

H.T No:

R18

Course Code: A30535



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Machine Learning

(Computer Science & Engineering)

Date: 24.04.2024 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 role of the candidate elimination algorithm in concept learning? 2 M
2. What is the main advantage of decision tree learning? 2 M
3. Write the significance of the bias-variance tradeoff in comparing learning algorithms. 2 M
4. Why is back-propagation important for training deep neural networks? 2 M
5. Define Bayes' Theorem, and how is it used in Bayesian learning. 2 M
6. How does sample complexity differ for finite versus infinite hypothesis spaces? 2 M
7. How do crossover operators work in Genetic Algorithms? 2 M
8. What is the significance of a "reward" in Reinforcement Learning? 2 M
9. How to augment search operator? 2 M
10. What are the key differences between Inductive Learning and Analytical Learning? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss the key steps involved in designing a learning system. What are the major challenges faced in this process? 10M

OR

11. B). Illustrate the concept of inductive bias in decision tree learning. How does it affect the performance and generalization of decision trees? 10M

12. A). Demonstrate the concept of a multilayer perceptron (MLP) and its architecture. How does it differ from a single-layer perceptron. 10M

OR

12. B). What is the concept of cross-validation in hypothesis evaluation? identify different types of cross-validation techniques and their advantages and limitations. 10M

13. A). Explain Bayesian belief networks. How are they used to model dependencies between random variables and provide an example of a problem where Bayesian networks can be effectively applied. 10M

OR

13. B). Show how case-based reasoning (CBR) can be extended to handle noisy and incomplete information in dynamic environments. Provide an example of a real-world application where CBR is effectively used. 10M

(P.T.O.)

14. A). Discuss the key components of Genetic Algorithms and provide an illustrative example to demonstrate the working of genetic algorithms in solving an optimization problem. 10M

OR

14. B). Explain the sequential covering algorithm for learning sets of rules. Provide a detailed description of how the algorithm works. 10M

15. A). What is Explanation-Based Generalization (EBG)? Illustrate with an example how PROLOG-EBG is used in explanation-based learning 10M

OR

15. B). Describe the inductive-analytical approach to learning. How it initialize the hypothesis? 10M

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Course Code: A30534



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Design Patterns

(Common for CSE & IT)

Date: 24.04.2025 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 Builder Pattern? 2 M
2. Write user operations in Bridge Pattern. 2 M
3. Which are the three main categories of design patterns? 2 M
4. Difference between inheritance and composition. 2 M
5. What is the difference between Factory and Abstract Factory? 2 M
6. What are the steps involved in Observer design pattern for implementation? 2 M
7. Write about design patterns in Smalltalk MVC. 2 M
8. What is Memento Pattern? 2 M
9. What is Iterator class? 2 M
10. List out behavioral design patterns. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Define design pattern. Explain about describing design pattern in detail. 10M
- OR**
11. B). i) Describe about the significance of design pattern. 3M
ii) Explain the catalog of design patterns. 7M
12. A). List and explain the problems involved in designing a document editor. 10M
- OR**
12. B). Describe Glyphs in Lexi's design. 10M
13. A). Explain intent, structure, participants and consequences of Singleton design pattern. 10M
- OR**
13. B). Briefly describe creational patterns. 10M
14. A). Describe consequences and known uses of Adapter design pattern. 10M
- OR**
14. B). What is structural pattern? Explain Bridge design pattern in brief? 10M
15. A). Briefly discuss Strategy design pattern. 10M
- OR**
15. B). Explain about Template method design pattern in detail. 10M

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Course Code: A30536



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Adhoc & Sensor Networks

(CSC)

Date: 24.04.2025 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. State the taxonomy of MANETs routing algorithms. 2 M
2. List the important characteristics of a MANETs. 2 M
3. State the role of multicasting routing protocol for MANETs. 2 M
4. Define and illustrate flooding mechanism. 2 M
5. State the importance of geo-TORA. 2 M
6. State the reasons for poor performance of TCP over ad hoc links. 2 M
7. Write the classification of sensor networks. 2 M
8. Mention any four real time applications of Sensor Networks. 2 M
9. What is meant by data aggregation in sensor applications? 2 M
10. Write about high level application layer supporting sensor networks. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Illustrate any one forwarding strategy for position-based routing in MANETs 10M
OR
11. B). State the merits and demerits of proactive and reactive routing protocols for MANETs. 10M
12. A). What is meant by Broadcast Storm Problem in MANETs routing? Illustrate with an example. 10M
OR
12. B). Write the algorithmic steps for MPR (Multi-Point Relaying) protocol for MANETs broadcasting. 10M
13. A). Explain the ELFN protocol for TCP over ad hoc links. 10M
OR
13. B). What is meant by anycast? Explain the GeoTORA protocol making use of anycast. 10M
14. A). Explain the architecture of sensor networks. 10M
OR
14. B). Explain the distinction of PEGASIS protocol over LEACH. 10M
15. A). Write about Transport layer functions in wireless sensor networks. 10M
OR
15. B). Write about mobile robots processing in sensor networks and emphasizing its merits. 10M



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Robotics Process Automation
(CSM)

Date: 24.04.2025 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 any two applications of RPA in a real-world scenario. | 2 M |
| 2. Identify two benefits of using UiPath Studio in RPA development. | 2 M |
| 3. What is the role of protocols in web communication? | 2 M |
| 4. Explain the function of an email client. | 2 M |
| 5. What is the .NET Framework? | 2 M |
| 6. Explain the difference between XML and HTML. | 2 M |
| 7. List two criteria for determining whether a process can be automated using RPA. | 2 M |
| 8. Identify two differences between RPA development methodologies and traditional SDLC. | 2 M |
| 9. What is the purpose of a Process Design Document (PDD)? | 2 M |
| 10. Name two industries best suited for RPA and justify why? | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|---|-----|
| 11.A). Compare and contrast the use of Sequence and Flowchart in UiPath Studio for designing workflows. | 10M |
| OR | |
| 11.B). Assess the impact of RPA implementation on an organization's efficiency and productivity. Provide a real-world example. | 10M |
| 12.A). Compare and contrast HTTP and HTTPS protocols. What are their roles in web communication? | 10M |
| OR | |
| 12.B). Assess the importance of software design in the SDLC process. How does good design impact the final software product? | 10M |
| 13.A). Compare and contrast CSS and HTML in terms of their roles in web development. | 10M |
| OR | |
| 13.B). Assess the historical evolution of automation and how RPA differs in its approach compared to earlier forms of automation. | 10M |
| 14.A). Compare and contrast robotic control flow architecture with traditional programming control flow. | 10M |
| OR | |
| 14.B). Evaluate the importance of standardizing processes before implementing RPA. How does this impact the RPA business case? | 10M |
| 15.A). Explain the roles and responsibilities of an RPA team during the implementation process. | 10M |
| OR | |
| 15.B). Draft a sample outline of a Solution Design Document (SDD) for automating invoice processing. | 10M |

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Artificial Intelligence for Cyber Security
(CSM)

Date: 24.04.2025 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 supervised learning. 2 M
2. What is boosting in machine learning? 2 M
3. What is a phishing URL? 2 M
4. What is a drive-by download attack? 2 M
5. What is reCAPTCHA? 2 M
6. Give one application of machine learning in scan detection. 2 M
7. What is a misuse sequence detection system? 2 M
8. How does a virus differ from a worm? 2 M
9. What is the difference between an SMTP server and a POP3 server? 2 M
10. What is logistic regression? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Describe the advantages of using AI for cyber threat detection. 5M
ii) How can AI be used to mitigate Distributed Denial of Service (DDoS) attacks? 5M
- OR**
11. B). i) Explain the difference between supervised and unsupervised learning with examples. 5M
ii) Explain the various ensemble algorithms commonly used in AI. 5M
12. A). i) Explain Command and Control (C&C) URLs and their role in cyber-attacks. 5M
ii) What are lexical features, and how are they used to identify malicious URLs? 5M
- OR**
12. B). i) Explain how feature extraction is done for detecting harmful web pages. 5M
ii) What are site popularity features, and how do they help detect malicious websites? 5M
13. A). i) List and describe different types of CAPTCHA used for security. 5M
ii) Discuss the use of machine learning models to detect network scans and vulnerabilities. 5M
- OR**
13. B). i) What methods are used to break CAPTCHAs using automated tools? 5M
ii) Describe the benefits of using supervised learning for scan detection in cybersecurity. 5M
14. A). i) How can context-based analysis improve the accuracy of detecting malicious events in a network? 5M
ii) Describe how intelligent flow-based IDS works and its application in network security. 5M

(P.T.O.)

OR

14. B). i) Explain what rootkits are and how they can be used to hide malicious activities on a system. 5M
ii) Discuss the applications of machine learning in hybrid intrusion detection for identifying complex threats. 5M

15. A). i) Discuss the different types of mail servers and their functions. 5M
ii) Explain how anomaly detection techniques can secure mail servers against HTTP-based threats. 5M

OR

15. B). i) What data can be collected from a mail server for spam detection? 5M
ii) What is anomaly detection, and how is it applied to SMTP traffic? 5M

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Course Code: A30521



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Scripting Languages

(Common for CSD & AID)

Date: 24.04.2025 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 some notable features of Ruby? 2 M
2. What are the class libraries in Ruby? 2 M
3. What are the three levels of method access control in Ruby? 2 M
4. Outline the steps for creating extensions. 2 M
5. What does the term 'PERL' refer to in programming? 2 M
6. Which string operators does Perl provide? 2 M
7. Explain briefly about Ruby package manager. 2 M
8. What does the eval function do in Perl? 2 M
9. Define TCL and discuss how it works. 2 M
10. Provide a list of all format flags in TCL. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Provide a detailed explanation of Ruby data types, accompanied by examples. 10M
- OR**
11. B). Design a stopwatch application to illustrate the practical application of Ruby Tk in real-world scenarios. 10M
12. A). Explain the role of garbage collection in Ruby on Rails. 10M
- OR**
12. B). Discuss the Ruby Interpreter along with its available options. 10M
13. A). What are the advantages of Scripting Languages? 10M
- OR**
13. B). Demonstrate Control Structures using an example in Perl. 10M
14. A). Create a program that combines the variables \$firststring and \$secondstring, with the resulting strings separated by a single space. 10M
- OR**
14. B). Summarize Dirty Hands Internet Programming briefly. 10M
15. A). Create a TCL application for locating a file by its name. 10M
- OR**
15. B). Explain briefly about the TCL structure in detail. 10M

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Course Code: A36221



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Cloud Security

(CSC)

Date: 26.04.2025 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 Cloud Computing? 2 M
2. Write about various Risks in Cloud Computing. 2 M
3. What do you mean by Community cloud? 2 M
4. Define Hadoop. 2 M
5. What do you mean by Securing the cloud? 2 M
6. What are the different threats in cloud security? 2 M
7. Explain benefits of Virtualization. 2 M
8. What do you mean by Hypervisor? 2 M
9. What is security governance? 2 M
10. How to trust the data to your service provider? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the different operational & economic benefits of Cloud. 10M
- OR**
11. B). Explain in detail the Historical development of cloud & Business impact of cloud. 10M
12. A). Give architectural design of compute and storage clouds. 10M
- OR**
12. B). Explain various High-Level Languages for Cloud Computing. Explain programming of Google App engine. 10M
13. A). Explain cloud security services along with design principles. 10M
- OR**
13. B). What are types of security policies for cloud computing? 10M
14. A). What is virtualization technology? Explain implementation level of virtualization. 10M
- OR**
14. B). Virtualization is critical for cloud computing. Justify? 10M
15. A). Explain the two fundamental function, identity management and access control, which are required for secure cloud. 10M
- OR**
15. B). Write short notes on :
- i) Software as service security 5M
 - ii) Application Security 5M

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Course Code: A30539



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Ethical Hacking

(Common for CSE & CSM)

Date: 26.04.2025 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 Hacker. 2 M
2. What is firewall? 2 M
3. Describe the term vulnerability. 2 M
4. State the top 5 hacking techniques. 2 M
5. Classify ethical hacking process. 2 M
6. What is passive information gathering? 2 M
7. Define intrusion detection system. 2 M
8. Define sniffing. 2 M
9. Define steganography. 2 M
10. Define Pen test. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss the packet filter firewall and packet inspection. 10M
- OR**
11. B). What is IP spoofing? What are the different techniques to detect IP spoofing? Explain. 10M
12. A). Enumerate the three types of Penetration Testing methodologies used by ethical hackers. 10M
- OR**
12. B). How does educating the users have an impact on protection against malware attacks. 10M
13. A). Define cryptography? Differentiate between public key cryptography and private key cryptography. 10M
- OR**
13. B). Describe the framework for predicting inside attacks with neat sketch. 10M
14. A). What is DNS poisoning? What are the steps to launch DNS poisoning attacks? What are the types of DNS poisoning attacks? Explain. 10M
- OR**
14. B). What is APR spoofing attack? How does ARP spoofing work? 10M
15. A). What are the different types of attacks that can be launched with SQL injection? 10M
- OR**
15. B). What are the different ways to attack Web App clients? Explain. 10M

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Course Code: A31206



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: **Human Computer Interaction**
(Information Technology)

Date: 26.04.2025 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 HCI? 2 M
2. Explain the golden rule of design. 2 M
3. What are the qualities of screen elements? 2 M
4. What are the parameters used to understand the human interaction speed? 2 M
5. List out different types of windows. 2 M
6. What are the factors for using icons? 2 M
7. What are the different models of interaction in HCI? 2 M
8. Explain Prototyping. 2 M
9. What is linguistic model in cognitive model? 2 M
10. What is the meaning of GOMS? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the importance of good design and also explain benefits of good design. 10M
- OR**
11. B). Write a brief history of screen design and also explain the characteristics of the GUI. 10M
12. A). What are the human considerations in design? Explain about business junctions. 10M
- OR**
12. B). What are various types of statistical graphs? Explain interaction of people with computers. 10M
13. A). Explain about screen navigation and flow and how to select the proper device-based controls? 10M
- OR**
13. B). Describe various types of Windows and Explain about the components of a Window. 10M
14. A). Explain about Multimedia and its usage problems. 10M
- OR**
14. B). What is the use of iterative design and prototyping? Discuss its techniques and write universal design principles. 10M
15. A). Explain in detail about cognitive model and its techniques. 10M
- OR**
15. B). What are the applications of augmented reality explain with example. 10M

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Course Code: A36619



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April/May-2025

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

Date: 01.05.2025 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 of two types of classification techniques used in data analytics. 2 M
2. What is a Big Data Warehouse? 2 M
3. Define operational databases and give an example. 2 M
4. What is HDFS in the Hadoop Ecosystem? 2 M
5. What is the purpose of the Pig Grunt Shell? 2 M
6. What is HQL, and how does it differ from SQL? 2 M
7. Explain the concept of big data computational limitations. 2 M
8. What is the role of a framework in big data analysis? 2 M
9. What is text analysis? 2 M
10. Define OLTP and OLAP. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Describe the processes of clustering and classification in data analytics, including their applications. 10M
- OR**
11. B). Discuss the fundamentals of Big Data, including its characteristics and importance in modern technology. 10M
12. A). Explain about Operational databases in detail. 10M
- OR**
12. B). Describe the Hadoop Ecosystem, focusing on its major components and their roles. 10M
13. A). Explain the key features of Pig and how it simplifies data processing tasks in Hadoop. 10M
- OR**
13. B). Describe the purpose of Spark RDDs and their role in fault tolerance and parallel data processing. 10M
14. A). Explain the limitations in big data computation and how they can be addressed in practice. 10M
- OR**
14. B). Analyze the importance of big data analytics in various industries and provide examples. 10M
15. A). Discuss the importance of text analysis in big data. 10M
- OR**
15. B). Analyze the role of business intelligence (BI) in an organization and how it differs from business analytics. 10M

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Course Code: A36222



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April/May-2025

Course Name: **Biometric Systems**

(CSC)

Date: 01.05.2025 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 types of biometric technologies. 2 M
2. Write the characteristics of a good biometric system. 2 M
3. What is Finger-scan, and how does it work? 2 M
4. What is a Signature-scan, and what are its key components? 2 M
5. What is the importance of privacy in biometric systems? 2 M
6. List two key privacy risks involved in biometric data collection. 2 M
7. Define multi-biometrics system. 2 M
8. Write the advantages of using multi-sensor systems in biometrics. 2 M
9. What do you mean by an infrastructure attack and given an example. 2 M
10. What is spoofing in biometric systems, and why is it a significant security concern? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the fundamental concepts of biometrics and its applications in various industries. 10M
- OR**
- 11.B). Discuss the performance measures used to evaluate biometric systems, including accuracy, false acceptance rate (FAR), and false rejection rate (FRR). 10M
- 12.A). Discuss the working principles, components, and strengths of Finger-scan technology. Compare it with other competing biometric technologies. 10M
- OR**
- 12.B). What is an Automated Fingerprint Identification System (AFIS), and how does it improve biometric authentication and identification? 10M
- 13.A). Discuss the privacy risks associated with the use of biometric systems and propose ways to mitigate these risks when designing biometric systems. 10M
- OR**
- 13.B). Evaluate the need for standards in biometric systems. How do standards help ensure interoperability, security, and accuracy across different biometric technologies? 10M
- 14.A). Discuss the architecture of multi-sensor systems in biometrics and explain how multi-sensor integration can improve data acquisition and processing. 10M
- OR**
- 14.B). Describe the different fusion levels in multi-biometric systems, including sensor-level, feature-level, match score-level, and decision-level fusion. How does each level of fusion contribute to the overall system performance? 10M

(P.T.O.)

15. A). Describe the different types of adversary attacks in biometric systems and discuss their impact on system security. 10M

OR

15. B). Write short notes on i) Impersonation ii) Obfuscation iii) Spoofing. 10M

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Course Code: A36621



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April/May-2025

Course Name: Speech and Language Processing
(CSM)

Date: 01.05.2025 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 purpose of text normalization. 2 M
2. What is meant by "corpora" in SLP? 2 M
3. Describe the concept of dialogue state architecture. 2 M
4. Define "attention" in the context of neural networks. 2 M
5. How does "short-term Fourier analysis" differ from normal fourier analysis? 2 M
6. What is the role of the ear in speech perception? 2 M
7. Define "filter banks" in speech processing. 2 M
8. Explain one reason why ZCR might vary between different musical genres. 2 M
9. Describe the purpose of evaluation metrics in speech recognition. 2 M
10. List two applications of isolated word recognition. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain in detail how N-gram language models are created and used. Discuss smoothing techniques and their importance. 10M
- OR**
11. B). Explain bias in word embeddings. How can it affect SLP applications, and what steps can be taken to mitigate it? 10M
12. A). Describe the components and functioning of a knowledge-based dialogue system. 10M
- OR**
12. B). Discuss the architecture of RNNs and how they handle sequence data. Include examples of applications. 10M
13. A). Explain the various representations of speech and their importance in speech processing. 10M
- OR**
13. B). Discuss the process of speech production in humans. Include the roles of various organs such as the lungs, vocal cords, and articulatory system. 10M
14. A). Explain the short-term analysis of speech signals, focusing on energy and zero-crossing rates. 10M
- OR**
14. B). Describe the LPC method and its application in speech signal processing. How does LPC help in speech compression and synthesis? 10M
15. A). Explain deep learning techniques in language modeling and automatic speech recognition. 10M
- OR**
15. B). Discuss the applications and challenges of speaker recognition and how it is implemented. 10M

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Course Code: A30540



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April/May-2025

Course Name: **Big Data Analytics**

(Common for CSE, IT & AIM)

Date: 01.05.2025 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 Big Data? 2 M
2. List out the characteristics of Big data. 2 M
3. List out the components of Hadoop ecosystem. 2 M
4. Mention the different ways to read file from hdfs. 2 M
5. What is Map reduce? 2 M
6. Describe the task side effect files. 2 M
7. What is data model? 2 M
8. What are the relational operators in PIG? 2 M
9. Distinguish Hive and HBase. 2 M
10. What are the data types available in HIVE? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) What is Big Data Analytics? Why do we need to analyze big data. 5M
ii) Discuss the evolution of big data. 5M
- OR**
11. B). What are the different types of NoSQL and discuss in detail. 10M
12. A). Show step by step process for VM Ware Installation of Hadoop. 10M
- OR**
12. B). i) Elaborate the services or daemons provided by HDFS. 5M
ii) Illustrate the data read and data write operations in HDFS with a neat sketch. 5M
13. A). i) Write the procedure to set up the Map reduce environment. 5M
ii) Describe the Map Reduce Input and Output Formats. 5M
- OR**
13. B). Discuss the Anatomy of Map Reduce Programming Model without using YARN. 10M
14. A). Explain about User Defined Functions in PIG with example. 10M
- OR**
14. B). Explain how data processing is done using Apache PIG. 10M
15. A). What are the different tables in Hive? Give syntax and example for each. 10M
- OR**
15. B). Explain HIVE architecture with a neat sketch. 10M

H.T No:

R18

Course Code: A30013



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April/May-2025

Course Name: Business Management & Financial Analysis
(Common for CSE, IT, CSC & CSM)

Date: 06.05.2025 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 scope of management. 2 M
2. What is meant by Budgeting in management? 2 M
3. Write down the scope of HR management. 2 M
4. Define Plant layout. 2 M
5. What is the scope of managerial economics? 2 M
6. Write down the objective of the demand forecasting. 2 M
7. List out the limitations of the production function. 2 M
8. What are the methods of theory of pricing? 2 M
9. Define Turnover ratio. 2 M
10. What is Coverage ratio? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain about Henry Fayol contributions to management. 10M
- OR**
11. B). Discuss about theories of motivation and leadership. 10M
12. A). Explain in detail about financial management. 10M
- OR**
12. B). Discuss about functions of human resource management. 10M
13. A). Explain about the internal & external scanning of the business environment. 10M
- OR**
13. B). Discuss about business cycle & product life cycle with diagrams. 10M
14. A). Explain in detail about break even analysis with diagram. 10M
- OR**
14. B). Discuss about nature & types of competition in detail. 10M
15. A). Explain the concepts of profit & loss A/c and balance sheet with formats. 10M
- OR**
15. B). Discuss conventional & non-conventional sources of business enterprises. 10M

H.T No:

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R18

Course Code: A30542



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April/May-2025

Course Name: Cloud Computing

(Common for ECE & CSE)

Date: 07.05.2025 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. Compare Distributed Computing with Parallel Computing. 2 M
2. Distinguish High Performance Computing and High Throughput Computing. 2 M
3. What is the need for cloud computing? 2 M
4. Examine how can a cloud application be made scalable. 2 M
5. Define Migration. 2 M
6. List out the various Cons of IAAS. 2 M
7. What are the various cloud service models? 2 M
8. Mention the various Cons of SaaS. 2 M
9. Defend the new services provided by various cloud providers. 2 M
10. Define the cloud storage system. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). How grid computing differ from cloud computing? Justify what the self service provisioning and multitenancy properties of cloud computing means? 10M
- OR**
11. B). Discuss in detail about Nano computing and Optical Computing with an example. 10M
12. A). Explain Platform as a service and its challenges. 10M
- OR**
12. B). Discuss various services provided under Infrastructure as a service and its challenges. 10M
13. A). Summarize the anatomy of cloud and network connectivity of Cloud computing. 10M
- OR**
13. B). Explain the phases of cloud migration and approached of cloud migration. 10M
14. A). Summarize the cloud service model of the following: 10M
i) Need of PaaS, ii) Pros and cons of PaaS, iii) Suitability of PaaS and iv) About PaaS providers.
- OR**
14. B). Summarize the cloud service model of the following: 10M
i) Need of IaaS, ii) Pros and cons of IaaS, iii) Suitability of IaaS and iv) About IaaS providers.
15. A). Discuss in details about the working process of google app engine. 10M
- OR**
15. B). What is virtualization? Give a brief summary on Virtualization offered by SAP. 10M

H.T No:

R18

Course Code: A30557



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April/May-2025

Course Name: **Web Programming**

(Common for ME & ECE)

Date: 08.05.2025 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 Anchor tag with an example. 2 M
2. How to add video to a web page? 2 M
3. Make use of CSS code and set the background color for the active link states to "yellow". 2 M
4. Explain any two properties of CSS. 2 M
5. What are the features of JavaScript? 2 M
6. Explain syntax for a function definition in Java Script with an example. 2 M
7. Define naming rules in XML. 2 M
8. List the advantages of XML Schemas over DTDs. 2 M
9. What are the common AJAX frameworks? 2 M
10. Explain the disadvantages of AJAX. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Distinguish between HTML and XHTML? Compare the ordered and unordered list with examples. 10M

OR

11. B). Make use of Frameset, Frame Tag and divide the web page into four equal parts each individual part displays different web page. Mention the uses of frameset tag. 10M

12. A). Explain different levels of CSS and illustrate any five types of selectors in CSS. 10M

OR

12. B). Explain Text-align, text-decoration, text transform, and text-indent properties of CSS. 10M

13. A). Build a JavaScript program to convert temperature from Celsius to Fahrenheit and vice versa. 10M

OR

13. B). Design a login form using HTML & JavaScript with following validations on username and password fields. 10M

i) Password length must be 6 to 12 characters.

ii) Username should not start with @ or number.

iii) Phone number must be 10 digit start with 6/7/8/9.

iv) All fields should not be blank.

(P.T.O.)

14. A). How can both Internal and External DTDs be used in an XML File? Show with an Example. 10M

OR

14. B). Assume an XML DOM. How DOM parses the XML file. 10M

15. A). What do you mean by AJAX and write the advantages of AJAX. 10M

OR

15. B). Write an Ajax example using XML HTTP Request object. 10M

H.T No:

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R18

Course Code: A30538



**CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)**

B.Tech VII Semester Supplementary Examinations April/May-2025

Course Name: Deep Learning

(Common for CSE & AID)

Date: 09.05.2025 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. Recall the importance of the backpropagation algorithm. 2 M
2. How did the availability of large datasets and increased computational power impacted the development and success of deep learning models? 2 M
3. List some common data augmentation techniques for image data. 2 M
4. Can dropout be used to improve the performance of recurrent neural networks? How? 2 M
5. When a neural network is too simple or insufficiently trained, it fails to capture the underlying patterns in the data. What is this problem called, and how could it be avoided? 2 M
6. Name two popular optimization algorithms that use adaptive learning rates. 2 M
7. Give an example to show a 2D convolution operation applied to an input image. 2 M
8. What are the two main components of a Gabor filter? 2 M
9. Infer how deep learning is used in Natural language processing. 2 M
10. State any four applications of deep learning in computer vision. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Define gradient-based learning. Explain how optimization techniques improve the efficiency and effectiveness of gradient-based learning. 10M

OR

11. B). Describe the backpropagation algorithm in neural network training, outline the step-by-step process, explain the mathematical basis. Provide examples of applications where backpropagation enhances neural network performance. 10M

12. A). A company is trying to predict customer churn using machine learning models. They have trained three different models independently: a decision tree, a support vector machine, and a k-nearest neighbors classifier. Each model has achieved moderate accuracy individually, but the company believes combining these models might improve overall performance. 10M

(i) Explain how ensemble methods could be used to combine these models

(ii) Describe the potential advantages and limitations of using ensemble methods in this context.

OR

12. B). Discuss how adversarial learning methods can be utilized to simulate potential attacks on a spam detection model being developed by a cybersecurity company. 10M

(P.T.O..)

13. A). Analyze the importance of selecting the appropriate optimization algorithm for enhancing model convergence. Describe any three advanced optimization techniques that can improve the efficiency and speed of training. 10M

OR

13. B). A team is training a deep neural network for a computer vision task and is experiencing issues with both slow training and occasional overshooting of the optimal solution. Explain the role of the learning rate in the training of neural networks and discuss its impact on both convergence speed and stability. 10M

14. A). Explain the process of performing convolution operations on input data. Include the mathematical formula for convolution and demonstrate with an example how convolution is applied to an input image. 10M

OR

14. B). Outline the main components of a CNN layer. Include an example to demonstrate how these components are integrated within a single CNN layer. 10M

15. A). A retail company wants to implement a deep learning model to enhance its recommendation system for online shoppers. Describe the process of developing such a model, including data preparation, model architecture, training, and evaluation. 10M

OR

15. B). A healthcare company wants to develop a deep learning model to assist radiologists in identifying signs of lung disease from chest X-ray images. Outline the steps involved in developing and training a deep learning model for this image classification task. 10M

H.T No:

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R18

Course Code: A36638



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: **Machine Learning**

(Minor Programme in AI & ML)

Date: 10.05.2025 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 do you mean by a well –posed learning problem? 2 M
2. Write about the issues in Machine Learning. 2 M
3. What is Artificial Neural Network? 2 M
4. Define Back Propagation. 2 M
5. How do you classify the text using Bayes Theorem? 2 M
6. What are Bayesian Belief networks? 2 M
7. What is Reinforcement Learning? 2 M
8. List out the factors that contribute to the popularity of Genetic algorithm. 2 M
9. Define Inductive Learning. 2 M
10. What is Analytical learning? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). With an example, Explain the working of Find-S algorithm. 10M
- OR**
11. B). Explain the concept of Inductive Bias and its methods. 10M
12. A). Explain how to learn Multilayer Networks using Gradient Descent Algorithm. 10M
- OR**
12. B). Write the algorithm for Back propagation and evaluate procedure with an example. 10M
13. A). Describe K-nearest Neighbor learning Algorithm with an example. 10M
- OR**
13. B). Explain the features of Bayesian Learning methods. 10M
14. A). State and Explain Genetic Algorithm with suitable example. 10M
- OR**
14. B). Explain the Q function and Q Learning Algorithm. 10M
15. A). Discuss Explanation-Based learning of search control knowledge. 10M
- OR**
15. B). What are the essential differences between analytical and inductive learning methods? 10M
