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R18

Course Code: A30523



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Web Technologies

(Common for CSE & IT)

Date: 19.06.2025 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. Illustrate various data types available in PHP. 2 M
2. What is the use of GET and POST methods in PHP? 2 M
3. Write any 10 HTML tags and create web page to display the welcome page. 2 M
4. Summarize how CSS affects the presentation of HTML content. 2 M
5. Use `getParameter()` to retrieve data from an HTML form in a servlet 2 M
6. Distinguish between request parameters and initialization parameters in servlets. 2 M
7. Analyze the effect of using declarations versus script lets. 2 M
8. List different types of JSP directives. 2 M
9. Define a function in JavaScript. What is function expression? 2 M
10. Develop a code snippet script that changes the color and text content of a paragraph when a button is clicked. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Distinguish between Session and Cookie? Write a program to create a session, to set a value in session, and to remove data from a session? 10M
- OR**
11. B). Distinguish between for and foreach statements in PHP with examples. 10M
12. A). Explain the concept of CSS and give example for every CSS. 10M
- OR**
12. B). Judge whether using DTD or XML Schema is better for validating XML data in a banking application and justify your reasoning. 10M
13. A). Explain how the servlet container manages the servlet life cycle and how each life cycle method plays a role. 10M
- OR**
13. B). Explain how form data is handled in a servlet. Illustrate how user inputs are captured from an HTML form and processed using servlet request methods. 10M
14. A). Design a JSP page that connects to a relational database, retrieves data from a specific table, and displays the results in a formatted HTML table. Describe the steps involved in establishing the connection, executing the query, and handling exceptions. 10M
- OR**
14. B). Develop a JSP program that dynamically displays the current date and time to the user when the page is accessed. Explain the key parts of your JSP code including any imports, scriptlets, or expressions used. 10M

(P.T.O.)

15. A). Define JavaScript and explain how it is used in client-side scripting. What makes it different from server-side scripting languages? 10M

OR

15. B). Explain the differences between local and global variable scope in JavaScript. 10M

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R18

Course Code: A36210



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Concepts of Ethical Hacking

(CSC)

Date: 19.06.2025 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 does the term ethical hacking mean? 2 M
2. Why is security against hacking necessary? 2 M
3. What is vulnerability assessment? What are its limitations? 2 M
4. What makes a good penetration test? Explain 2 M
5. What is foot printing? 2 M
6. Explain the different types of social engineering. 2 M
7. What is enumeration? 2 M
8. Write the categories in brute force attacks? 2 M
9. What is a deliverable from an ethical hacking engagement 2 M
10. What is incident management? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain in detail the elements/principles of information security. Explain the security, functionality, and usability triangle. 10M
- OR**
11. B). Classify the categories of information security threat. Explain each category in detail. 10M
12. A). List the Pros and Cons of Multi-Phased Attacks along with indicators for use and challenges. 10M
- OR**
12. B). Sketch and explain the contents, structure of penetration testing report? 10M
13. A). Why is social engineering effective? What are the factors that make companies vulnerable to social engineering attacks? 10M
- OR**
13. B). What is identity theft? What are the different ways to steal an identity? 10M
14. A). How can systems be enumerated using default passwords? What is SNMP enumeration? Illustrate. 10M
- OR**
14. B). Write about Exploitation and explain the types in exploitation. 10M
15. A). List and explain in detail the contents and overall structure of documentation. 10M
- OR**
15. B). Mention the four phases of integration. 10M

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Course Code: A31202

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

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: **Data Mining**

(Common for IT & AID)

Date: 21.06.2025 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 three important issues that have to be addressed during data integration. 2 M
2. Justify how concept hierarchies are useful in data mining. 2 M
3. Summarize the techniques to improve the efficiency of Apriori algorithm. 2 M
4. Define frequent itemset, support and confidence. 2 M
5. Explain briefly how to verify that the classification model is Over fitting or Under fitting. 2 M
6. Mention the types of classification techniques 2 M
7. Justify the importance of Clustering and outlier analysis. 2 M
8. Mention the important issues in hierarchical clustering 2 M
9. Explain the steps of spatial mining. 2 M
10. Differentiate between the Text databases and multimedia databases? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). (i) List the major issues in data Mining and explain briefly. 5M
(ii) Explain various data pre-processing methods with appropriate examples. 5M
- OR**
11. B). (i) Explain the steps involved in the Data Mining Process. Give the sketch of the KDD process. 5M
(ii) Explain about data mining functionalities in detail. 5M
12. A). Explain Market basket analysis using apriori algorithm for the given transactions and perform market basket analysis with the following data: 10M

T ID	Items
1	A, M
2	A, D, H, E
3	M, D, H, C
4	A, M, D, H
5	M, H, C

OR

12. B). (i) Differentiate between eager learners and lazy learners. 5M
(ii) State Bayes' theorem. Explain various classification models based on this theorem. 5M

(P.T.O..)

13. A). Predict the class label of a test record $X = (\text{Home owner} = \text{Yes}, \text{Marital Status} = \text{Married}, \text{Income} = \$120\text{K})$ using the following data. 10M

Tid	Home Owner	Marital Status	Annual Income	Defaulted Borrower
1	Yes	Single	125K	No
2	No	Married	100K	No
3	No	Single	70K	No
4	Yes	Married	120K	No
5	No	Divorced	95K	Yes
6	No	Married	60K	No
7	Yes	Divorced	220K	No
8	No	Single	85K	Yes
9	No	Married	75K	No
10	No	Single	90K	Yes

OR

13. B). (i) Explain various measures used to find the best split node in a decision tree. 5M
(ii) Illustrate misclassification rate of a classifier and describe sensitivity and specificity measures of a classifier. 5M
14. A). Consider five points $\{X_1, X_2, X_3, X_4, X_5\}$ with the following coordinates as a two-dimensional sample for clustering: $X_1 = (0.5, 2.5)$; $X_2 = (0, 0)$; $X_3 = (1.5, 1)$; $X_4 = (5, 1)$; $X_5 = (6, 2)$ Illustrate the K-means partitioning algorithms using the above data set. 10M

OR

14. B). (i) Explain density-based algorithm for clustering data. Discuss its merits and demerits. 5M
(ii) Explain about outliers and discuss the methods adopted for outlier detection. 5M
15. A). (i) Explain the concepts of Mining data streams. 5M
(ii) Describe in detail spatial mining and time series mining. 5M
- OR
15. B). (i) Discuss about Mining sequence patterns in transactional databases. 5M
(ii) Explain the process of mining the World Wide Web. 5M



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Mobile & Wireless Security
(CSC)

Date: 21.06.2025 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 down the non-super singular Weierstrass equation for binary fields. 2 M
2. What is the goal of Adaptation Path Search Algorithm? 2 M
3. What are the key requirements suggested by IEEE 802.11i authentication to secure WLANs? 2 M
4. What do you mean by Security Index? 2 M
5. List out the properties of Ad Hoc Network. 2 M
6. Write about Peer Keying. 2 M
7. Mention any four primary security challenges in GSM networks. 2 M
8. Compare 3G and 4G networks in terms of their speed and technological advancements. 2 M
9. Define Distributed Sensor Network 2 M
10. Write about privacy issues in IOT. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss about Arithmetic over the Elliptic Curve Group and Write an algorithm for Scalar Multiplication by Double and Add Method. 10M
- OR**
- 11.B). Explain with a detailed example how the negotiation manager constructs a Protocol Adaptation Tree (PAT) based on the AppMeta it receives from the application server. Include in your explanation the process of identifying and organizing protocol adapters within the tree structure. 10M
 12. A). Explain security protocols in WLAN'S. 10M
- OR**
12. B). Discuss about AAA Architecture in detail. 10M
 13. A). Discuss several symmetric and asymmetric pre-authentication models (PAMs) for providing pre-authentication in ad hoc networks in detail 10M
- OR**
13. B). Describe the concept of Intrusion Detection in Mobile Ad Hoc Networks (MANETs) and explain how Intrusion Detection Systems (IDS) are specifically designed for MANETs using two example protocols. 10M
 14. A). Explain how security evolved from GSM to 4G networks? Discuss the effectiveness of these security mechanisms in protecting data transmission in detail. 10M
- OR**
14. B). What are the new security concerns associated with the deployment of 5G networks? Explain how these concerns differ from those in previous generations. 10M
 15. A). Explain the best practices for IOT security. 10M
- OR**
15. B). Explain different security issues in sensor networks. 10M

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Course Code: A36608



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: **Deep Learning**

(Common for CSM & AIM)

Date: 21.06.2025 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. Differentiate between AI, Machine Learning, and Deep Learning. 2 M
2. State Bayes' Theorem. 2 M
3. What is a Multilayer Perceptron? 2 M
4. What is backpropagation? 2 M
5. What is hyperparameter tuning? 2 M
6. What is transfer learning? 2 M
7. What is forward propagation in an RNN? 2 M
8. Define Backpropagation Through Time. 2 M
9. Define deep Q Learning. 2 M
10. Define Generative Adversarial Network. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss in detail the key applications of Deep Learning in various industries. 10M
- OR**
11. B). Discuss the chain rule of conditional probability and provide a numerical example. 10M
12. A). Explain the roles of features and weights in supervised machine learning. 10M
- OR**
12. B). Compare the optimizers: Momentum, RMSProp, and Adam in terms of their mechanisms and performance. 10M
13. A). Describe regularization techniques like dropout and early stopping and their benefits. 10M
- OR**
13. B). Explain the architecture and working of a Convolutional Neural Network with diagrams. 10M
14. A). Explain in detail about Long Short – Term Memory (LSTM) model 10M
- OR**
14. B). Discuss about Back propagation through time (BPTT) With suitable example. 10M
15. A). Explain the architecture and working of Variational Autoencoders (VAEs). 10M
- OR**
15. B). Explain Briefly about Q Learning in detail. 10M



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Compiler Design

(Common for CSE & CSD)

Date: 21.06.2025 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 a short note on regular expression. | 2 M |
| 2. What are the two parts of a compilation? Explain briefly. | 2 M |
| 3. Define a context free grammar. | 2 M |
| 4. Define parsing. | 2 M |
| 5. What is the L-attributed definition? | 2 M |
| 6. List the various types of three address code. | 2 M |
| 7. State the properties that a code generator should possess. | 2 M |
| 8. What are the forms of a target program? | 2 M |
| 9. What is code optimization? | 2 M |
| 10. Write a short note on constant propagation. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|---|-----|
| 11.A). Explain phases of compiler in detail. | 10M |
| OR | |
| 11. B). Discuss how Finite Automata is used to recognize tokens and perform lexical analysis with example. | 10M |
| 12. A). Show that the following grammar is LALR(1) | 10M |
| $S \rightarrow Aa \mid bAc \mid dc \mid bda$ | |
| $A \rightarrow d$ | |
| OR | |
| 12. B). What is left-recursion? Write the algorithm to eliminate left recursion from a grammar. Explain the same with an example. | 10M |
| 13. A). Convert the following arithmetic expression into Syntax Tree and Three Address Code $b*3(a+b)$. | 10M |
| OR | |
| 13. B). Construct the syntax directed definition to convert infix notation into postfix notation. | 10M |
| 14. A). Explain various storage allocation strategies with an example. | 10M |
| OR | |
| 14. B). What is peephole optimization? Explain with examples. | 10M |
| 15. A). Explain the following with an example | 10M |
| i) Constant Propagation ii) Partial Redundancy Elimination. | |
| OR | |
| 15. B). Explain the foundations and basic notations used in data-flow analysis for optimizations with examples. | 10M |

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R18

Course Code: A30521



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Scripting Languages

(Common for CSE & IT)

Date: 24.06.2025 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 an iterator in Ruby? 2 M
2. How do you add a scrollbar to a text widget in Ruby Tk? 2 M
3. What is the difference between malloc and ruby_xmalloc? 2 M
4. How do you Compile and load a Ruby C extension like Jukebox? 2 M
5. Define the term Web Scripting. 2 M
6. Write characteristics of Scripting Languages. 2 M
7. Define a module and a package. 2 M
8. Can you nest loops in Perl? Give an example? 2 M
9. How to create a list in TCL? Give an example? 2 M
10. Differentiate between pack, grid, and place in Tk. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Explain Package Management with RUBYGEMS. 5M
ii) What is a cookie? Write the code in Ruby to demonstrate handling of cookies. 5M
- OR**
11. B). What is Soap? Explain about its web services in detail. 10M
12. A). i) Discuss the Ruby Type System. 5M
ii) Illustrate the Embedding of Ruby to Other Languages. 5M
- OR**
12. B). i) Explain StringValue and StringValuePtr macros in Ruby with sample Ruby script. 5M
ii) How to embed ruby in your application? What is the role of Ruby interpreter? Explain. 5M
13. A). i) Enumerate various characteristics of Scripting languages. 5M
ii) How do we create packages and modules in Perl? 5M
- OR**
13. B). i) Explain about different uses of web scripting languages. 5M
ii) Compare Lists with Hashes in Perl language. 5M
14. A). i) Explain about pack and unpack commands in Perl with examples. 5M
ii) Write the steps for interfacing with operating system in PERL 5M
- OR**
14. B). List and explain PERL data types with suitable examples. 10M

(P.T.O..)

15. A). i) How to run a package in TCL, how to remote login to a system A from system B, execute commands in it. 5M
ii) Give an example of how to write internet applications using TCL. 5M

OR

15. B). Explain the list of available selection widgets in TK with examples. 10M

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R18

Course Code: A36611



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Soft and Evolutionary Computing
(CSM)

Date: 24.06.2025 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 soft and hard computing. 2 M
2. Define Fuzzy sets. 2 M
3. State RBF function. 2 M
4. Illustrate ART network. 2 M
5. State the Fuzzy arithmetic. 2 M
6. List the components of a Fuzzy inference system. 2 M
7. Draw the block diagram of ANFIS. 2 M
8. Explain the Automobile LPG prediction problem. 2 M
9. Define mutation property. 2 M
10. Illustrate the genetic algorithm cycle. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Summarize Artificial neural network learning methods. 10M
- OR**
11. B). Explain fuzzy system elements and relations. 10M
12. A). Explain the TDNN algorithm and architecture. 10M
- OR**
12. B). Discuss associative memory network types. 10M
13. A). Explain the formation of rules in a fuzzy system. 10M
- OR**
13. B). Summarize functional blocks of Fuzzy Inference System. 10M
14. A). Explain ANFIS architecture. 10M
- OR**
14. B). Explain a fuzzy inference system printed character recognition problem. 10M
15. A). Illustrate the Genetic algorithm cycle and fitness function. 10M
- OR**
15. B). Explain particle swarm optimization. 10M

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R18

Course Code: A36215



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Principles of Software Engineering
(CSC)

Date: 24.06.2025 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 the types of software myths. 2 M
2. Illustrate various problems of prototyping process model. 2 M
3. Demonstrate the user requirements in detail. 2 M
4. Describe about requirement validation. 2 M
5. List the basic design principles of class based component. 2 M
6. What are the differences between Components and Classes? 2 M
7. What is flow graph notation and show how it is important in white box testing? 2 M
8. Analyze on what is a "good" test and List two principles of good design. 2 M
9. Discuss about Risk Management planning. 2 M
10. Differentiate between Reactive Vs Proactive risk strategies. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Describe with the help of a diagram, explain in detail waterfall model. Give certain reasons for its failure. 10M

OR

11. B). Illustrate software Engineering? Explain the layered technology of software engineering. 10M
12. A). Explain the requirements for engineering process functions and explain who should be involved in requirements review? Draw a process model showing how a requirements review might be organized. 10M

OR

12. B). Identify various functional and non functional requirements that may be defined for library based system. 10M
13. A). Explain the following : 10M
- i) Design process
 - ii) Design model
 - iii) Design Concepts.

OR

13. B). Explain in detail about interaction diagrams with examples. 10M

(P.T.O.)

14. A). (i) Describe in detail about software testing strategies. 5M
(ii) Explain in detail about any one control structure testing. 5M

OR

14. B). (i) Describe the control-flow based criteria of testing. 5M
(ii) What do you understand by Unit testing? 5M

15. A). (i) Explain about the metrics for requirements model 5M
(ii) Define metric. Explain metrics of software quality. 5M

OR

15. B). Describe various quality factors that associate with software quality. 10M

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R18

Course Code: A36213



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Digital Forensics

(CSC)

Date: 26.06.2025 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 Digital Forensics. 2 M
2. List the different Computer Crimes. 2 M
3. What court documents would be required for a criminal investigation? 2 M
4. List various court orders to search and seizure electronic evidence. 2 M
5. Write the importance of the forensic mindset for evidence management and presentation. 2 M
6. Define who should be notified of a crime. 2 M
7. What do you mean by computer forensics workstations and software? 2 M
8. Write the procedure to prepare a case. 2 M
9. Define mobile Forensics. 2 M
10. List the different mobile forensics tools. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the different phases in Digital Forensics process. 10M
- OR**
11. B). Distinguish the terms Forensics science, computer forensics, and digital forensics. 10M
12. A). Discuss the various methods to search and seizure electronic evidence. 10M
- OR**
12. B). Explain the procedure in Cyber Crime Scene Analysis. 10M
13. A). Discuss the evidence management and presentation using operating system. 10M
- OR**
13. B). Summarize the parts of gathering evidence to define and apply probable cause. 10M
14. A). Explain in detail the process to begin an investigation, conduct investigation and complete a case. 10M
- OR**
14. B). Summarize the open-source security tools for network forensic analysis. 10M
15. A). Write about the legal aspects of Digital Forensics in IT Act 2000, and amendment of IT Act 2008. 10M
- OR**
15. B). Explain the recent trends in mobile forensic techniques and methods to search and seizure electronic evidence. 10M

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R18

Course Code: A30558



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: **Data Visualization**

(Computer Science & Engineering)

Date: 26.06.2025 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. Illustrate different types of Nominal data. 2 M
2. What is a taxonomy? 2 M
3. Enlist the applications of flow maps. 2 M
4. Identify the issues that need to be addressed when performing inverse mapping. 2 M
5. How is time organized hierarchically? 2 M
6. State the purpose of Dimensional Stacking. 2 M
7. List any four aesthetic rules to be followed to ensure the interpretability of a tree. 2 M
8. Define the following: 2 M
 - i. face
 - ii. cut vertex
9. Comment on the importance of aesthetics. 2 M
10. What are usability tests? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). "Visualization most often provides different levels of both qualitative and quantitative views of the information being communicated" Justify. 10M
- OR**
11. B). Explain the visualization process in detail with a neat diagram. 10M
12. A). Discuss the pros and cons of using an isosurface data representation versus slicing a three-dimensional volume. 10M
- OR**
12. B). Compare and contrast choropleth maps and cartograms. What are the main features of each? 10M
13. A). Explain the techniques of visualization used for Time Oriented data. 10M
- OR**
13. B). Illustrate any five types of multivariate glyphs. 10M

(P.T.O.)

14. A). Given 'n' text documents describe the process to represent them using vector space model. 10M

OR

14. B). Write the recommended computations needed for document analysis in the following applications: 10M

(i) Identifying plagiarism

(ii) Determining the papers that discuss a specific topic

15. A). Assume that you are plotting the exchange rates for 20 different countries. List at least three ways of ordering the names of the countries and describe why each might be useful. 10M

OR

15. B). Elaborate the actions a user can take when interacting with a visualization. 10M

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R18

Course Code: A30532



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Software Project Management
(Common for CSE & IT)

Date: 26.06.2025 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 the Cost Model Parameters? 2 M
2. Describe Iterative Waterfall Model. 2 M
3. What are the Stages of Life Cycle? 2 M
4. Compare Implementation set and Deployment set. 2 M
5. Why are Checkpoints Important? 2 M
6. Illustrate about COCOMO. 2 M
7. What is Change Management? 2 M
8. Give examples of line-of-business organizations. 2 M
9. Why do we need Software Metrics? 2 M
10. Describe modern process transitions. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). How can you measure the Pragmatic Software Cost Estimation and Explain with an Example? 10M
- OR**
11. B). In what way we can Reduce the Software Product Size? 10M
12. A). Explain about Artifacts of the process in Detail. 10M
- OR**
12. B). Describe Model based software architectures under Management perspective. 10M
13. A). Explain about Major Milestones and Minor Milestones. 10M
- OR**
13. B). Draw and Explain the Work Breakdown Structure for Hotel Management System. 10M
14. A). Explain Software Development and Assesement Team Activities. 10M
- OR**
14. B). Explain about Configuration Baseline with an Example. 10M
15. A). What are the Types of Metrics Indicators and Explain? 10M
- OR**
15. B). Discuss about the Next generation Software economics. 10M

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R18

Course Code: A36610



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Internet Technologies

(Common for CSM & AIM)

Date: 26.06.2025 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 syntax to declare a function in PHP. 2 M
2. Mention the methods to connect PHP with MySQL. 2 M
3. Write the HTML tags used to create a table. 2 M
4. List the differences between XML and HTML. 2 M
5. Name the methods of the Servlet life cycle. 2 M
6. Name the interface used to handle HTTP requests in servlets. 2 M
7. How do you insert a Java expression in a JSP page? 2 M
8. What is the purpose of the response object in JSP? 2 M
9. Explain the purpose of return false in form validation? 2 M
10. Write a method to access an HTML element in JavaScript. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss PHP functions in detail. Show how to define, call, and pass parameters by value and by reference. 10M

OR

11. B). Explain file modes in PHP. Illustrate with a program that appends text to an existing file. 10M

12. A). Illustrate different types of HTML lists with suitable examples Write code to demonstrate each. 10M

OR

12. B). Discuss Document Type Definition (DTD) with an example. How is DTD used for validation? 10M

13. A). Outline the steps involved in deploying a servlet on a web server. Include a sample web.xml configuration. 10M

OR

13. B). What are cookies and sessions? Explain how sessions are created and managed in servlets with code. 10M

14. A). Describe the lifecycle of a JSP page, explain how to use JavaBeans in a JSP page. 10M

OR

14. B). Discuss the use of cookies and sessions in JSP for session tracking, Compare and contrast cookies and sessions. 10M

15. A). Illustrate how variables are declared in JavaScript and discuss the scope of variables in JavaScript. 10M

OR

15. B). Discuss the structure and components of the DOM. 10M

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

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Design Patterns

(Common for CSD & AID)

Date: 26.06.2025 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 design pattern. 2 M
2. List the Essential Elements of Design Pattern. 2 M
3. Define Document Structure. 2 M
4. Explain briefly about "Monoglyph". 2 M
5. List the Intents of Creational Patterns. 2 M
6. What is the purpose of the Builder design pattern? 2 M
7. List participants of Bridge Design Pattern. 2 M
8. Give an example of a real-world scenario where the Decorator pattern could be applied. 2 M
9. Sketch the class diagram of Interpreter Design pattern. 2 M
10. How does the Template Method pattern support code maintainability? 2 M

PART-B**Answer the following. Each question carries TEN Marks.**

5x10=50M

- 11.A). i) Explain the Template of the Design Pattern. 5M
ii) Explain how Design Pattern solves Design problems. 5M
- OR**
- 11.B). i) How to organize the catalog of design patterns? 5M
ii) State and explain the Classification of Design pattern. 5M
- 12.A). Discuss Lexi's user interface and its design problems. 10M
- OR**
- 12.B). List and explain goals and constraints of spelling checking and hyphenation. 10M
- 13.A). What is the Singleton Pattern, and why is it used? Explain its intent, structure, and key characteristics in detail. 10M
- OR**
- 13.B). i) What are the implementation issues of prototype design patterns? Discuss. 5M
ii) Can we use an abstract factory for supporting multiple window system in Lexi's design? Explain. 5M
- 14.A). Explain in detail about Flyweight Design pattern. 10M
- OR**
- 14.B). Describe the Composite Design pattern and write its implementation. 10M
- 15.A). i) Write about the intent, motivation, structure and applicability of Visitor pattern. 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 and liabilities of the Visitor pattern. 5M

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R18

Course Code: A36612



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Natural Language Processing

(Common for CSM & AIM)

Date: 28.06.2025 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 what are the main challenges in NLP. 2 M
2. Define unigram, bigram, and trigram models. 2 M
3. Define F1-score. 2 M
4. Differentiate between rule-based and statistical POS tagging. 2 M
5. Explain How is spelling error correction typically performed. 2 M
6. How does Term Frequency (TF) measure? Explain? 2 M
7. What is semantic interpretation? 2 M
8. Explain what is semantic parsing. 2 M
9. Describe what kind of input representation is used in NLG. 2 M
10. List the key features of most Indian languages. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Define Information Retrieval. How does it differ from Information Extraction? Describe the components and challenges of a typical IR system. 10M
- OR**
11. B). Explain the concept and working of statistical language models. How do they estimate probabilities, and what are their advantages and limitations? 10M
12. A). Discuss the key design features of an Information Retrieval system. What considerations must be addressed to ensure efficiency and effectiveness? 10M
- OR**
12. B). What is stemming in NLP? Compare different stemming algorithms with examples and discuss their role in IR and text processing. 10M
13. A). What is POS tagging? Discuss different approaches used for tagging and the challenges involved. 10M
- OR**
13. B). Define Context-Free Grammar. Describe its components and explain how it is used in syntactic analysis. 10M
14. A). What is Word Sense Disambiguation? Explain different approaches used for WSD and discuss their challenges and applications. 10M

(P.T.O.)

OR

14. B). What is discourse coherence? How is discourse structure represented in NLP, and why is it important? 10M

15. A). Discuss the major tasks involved in NLG and the types of input representations used. 10M

OR

15. B). Describe the major challenges faced in machine translation. Provide examples to illustrate it. 10M



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Data Science Using R

(AID)

Date: 28.06.2025 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 datafication? | 2 M |
| 2. Define overfitting. | 2 M |
| 3. What are asymmetric attributes? | 2 M |
| 4. Define and give examples of nominal attributes. | 2 M |
| 5. How can you perform sub setting operations on vectors in R? | 2 M |
| 6. How can you extend a data frame? | 2 M |
| 7. What are logical operators in R. | 2 M |
| 8. What are nested functions? | 2 M |
| 9. What is the role of wavelet transforms in data reduction? | 2 M |
| 10. What is the role of clustering in reducing data? | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|--|----|
| 11.A. (i). Explain the concept of Big Data and its relationship with Data Science. | 5M |
| (ii). What does it mean to "fit a model," and what are common approaches? | 5M |
| OR | |
| 11. B. (i). Describe the steps involved in setting up an R programming environment. | 5M |
| (ii). What is statistical inference, and why is it important in data analysis? | 5M |
| 12. A. (i). Explain different types of attributes? | 5M |
| (ii). Illustrate common graphical methods for displaying basic statistical data? | 5M |
| OR | |
| 12. B. (i). What are numeric attributes? How are they categorized? | 5M |
| (ii). What is the interquartile range (IQR) and how is it useful? | 5M |
| 13. A. (i). How do you create and name a matrix in R? | 5M |
| (ii). Write a program to access elements of a list? | 5M |
| OR | |
| 13. B. (i). What are ordered factors and how are they compared? | 5M |
| (ii). Demonstrate the process of converting a list to a vector. | 5M |
| 14. A. (i). Write a program to demonstrate how relational operators work with vectors? | 5M |
| ii). How can you loop over a list in R? Demonstrate with code. | 5M |

(P.T.O.)

OR

14. B). (i). How is a for loop structured in R? Give an example. 5M
(ii). Write a program to load an R package. 5M
15. A). (i). How does sampling contribute to data reduction? 5M
(ii). Explain hierarchical visualization techniques. 5M

OR

15. B). (i). Demonstrate pixel-oriented visualization techniques. 5M
(ii). What are icon-based visualization techniques and how are they used? 5M

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R18

Course Code: A30544



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations June-2025

Course Name: Internet of Things

(CSC)

Date: 28.06.2025 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 IoT. 2 M
2. Write the characteristics of IoT. 2 M
3. What is the role of sensor deployment in IoT? 2 M
4. Name any two survey routing protocols. 2 M
5. What are the design challenges in IoT? 2 M
6. Mention any two security challenges in IoT. 2 M
7. What is IoT-based home automation? 2 M
8. List the industrial applications. 2 M
9. What is embedded system platform? 2 M
10. Name any two IoT tools used for development. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the Functional Blocks of IoT in detail. 10M
- OR**
11. B). Describe various communication models and APIs used in IoT. 10M
12. A). Explain about sensor deployment and node discovery processes. 10M
- OR**
12. B). Explain the MAC protocol Survey in detail. 10M
13. A). Discuss about the IoT design and implementation challenges. 10M
- OR**
13. B). Describe about the security challenges in IoT systems. 10M
14. A). Explain about the surveillance applications of IoT. 10M
- OR**
14. B). Evaluate the impact of IoT in various industrial sectors. 10M
15. A). Explain the steps to develop a sensor-based application using IoT tools. 10M
- OR**
15. B). Describe the process of implementing IoT concepts using Python. 10M
