explain the communication process between Data Nodes and Name Node in Hadoop's HDFS. Why is this communication critical for the reliability and efficiency of the Hadoop Distributed File System? 10M

13. A). Explain in detail Map Reduce Architecture. 10M

OR

13. B). Describe the process of setting up Hadoop on a single node in pseudo-distributed mode. Include the installation of Hadoop, configuration of necessary files, and steps to start the Hadoop daemons. 10M

14. A). Explain in detail about PIG load, Store and relational operators. 10M

OR

14. B). Explain about the three key design principles of Pig Latin and Write about process of Apache Pig execution modes and mechanism. 10M

(P.T.O..)

15. A). Write about HIVE and illustrate HIVE architecture. 10M

OR

15. B). Explain any four functions on ALTER TABLE and When it is appropriate to go for Internal and External tables in Hive? 10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A31206**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Human Computer Interaction

(Information Technology)

Date: 28.11.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	Summarize the advantages and disadvantages of Graphical System.	2 M
2.	Tabulate the characteristic difference between GUI and Web page design.	2 M
3.	List the user's psychological responses to poor design.	2 M
4.	What are the key considerations for human interaction speeds in interface design?	2 M
5.	Mention any two differences between screen-based and device-based controls.	2 M
6.	State common problems in choosing colors for user interfaces.	2 M
7.	Why is iterative design important in HCI?	2 M
8.	What is the purpose of prototyping in practice?	2 M
9.	Define cognitive models in the context of HCI.	2 M
10.	Mention any two applications of augmented reality in real-world scenarios.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Discuss the significance of good design in user interfaces. What are the benefits of good UI design?	10M
	OR	
11. B).	Describe how graphical user interfaces have changed the way users interact with computers.	10M
12. A).	Design GUI for Learning Management System (LMS) Portal for an academic University. Include main functions such as Login page, List of Courses, Course Enrolment, Lectures, Assignment Submission, Exam registration, and other suitable functions [at least 5-interface screens]. Draw separate screen for each function and describe.	10M
	OR	
12. B).	What are the design goals for screen interfaces? How do these goals contribute to user satisfaction and efficiency?	10M
13. A).	Show the scenario where poorly chosen navigation schemes and color combinations lead to usability issues. Suggest improvements based on interface design principles.	10M
	OR	
13. B).	Elaborate on the role of icons and their impact on user interaction within a graphical user interface of mobile applications.	10M

(P.T.O..)

14. A). Explain the process and benefits of iterative design and prototyping in HCI, with a relevant use case. 10M

OR

14. B). Present a use case that requires universal design and show how universal design principles ensure accessibility for diverse users in the chosen use case. 10M

15. A). Explain the role of cognitive models in understanding user behavior. 10M

OR

15. B). Discuss the design principles and applications of augmented reality in real-world contexts including education and healthcare domain. 10M

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H.T No: | | | | | | | | | | | **R18** | **Course Code: A30536**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Adhoc & Sensor Networks

(CSC)

Date: 26.11.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	How to address the energy conservation in Ad hoc networks?	2 M
2.	List out the characteristics of Ad hoc networks.	2 M
3.	Define Jitter.	2 M
4.	What is the difference between broadcasting and multicasting?	2 M
5.	List out the all protocols of Geocast routing.	2 M
6.	What is Round Trip Time (RTT)?	2 M
7.	How Drinking Water Quality can be measured?	2 M
8.	What are the types of WSN?	2 M
9.	Write the network life time of SPIN, LEACH, and the Directed Diffusion routing techniques	2 M
10.	What is query based routing?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Describe the Ad hoc On-demand Distance Vector algorithm with suitable example.	10M
	OR	
11. B).	How to achieve the location service using Distance Routing Effect Algorithm for Mobility?	10M
12. A).	Explain about rebroadcasting schemes.	10M
	OR	
12. B).	Describe the Multicast Ad hoc On-demand Distance Vector algorithm with suitable example.	10M
13. A).	Explain about GeoTORA and MGR protocols.	10M
	OR	
13. B).	Explain the mobility related solutions for TCP over Ad Hoc.	10M
14. A).	Describe the static and dynamic channel allocation of MAC Layer.	10M
	OR	
14. B).	Explain the classification of routing protocols for WSNs.	10M
15. A).	Explain the goals of adapting to the Inherent Dynamic Nature of WSNs.	10M
	OR	
15. B).	Explain about distributed query processing and sensor databases.	10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A36221

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech VII Semester Regular/Supplementary Examinations November-2024
Course Name: Cloud Security
(CSC)

Date: 28.11.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	List the characteristics of private cloud.	2 M
2.	Name any two examples of SaaS (Software as a Service) applications.	2 M
3.	Define a web service in the context of cloud applications.	2 M
4.	What are the various privacy issues in cloud computing?	2 M
5.	Define privacy in the context of cloud computing.	2 M
6.	What is meant by authentication in cloud environments?	2 M
7.	What is multi-tenancy?	2 M
8.	What are four ways to secure a virtual machine?	2 M
9.	How is data stored securely in the cloud?	2 M
10.	What is access control in cloud security?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Define private, public and hybrid cloud, with examples for each. and explain the concept of Cloud Computing and its key characteristics.	10M
	OR	
11. B).	What are the business benefits involved in cloud architecture?	10M
12. A).	Explain the fundamental technologies involved in developing and deploying web services in cloud environments.	10M
	OR	
12. B).	Analyze the advantages and disadvantages of deploying a web service inside a cloud architecture	10M
13. A).	Discuss the security risks in cloud computing when the principles of non-repudiation and authentication are not properly implemented.	10M
	OR	
13. B).	Compare how confidentiality and privacy concerns are addressed differently in IaaS, PaaS, and SaaS cloud service models.	10M
14. A).	How does multi-tenancy in a virtualized cloud environment introduce security challenges and how can these be addressed?	10M
	OR	
14. B).	What are the key backup and recovery strategies for ensuring data security in virtualized cloud infrastructures?	10M
15. A).	Explain the role of security management standards in ensuring the security of cloud services like SaaS, PaaS, and IaaS.	10M
	OR	
15. B).	What is cloud security management? Explain benefits and challenges	10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A36222**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Biometric Systems

(CSC)

Date: 03.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1. Write the Benefits of Biometrics. 2 M
2. What is the meaning of Verification in Biometric systems? 2 M
3. Define the working principle of voice scan. 2 M
4. Write the working principle of automated Finger Print Identification. 2 M
5. What is the meaning of Privacy in Biometric systems? 2 M
6. What is the need of Standards in Biometric systems? 2 M
7. Define the term multi Biometrics. 2 M
8. What do you mean by Fusion in Biometric systems? 2 M
9. Write the Importance of User Interface in Biometric systems. 2 M
10. List the importance of security in Biometric System. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Explain about Key Biometric Processes with examples. 10M

OR

11. B). Explain about Performance measures in Biometric Systems. 10M

12. A). Explain about components and working principles of Signature scan and Keystroke scans. 10M

OR

12. B). Explain about behavioral biometrics strengths and weakness. 10M

13. A). Apply the concept of different biometric standards with real world scenarios 10M

OR

13. B). Write the Procedure in categorizing the biometric applications. 10M

14. A). Explain Multimodal systems in real-world security aspects. 10M

OR

14. B). Explain the Multi sample systems in real-world security aspects. 10M

15. A). List and explain various attacks at user Interface in Biometrics. 10M

OR

15. B). Apply the Spoofing in real-world security aspects. 10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A30521**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Scripting Languages

(Common for CSD & AID)

Date: 26.11.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	What are the sequences of tokens that are parsed by the Ruby Interpreter?	2 M
2.	Define an identifier. How Ruby uses identifiers?	2 M
3.	List any two data type conversion functions.	2 M
4.	List the memory allocation routines used?	2 M
5.	What are the uses of scripting languages?	2 M
6.	With an example show how to create arrays and how to access array elements?	2 M
7.	What is the purpose of pack and unpack function?	2 M
8.	What are the advantages of using modules?	2 M
9.	What is the full form of TCL and write the purpose of TCL.	2 M
10.	Write fundamental concepts of Tk.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	What is the advantage of SOAP implementation in Ruby? How Web Services can be used in writing of server and clients?	10M
	OR	
11. B).	Write a Simple Tk Application in Ruby and briefly discuss the purpose of those statements written in the Application.	10M
12. A).	Discuss the purpose of the different Ruby objects in C.	10M
	OR	
12. B).	How bridging of Ruby to other languages is done? Discuss.	10M
13. A).	What do you mean by Scalars in PERL? Explain Numeric and String Scalars with examples.	10M
	OR	
13. B).	What is regular expression? Discuss the different types of regular expressions with examples.	10M
14. A).	Discuss the considerations to be made for finer points of looping.	10M
	OR	
14. B).	Discuss the process/procedure involved in creating internet ware applications.	10M
15. A).	Define a procedure. Write a procedure in TCL to compute the factorial of a number.	10M
	OR	
15. B).	What is Namespace? Illustrate with examples of how to create namespace, import and export namespace.	10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A30543**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Natural Language Processing

(CSD)

Date: 28.11.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	What are the main components of a word in linguistic morphology?	2 M
2.	What are the primary methods used to analyze document structure?	2 M
3.	Name two common parsing algorithms used in syntax analysis.	2 M
4.	Define a treebank and its role in syntax analysis.	2 M
5.	Which paradigm is commonly used in semantic parsing for understanding context?	2 M
6.	Define semantic interpretation in the context of semantic parsing.	2 M
7.	What does predicate-argument structure primarily help with in NLP?	2 M
8.	Name two key components of a meaning representation system.	2 M
9.	How does an N-gram model work in language modeling?	2 M
10.	What is cross-lingual language modeling?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Explain morphological models and their importance in understanding word structure.	10M
	OR	
11. B).	How do various approaches perform in finding the structure of documents? Include comparative analysis.	10M
12. A).	Explain the impact of multilingual issues on syntax analysis models, discussing potential solutions to address these complexities.	10M
	OR	
12. B).	Consider the sentence: "I saw the man with the telescope." identify the two possible interpretations and discuss how a parsing model might decide which interpretation. Explain How do models resolve ambiguity in parsing?	10M
13. A).	Discuss the role of semantic interpretation in extracting meaning from natural language text.	10M
	OR	
13. B).	Analyze the sentence 'The bank was closed on Sunday' and explain the challenges a semantic parser might encounter in determining the meaning of the word 'bank' within this context.	10M
14. A).	Discuss different approaches to meaning representation systems and their applications.	10M
	OR	
14. B).	Explain how predicate-argument structure aids in understanding sentence meaning. Provide an example where this structure clarifies relationships between entities.	10M

(P.T.O..)

15. A). Discuss the importance of cohesion and reference resolution in discourse processing and how they contribute to language understanding. 10M

OR

15. B). How does a language model differentiate between the cohesive devices 'however' and 'therefore' in a discourse? Provide examples to illustrate how each affects the logical flow and coherence of a text. 10M

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H.T No: | | | | | | | | | | | **R18** | **Course Code: A36618**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Robotics Process Automation

(CSM)

Date: 26.11.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	What is Robotic Process Automation (RPA)?	2 M
2.	List two main components of RPA.	2 M
3.	Give an example of a basic data structure and its use case.	2 M
4.	Identify two key differences between iterative and recursive algorithms.	2 M
5.	Name two key differences between RPA and traditional automation.	2 M
6.	Identify two advantages of using flowcharts in process design.	2 M
7.	What are the main types of bots in RPA?	2 M
8.	Explain the concept of workload automation in RPA.	2 M
9.	Identify two risks associated with RPA implementation.	2 M
10.	How does the emerging RPA ecosystem support scalability in automation?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Explain the components of the RPA platform with a focus on UiPath's main components.	10M
	OR	
11. B).	Demonstrate how the Task Recorder in UiPath can be used to automate the process of emptying the recycle bin on a Windows PC.	10M
12. A).	Describe the Software Development Life Cycle (SDLC) and its main phases.	10M
	OR	
12. B).	Write an algorithm to sort a list of integers using the Bubble Sort method and explain its working with an example.	10M
13. A).	Describe the main components of the .NET Framework and their functions.	10M
	OR	
13. B).	Write a script in XML to define basic employee data with fields like ID, Name, and Department. Explain how XML can be useful in automation.	10M
14. A).	Describe the types of processes that can be automated using RPA. Provide examples for each.	10M
	OR	
14. B).	Design a flowchart for a simple RPA process to automate employee onboarding in an organization.	10M
15. A).	Discuss the challenges and risks in implementing RPA in an organization and suggest mitigation strategies.	10M
	OR	
15. B).	Assess how the emerging RPA ecosystem integrates with AI and machine learning to expand its capabilities.	10M

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H.T No: | | | | | | | | | | | **R18** | Course Code: A36617

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular Examinations November-2024

Course Name: Artificial Intelligence for Cyber Security

(CSM)

Date: 26.11.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1. Define Unstructured Data. Give any four examples. 2 M
2. Draw the block diagram of bagging algorithm. 2 M
3. What are the different URLs? List out. 2 M
4. Discuss about malicious pages. 2 M
5. What is CAPTCHA? Mention different structures. 2 M
6. How do you break the CAPTCHA? 2 M
7. Give the differences between Viruses and Worms. 2 M
8. List out the ML applications in hybrid intrusion. 2 M
9. Define Laplace smoothing. 2 M
10. Discuss about significance of spam filter. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). What is the significance of Cyber Security? Illustrate the various applications of Cyber Security. 10M

OR

11. B). Outline the different types of Time Series Analysis in Cyber Security with examples. 10M

12. A). Examine about Phishing URLs. Distinguish between Download URL and Command URL. 10M

OR

12. B). List the Feature Extraction Techniques. Explain in detail. 10M

13. A). Discuss Machine Learning Applications in Scan Detection with suitable examples. 10M

OR

13. B). Demonstrate how to solve CAPTCHA with neural network with an example. 10M

14. A). Explain the following: 10M

(i) Bots (ii) Bugs (iii) Spyware (iv) Trojan horses

OR

14. B). Identify the use of intelligent flow based IDS. List out the applications. 10M

15. A). Assess about Anomaly Detection Techniques for SMTP and HTTP with their applications. 10M

OR

15. B). Explain the following with suitable example: 10M

(i) Data collection from mail server

(ii) Naïve Bayes theorem to detect spam

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H.T No: | | | | | | | | | | | R18 | Course Code: A36621

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Speech and Language Processing
(CSM)

Date: 03.12.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A
Answer all TEN questions
Each question carries TWO marks. **10x2=20M**

1. Define the term "N-gram" in speech and language processing. 2 M
2. How TF-IDF is useful in information retrieval? 2 M
3. Explain the role of RNNs in sequence processing. 2 M
4. What is an IR-based question-answering system? 2 M
5. Briefly describe the vocal tract model. 2 M
6. What is the fundamental frequency of speech? 2 M
7. Write some functions of the ear in speech signal processing. 2 M
8. Explain the significance of short-term Fourier analysis in speech. 2 M
9. How HMM-based speech recognition works? 2 M
10. Why is isolated word recognition simpler than continuous speech recognition? 2 M

PART-B
Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Discuss the different methods for text normalization and their roles in preprocessing text data. 10M

OR

11. B). Describe Word2Vec and its importance in NLP. Explain its working mechanisms, including Skip-gram and CBOW models. 10M

12. A). i) Explain the process of text classification and its importance in natural language processing. 5M
ii) Describe the role of sentiment analysis in NLP. How is it applied in real-world scenarios? 5M

OR

12. B). Explain the encoder-decoder model with attention mechanism in machine translation. 10M

13. A). Explain the process of speech production and perception in humans, including the functions of different parts of the ear. 10M

OR

13. B). Explain the various representations of speech and their importance in speech processing. 10M

14. A). Discuss filter banks and their application in speech processing. 10M

OR

14. B). Explain Mel-frequency cepstrum and its significance in speech recognition. 10M

15. A). Discuss the challenges and techniques involved in large vocabulary continuous speech recognition. 10M

OR

15. B). Describe the architecture and development of voice assistant applications like Alexa or Google Assistant. 10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A36619

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular Examinations November-2024

Course Name: Big Data Analytics and Business Intelligence
(CSM)

Date: 03.12.2024 AN | Time: 3 hours | Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions
Each question carries TWO marks. 10x2=20M

1. What is data visualization? 2 M
2. Compare correlation and regression. 2 M
3. What is the primary difference between functional and procedural programming models in the context of Big Data? 2 M
4. Why is data cleaning an essential part of the Big Data workflow? 2 M
5. What is Apache Pig, and how is it used in Big Data processing? 2 M
6. Give an example of an advanced HQL feature. 2 M
7. Name one modern storage technology used for Big Data. 2 M
8. What is a framework in the context of Big Data analysis? 2 M
9. Define predictive analysis in the context of Big Data. 2 M
10. What is the primary role of a data analyst in a Big Data project? 2 M

PART-B

Answer the following. Each question carries TEN Marks. 5x10=50M

11.A). Discuss the types of data relations in data analytics and their significance in understanding data patterns. 10M

OR

11. B). Explain the concepts of classification and clustering in data analytics. Discuss the differences between supervised and unsupervised learning techniques. 10M

12. A). What is the role of operational databases in Big Data? Explain how they differ from traditional databases. 10M

OR

12. B). Describe the MapReduce programming model, including its key functions and workflow. How does it support data processing in the Hadoop ecosystem? 10M

13. A). Describe the architecture of Hive. Explain how it integrates with Hadoop and supports data warehousing and SQL-like querying on Big Data. 10M

OR

13. B). Describe SparkR and its role in Big Data analytics. How does SparkR integrate R programming with Spark to enable data scientists to perform large-scale data analysis? 10M

(P.T.O..)

14. A). Discuss the latest trends in Big Data, including the emerging technologies and their potential impact on data processing, storage, and analysis. 10M

OR

14. B). Explain the framework for Big Data analysis. What are the stages involved in analyzing Big Data, from data collection and cleaning to visualization and decision-making? 10M

15. A). Discuss the role and responsibilities of a data analyst in the context of Big Data. What skills and tools are essential for a data analyst working with large datasets. 10M

OR

15. B). Compare Business Intelligence (BI) with Business Analytics. Discuss the similarities and differences in their focus, tools, and applications. 10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A37314**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular Examinations November-2024

Course Name: Augmented Reality & Virtual Reality

(AIM)

Date: 26.11.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	List the challenges with Augmented Reality.	2 M
2.	What is the purpose of augmented reality?	2 M
3.	What is real time rendering?	2 M
4.	What is perception of motion in AR?	2 M
5.	Define Virtual Reality.	2 M
6.	Differentiate aural & haptic display in VR.	2 M
7.	List the Components of Virtual Reality.	2 M
8.	What is Tracker and Sensor in VR?	2 M
9.	What is 3D rotation?	2 M
10.	What is depth perception in VR?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	i) Write short note on history of Augmented Reality.	4M
	ii) Write short note on display technologies of AR.	6M
	OR	
11. B).	i) Explain Different types of AR.	6M
	ii) What software is used for augmented reality?	4M
12. A).	Write short note on : i) Flicker ii) Touch Receptors iii) Optical Distortions in AR.	10M
	OR	
12. B).	Explain in detail about Game Scene illumination in AR.	10M
13. A).	i) Discuss input and output interface in VR.	5M
	ii) List out the Real Time Application of VR.	5M
	OR	
13. B).	i) Write a Short Note on "VRML".	5M
	ii) What are the different types of virtual reality devices?	5M
14. A).	Discuss in detail about psychological and cognitive rehabilitation.	10M
	OR	
14. B).	i) Explain 2D and 3D with respect to Virtual Reality.	4M
	ii) What is Shading? Explain the various algorithms of it.	6M
15. A).	Discuss in detail the types of Visual Perception.	10M
	OR	
15. B).	Illustrate the improvement of latency and frame rate of visual rendering.	10M

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H.T No: | | | | | | | | | | | **R18** | Course Code: A37311

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular Examinations November-2024

Course Name: Expert Systems

(AIM)

Date: 28.11.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1. List various components of an Expert Systems. 2 M
2. What is Alpha-Beta pruning in game trees? 2 M
3. Define Predicate Logic. 2 M
4. How are rules used in Knowledge Representation? 2 M
5. What is an Expert System? 2 M
6. List the types of problems handled by Expert Systems. 2 M
7. What are Expert System Tools? 2 M
8. What is Knowledge Engineering? 2 M
9. How do you select the right tool for building an Expert System? 2 M
10. What is Knowledge Acquisition? 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Explain differences between BFS and DFS. 10M

OR

11. B). How do the Min-Max algorithm and Alpha-Beta pruning improve the efficiency of decision-making in game trees? 10M

12. A). Discuss Constraint Propagation and its importance in Knowledge Representation. 10M

OR

12. B). How are rules-based deduction systems implemented in Expert Systems? 10M

13. A). Describe the architecture of an Expert System in detail. 10M

OR

13. B). Discuss the challenges involved in designing and implementing expert systems. Write difficulties are facing in expert systems. 10M

14. A). What are the tools and methods used in knowledge engineering and system building for Expert Systems? 10M

OR

14. B). Explain the techniques used for knowledge representation in Expert Systems. 10M

15. A). Elaborate on the process of building an Expert System. What are the key steps in expert system development 10M

OR

15. B). Discuss the common difficulties and pitfalls encountered in the development of Expert Systems. 10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30341

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Operations Research

(Mechanical Engineering)

Date: 07.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1. Give any two examples of management problems solved through OR. 2 M
2. Give the properties of linear programming problem. 2 M
3. Explain degeneracy in transportation. 2 M
4. What do you understand by restricted assignments? 2 M
5. How does the sequencing technique help the manager? 2 M
6. Explain group replacement concept. 2 M
7. What are the assumptions made in the theory of games? 2 M
8. What are the assumptions of economic lot size formula? 2 M
9. What is Traffic Intensity in Queuing Theory. 2 M
10. Define dynamic programming and bell man's principle of optimality. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Describe the characteristics of OR. 10M

OR

11. B). A Plant manufactures two Products A and B. The profit contribution of each product is Rs 20 for A and Rs 24 for B. Each product passes through three departments of the plant. Time required and total time available are follows. 10M

Departments	Hours required		Available hours During the month
	Product A	Product B	
1	2	3	1500
2	3	2	1500
3	1	1	600

. Formulate the LPP and Solve by graphical method.

(P.T.O..)

12. A). Solve the following transportation problem by lowest cost entry method and further determine the optimality test. 10M

	D1	D2	D3	Supply
S1	50	30	220	1
S2	90	45	170	3
S3	250	200	50	4
Demand	4	2	2	

OR

12. B). Solve the travelling salesman job. 10M

	1	2	3	4	5
1	----	10	25	25	10
2	1	------	10	15	2
3	8	9	-----	20	10
4	14	10	24	-----	15
5	10	8	25	27	-------

13. A). Find the sequence that minimizes the total elapsed time (in hrs.) required to complete on the following two machines. 10M

Task	A	B	C	D	E
Machine-I	4	6	7	3	2
Machine-II	6	4	5	10	9

OR

13. B). The cost of the machine is Rs 6100/- and its crap value is only Rs 100/- the maintenance costs are found from the experience are as follows. 10M

Year	1	2	3	4	5	6	7	8
Maintenance. Cost (Rs.)	100	250	400	600	900	1250	1600	2000

When should the machines be replaced?

14. A). Solve the following game graphically. 10M

	B1	B2	B3	B4
A1	2	2	3	-1
A2	4	3	2	6

(P.T.O..)

OR

14. B). Find the optimum order quantity for a product for which the price breaks are as follows: 10M

Quantity	Unit cost (Rs.)
$0 \leq Q_1 < 500$	10.00
$500 \leq Q_2$	9.25

The monthly demand for a product is 200 unit, the cost of storage is 2% of unit cost and the cost of ordering is Rs. 350/-.

Solve the above question when the procurement set-up cost C_3 is only Rs. 100/- instead of Rs 350/-.

15. A). In a hair dressing Saloon with one barber, the customer is arrival follows Poisson distribution at an average rate of one every 45 min. The service time is exponentially distributed with a mean of 30 min. Find (i) Average number of customers in the saloon. (ii) Average waiting times of a customer before service. (iii) Average idle time of the barber. 10M

OR

15. B). Seven units of capital can be invested in four activities with the return from each activity given in the table below. Find the allocations of optimal to each activity the will maximize the total return. 10M

Optimum distribution of 6 workers to 3 districts		
X1	X2	X3
2	3	1

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H.T No: | | | | | | | | | | | **R18** **Course Code: A30514**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Computer Networks

(Electronics & Communication Engineering)

Date: 07.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	What is ARPANET?	2 M
2.	What is network hardware?	2 M
3.	Mention the types of framing with an example.	2 M
4.	What are the three protocols for noisy channels?	2 M
5.	List out Network layer services.	2 M
6.	What will happen if Congestion Control is not implemented in a Network?	2 M
7.	How would you describe the header format of UDP?	2 M
8.	List the duties of transport layer.	2 M
9.	Mention the types of HTTP messages.	2 M
10.	Illustrate the importance of DNS.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Discuss various transmission media available for building network.	10M
	OR	
11. B).	Explain the TCP/IP reference model with neat diagram.	10M
12. A).	Explain the media access control algorithm, CSMA/CD used in Ethernet. Why the same algorithm cannot be used in wireless LAN?	10M
	OR	
12. B).	Explain the operation of Go-Back-N protocol and Selective repeat Protocol.	10M
13. A).	Explain the function of Routing Information Protocol and specify the routing table contents. (RIP)	10M
	OR	
13. B).	Discuss about Hierarchical Routing Algorithm.	10M
14. A).	Explain the various fields of TCP header and the working of the TCP protocol.	10M
	OR	
14. B).	Explain in detail about the process-to-process delivery using UDP and its uses.	10M
15. A).	Interpret and assess how SMTP protocol is used in E-mail Applications.	10M
	OR	
15. B).	Summarize the elements of network management and explain the operation of SNMP protocol in detail.	10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A30013**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Business Management & Financial Analysis

(Common for CSE, IT, CSC & CSM)

Date: 07.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	Define the term 'management' and list its primary functions.	2 M
2.	Explain the concept of scientific management and its key principles.	2 M
3.	Define the term 'marketing mix'.	2 M
4.	Explain the role of human resource management in an organization.	2 M
5.	Distinguish between microeconomics and macroeconomics.	2 M
6.	Explain the concept of elasticity of demand.	2 M
7.	Explain the concept of Break-even analysis.	2 M
8.	Define the term 'production function'.	2 M
9.	Define the term 'financial statement analysis'.	2 M
10.	List the four primary financial statements.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Explain management with its nature and scope and characteristics.	10M
	OR	
11. B).	Outline Henry Fayol's principles of Management in detail.	10M
12. A).	Discuss the key functions of production management. Explain how these functions can be integrated to improve overall organizational efficiency and effectiveness.	10M
	OR	
12. B).	Develop a strategic marketing plan for a new product launch.	10M
13. A).	Explain managerial economics with its nature and scope.	10M
	OR	
13. B).	Illustrate meaning of demand forecasting with its methods.	10M
14. A).	Classify different types of costs in the organization.	10M
	OR	
14. B).	Explain in detail the Concept of Cost out-put relationship.	10M
15. A).	Explain the Objectives and types of Business enterprises in detail.	10M
	OR	

(P.T.O..)

15. B). 10M

Liabilities	Rs.	Assets	Rs.
Equity Share Capital	2,00,000	Machinery	5,92,000
12% Preference share capital	3,60,000	Investment	2,24,000
General Reserve	1,40,000	Stock	2,02,000
16% debentures	2,40,000	Bills Receivable	40,000
Trade payable	2,44,000	S. Debtors	98,000
Bank overdraft	40,000	Cash and Bank	76,000
Provision for Income Tax	36,000	Profit & Loss A/c	28,000
	12,60,000		**12,60,000**

Calculate Following Ratios from the above balance sheet:

1. Current Ratio
2. Liquid Ratio
3. Proprietary Ratio
4. Capital Gearing Ratio
5. Debt Equity Ratio

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H.T No: | | | | | | | | | | | **R18** **Course Code: A30557**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Web Programming

(Common for CE, EEE, ME & ECE)

Date: 11.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	Explain the purpose of Phrase Elements.	2 M
2.	What are the core elements of HTML structure?	2 M
3.	Where you can Add CSS Rules?	2 M
4.	Explain the importance of CSS for developing for Mobile Devices.	2 M
5.	What are the Applications of JavaScript?	2 M
6.	Define variables and functions in JavaScript.	2 M
7.	Explain the role of Document Type Definitions (DTDs) in XML.	2 M
8.	What is an XML Namespace?	2 M
9.	What are Rich Internet Applications (RIAs)?	2 M
10.	How do XML and DOM work in Ajax?	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	List different types of lists available in HTML and how to insert the image, Video in webpage.	10M
	OR	
11. B).	Explain the importance of Frames in webpage and create the webpage should include navigation links on the left frame and content on the right frame.	10M
12. A).	Identify how to control text formatting using CSS properties. Provide examples for text alignment, text transformation, and text decoration	10M
	OR	
12. B).	Explain in detail about Page Layouts in CSS with an example.	10M
13. A).	Explain how to add Script to webpages? With an example.	10M
	OR	
13. B).	Build a simple interactive form using JavaScript that takes user input and displays a customized greeting message.	10M
14. A).	Explain the concept of XML Namespaces with an example.	10M
	OR	
14. B).	Examine how the Document Object Model (DOM) represents an XML document.	10M
15. A).	Distinguish between traditional web applications vs Ajax-based applications.	10M
	OR	
15. B).	Explain how do you create an Ajax request using the XMLHttpRequest object with an example.	10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30537

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations November-2024

Course Name: Data Analytics with R

(Computer Science & Engineering)

Date: 11.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1. What is the syntax to define a basic function in R? 2 M
2. Define recursion in the context of programming. 2 M
3. Define data science. 2 M
4. List two common data types in R. 2 M
5. Name two basic math functions in R that can be used for arithmetic operations. 2 M
6. Write a line of R code to find the maximum value in the vector c(5, 10, 15, 20). 2 M
7. Which function in R can be used to save a plot as a PDF file? 2 M
8. What is the purpose of a t-test in statistical analysis? 2 M
9. Define clustering. 2 M
10. What are strengths of K-Means clustering compared to other clustering methods? 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). Write an R code snippet to perform basic arithmetic operations. 10M

OR

11. B). Explain the difference between a data frame and a matrix in R with suitable example. 10M

12. A). Explain the different data types in R with examples. 10M

OR

12. B). Explain the importance of visualizing data before analysis with an example. 10M

13. A). List and describe four common mathematical functions in R. Explain each function's purpose with example code. 10M

OR

13. B). Explain the purpose of probability functions in R and describe their common applications in statistical analysis. 10M

14. A). Explain and evaluate the applications of the normal, binomial, and Poisson distributions in analyzing real-world data. 10M

OR

14. B). Discuss the role of correlation and covariance in statistical analysis. 10M

15. A). Explain the process of building a decision tree. 10M

OR

15. B). Explain Bayes' Theorem and its application in classification. 10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A36716**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Exploratory Data Analysis

(Common for CSD, AID & Minor in DS)

Date: 11.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	List the Advantages of Data Analysis.	2 M
2.	Identify the need of Data Type Portability.	2 M
3.	Illustrate the process of Maximum likelihood Estimation.	2 M
4.	Distinguish between Analysis and Pooling phase in Bayesian Estimation.	2 M
5.	Classify the Advantages of Data Visualization.	2 M
6.	Discuss about Statistical Data Analysis.	2 M
7.	Explain about Feature Subset selection.	2 M
8.	Demonstrate about Categorical data.	2 M
9.	Distinguish between Canonical and Correlation Analysis.	2 M
10.	Outline the Factor Analysis.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Summarize Exploratory Data Analysis.	10M
	OR	
11. B).	Build the Steps in Data Exploration.	10M
12. A).	Elaborate traditional methods for dealing with missing data.	10M
	OR	
12. B).	Interpret the Models for missing Notation Radom Data.	10M
13. A).	Elaborate 2-D statistical Data Analysis.	10M
	OR	
13. B).	Identify the N-D statistical Data Analysis.	10M
14. A).	i) Outline the Forward selection and backward elimination.	5M
	ii) Develop Genetic Algorithms for feature Selection.	5M
	OR	
14. B).	i) Demonstrate Cluster based outlier Analysis.	5M
	ii) Construct Embedded Method of feature subset selection.	5M
15. A).	Outline Principal Component Analysis.	10M
	OR	
15. B).	Identify the need of Multidimensional Scaling.	10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A36638**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Machine Learning

(Minor in AIML)

Date: 16.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A
Answer all TEN questions
Each question carries TWO marks. **10x2=20M**

1. How to choose a function approximation algorithm? 2 M
2. Mention any two applications of Machine learning. 2 M
3. What are the appropriate problems for decision tree learning? 2 M
4. Explain the term "hypothesis space" in decision tree learning. 2 M
5. Describe the minimum description length principle. 2 M
6. What is case-based reasoning in instance-based learning? 2 M
7. What are First-Order rules in the context of learning rule sets? 2 M
8. Explain the term "temporal difference learning." 2 M
9. Define explanation-based learning. 2 M
10. What is PROLOG-EBG in the context of analytical learning? 2 M

PART-B
Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). What do you mean by a well –posed learning problem? Explain the important features that are required to well –define a learning problem. 10M

OR

11. B). i) With an example, Explain the working of Find-s algorithm. 5M
ii) Discuss in brief about Inductive bias in decision tree learning. 5M

12. A). What is Artificial Neural Network? Explain appropriate problem for Neural Network Learning with its characteristics. 10M

OR

12. B). Explain the procedure to estimate the difference in error between two learning methods. 10M

13. A). Write Bayes theorem. What is the relationship between Bayes theorem and the problem of concept learning? 10M

OR

13. B). i) Discuss about Gibs algorithm with suitable example. 5M
ii) Compare and contrast Lazy and Eager Learning. 5M

14. A). i) What are the salient features of a Genetic Algorithm? 5M
ii) Demonstrate Q-learning algorithm with an example 5M

OR

14. B). Demonstrate sequential covering algorithm with suitable example. 10M

(P.T.O.,)

15. A). What are the differences between inductive learning and analytical learning problems and explain the same with an example. 10M

OR

15. B). Describe how prior knowledge can be used to initialize the hypothesis in combined learning approaches. 10M

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H.T No: | | | | | | | | | | | **R18** | Course Code: A36213

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Digital Forensics

(Minor in CS)

Date: 16.12.2024 AN | **Time: 3 hours** | **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	Write the advantages of cyber forensics.	2 M
2.	List the investigation triad in forensic investigations.	2 M
3.	Define cyber forensics.	2 M
4.	How do you document evidence at a crime scene?	2 M
5.	What is the importance of the forensic mindset?	2 M
6.	Classify the evidence in cyber forensics.	2 M
7.	Infer network forensics.	2 M
8.	What you mean by forensic workstations?	2 M
9.	Write the hardware components inside the mobile phones.	2 M
10.	Mention the recent trends in mobile forensics.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	Explain computer forensic services.	10M
	OR	
11. B).	Examine the holistic approaches in cyber forensics.	10M
12. A).	Illustrate the steps in cybercrime scene analysis.	10M
	OR	
12. B).	List the steps to search and seize electronic evidence.	10M
13. A).	Discuss the workload of law enforcement.	10M
	OR	
13. B).	How crime scene investigation is conducted. Explain it.	10M
14. A).	Explain the criteria for selecting a basic forensic workstation and software.	10M
	OR	
14. B).	Describe standard procedures in network forensics and network--monitoring tools.	10M
15. A).	Describe mobile forensics tools.	10M
	OR	
15. B).	Briefly explain the IT Act 2000.	10M

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H.T No: | | | | | | | | | | | **R18** **Course Code: A30542**

CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Cloud Computing

(Common for ECE, CSE, IT, CSC & Honors CSE)

Date: 09.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1.	What are the differences between distributed computing and parallel computing?	2 M
2.	What is the definition of Grid Computing?	2 M
3.	How can the vision behind cloud computing be interpreted?	2 M
4.	What is the definition of Cloud Computing?	2 M
5.	Explain briefly about the concept of Elasticity in cloud computing?	2 M
6.	How do private cloud and public cloud access networks differ from each other?	2 M
7.	What are the key challenges associated with the SaaS (Software as a Service) paradigm?	2 M
8.	List the characteristics of Platform as a Service (PaaS).	2 M
9.	List out the advantages of Amazon Elastic compute cloud (EC2).	2 M
10.	Explain briefly about Rack space and its purpose in cloud computing.	2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A).	What are the major advantages and potential applications of Nano computing?	10M
	OR	
11. B).	Explain the concepts of quantum computing and optical computing in detail.	10M
12. A).	What is the need of cloud computing? Explain its essential characteristics.	10M
	OR	
12. B).	Analyze any two cloud deployment models in depth, highlighting their characteristics and how they function.	10M
13. A).	Discuss the significance of quality and security in cloud computing.	10M
	OR	
13. B).	Explain various approaches used in cloud migration and their key characteristics.	10M
14. A).	Discuss the different types of cloud service models and their specific features.	10M
	OR	
14. B).	Discuss the concept of Para-virtualization in detail, including its applications.	10M
15. A).	Explain the capabilities of Google Cloud Storage and how it can be utilized.	10M
	OR	
15. B).	Discuss in detail about Amazon Web Services (AWS).	10M

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H.T No: | | | | | | | | | | | R18 | Course Code: A30538

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Regular/Supplementary Examinations November-2024

Course Name: Deep Learning

(Common for CSE, AID & Honors CSE)

Date: 13.12.2024 AN **Time: 3 hours** **Max.Marks: 70**

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions

Each question carries TWO marks. **10x2=20M**

1. What is the motivation for deep learning? 2 M
2. Compare Feed Forward (FF) and Deep Feed Forward (DFF). 2 M
3. List practical applications of Semi-Supervised Learning. 2 M
4. Classify the ensemble methods. 2 M
5. How learning differs from pure optimization? 2 M
6. List the various challenges in neural networks. 2 M
7. What are the unsupervised features? 2 M
8. What is average Pooling technique? 2 M
9. Recall Computer vision techniques. 2 M
10. List the applications of deep learning. 2 M

PART-B

Answer the following. Each question carries TEN Marks. **5x10=50M**

11.A). What is gradient-based learning? Explain how this approach used in deep learning and neural networks with suitable example. 10M

OR

11. B). i) Explain Back propagation with its algorithm. 5M
ii) Explain the operations of deep learning feed Forward networks. 5M

12. A). Explain the following. 10M
i) Multi task learning ii) Sparse Representations

OR

12. B). Write an early stopping meta-algorithm for determining the best amount of time to train. 10M

13. A). Explain the various challenges in neural networks Optimizations. 10M

OR

13. B). Draw and explain the architecture of any convolutional network. 10M

14. A). What is convolution network? Discuss structured outputs and data types with suitable example and code. 10M

OR

14. B). i) List and elaborate variants of the basic convolution function. 5M
ii) Discuss convolution network unsupervised features. 5M

15. A). What is computer vision? Explain how deep learning techniques are most commonly used for computer vision? 10M

OR

15. B). Explain how deep learning approaches have obtained very high performance on many NLP tasks with suitable example. 10M

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