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R18

Course Code: A36205



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: **CRYPTOGRAPHY & NETWORK SECURITY**
(CSC)

Date: 05.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. List out security services. 2 M
2. State the Fermat's Theorem. 2 M
3. Convert the Given Text "CRYPTOGRAPHY" into cipher text using Rail fence Technique. 2 M
4. What are the two basic functions used in encryption algorithms? 2 M
5. Explain Secure Hash Algorithm. 2 M
6. Explain principles of public key cryptosystems. 2 M
7. Describe the message digest function in digital signatures. 2 M
8. How Digital signature differs from authentication protocols? 2 M
9. Define what are the services provided by IPSec. 2 M
10. Describe the differences between MIME and S/MIME. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Demonstrate model for Network Security with neat diagram. 10M

OR

11. B). State Chinese remainder theorem and find X for the given set of congruent equations using CRT. 10M

(i) $X = 1 \pmod{5}$

(ii) $X = 2 \pmod{3}$

$X = 2 \pmod{7}$

$X = 3 \pmod{5}$

$X = 3 \pmod{9}$

$X = 2 \pmod{7}$

$X = 4 \pmod{11}$

12. A). i) Define Caesar cipher? And calculate the encryption and decryption for the plain text P="COME TO MY HOME" by using caser cipher with Key k=3. 6M

- ii) Understand and contrast DES and AES. 4M

OR

12. B). i) Explain Data Encryption Standard encryption and decryption process with suitable examples. 8M

- ii) State advantages of counter mode? 2M

(P.T.O.)

13. A). Perform encryption and decryption using RSA Alg. for the following. $P=17$; $q=11$; $e=7$; $M=88$. 10M

OR

13. B). Discuss Elliptic Curve Cryptography algorithm with a neat diagram. Explain the need of ECC. 10M

14. A). List out the different types of authentication applications. Explain different types of Kerberos? 10M

OR

14. B). Write down the steps involved in Elgamal DSS & Schnorr DSS. 10M

15. A). What is PGP? Discuss in detail about Pretty Good Privacy with example. 10M

OR

15. B). Discuss in detail about encapsulating security payload with a neat diagram and explain the uses of it. 10M

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R18

Course Code: A31201



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: AUTOMATA & COMPILER DESIGN

(Common for IT & CSC)

Date: 07.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Define NFA with example. 2 M
2. Considering the following grammar, remove left recursion and left factor to prove the grammar is LL (1) 2 M
 $L \rightarrow L ; S | S$
 $S \rightarrow id = E | id (E)$
 $E \rightarrow id | num$
3. Explain briefly about YACC parser. 2 M
4. Construct syntax tree for the expression $(a+(b*c)^d-e/(f+g))$. 2 M
5. Differentiate between type conversion and type checking. 2 M
6. Model Chomsky hierarchy of grammars as diagram. 2 M
7. Explain the 3 areas of code optimization. 2 M
8. Define dynamic storage allocation. 2 M
9. Propose the issues in the design of a code generation. 2 M
10. Construct a DAG for the expression $a=b*-c + b*-c$. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Compare and contrast between DFA and NFA. 4M
 ii) Construct a NFA with ϵ equivalent to the regular expression: $10 + (0 + 11)0^*1$ 6M

OR

11. B). Consider the grammar- 10M
 $S \rightarrow bB / aA$
 $A \rightarrow b / bS / aAA$
 $B \rightarrow a / aS / bBB$
 Construct Leftmost derivation, Rightmost derivation and Parse Tree for the string $w = bbaababa$.

12. A). Construct a LALR Parser for the Grammar: 10M
 $S \rightarrow CC,$
 $C \rightarrow cC,$
 $C \rightarrow c/d$

OR

12. B). Write the syntax directed definitions for an expression and draw the Annotated parse tree '95*4 +5'. 10M

(P.T.O..)

13. A). i) Identify some solutions to resolve an overloaded symbol. 5M
ii) Distinguish static and dynamic Type checking. 5M

OR

13. B). Explain about the equivalence of type expressions in detail. 10M

14. A). Explain about the principles sources of optimization. 10M

OR

14. B). i) Differentiate between Static and Dynamic Storage allocation Strategies. 5M
ii) Explain in brief about Heap Storage allocation strategy. 5M

15. A). i) Discuss the code generation process involving the environment of the code generator. 5M
ii) Model the steps in code generation of the expression $(A + B) / C + D$. Assuming two machine registers are available. 5M

OR

15. B). Analyze legal evolution orders and names for the values at the nodes for the DAG for following? 10M

$d := b + c$

$e := a + b$

$b := b * c$

$a := e - d.$

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Course Code: A30523



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: WEB TECHNOLOGIES

(CSC)

Date: 09.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What is an array, list out different types of arrays in PHP? 2 M
2. Write the Syntax of a variable in PHP, list out the super global variables which are used to collect form data in PHP. 2 M
3. Write the HTML tags to read following data from the user using form. 2 M
4. List out the different types of list item markers supported by Unordered list. 2 M
5. Abbreviate JDBC and identify the types of JDBC drivers. 2 M
6. Distinguish the methods involve in reading servlet parameters. 2 M
7. List out the advantages of using JSP over Servlets. 2 M
8. Enlist types of JSP tags. 2 M
9. What are the features of JavaScript? 2 M
10. How can you create an object in JavaScript? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Create a PHP Script to retrieve and display the student information from database based on students roll number. 10M

OR

11. B). Explain briefly about file handling in php with suitable example code. 10M

12. A). What is CSS? Explain different mechanisms to apply CSS to HTML pages. 10M

OR

12. B). i) Construct the DTD for the given XML document 5M

```
<book id="2"> This book is about XML
<title>XML Programming</title>
<author> Elliotte Rusty Harold</author>
<pages> 423</pages>
<price> Rs: 500</price>
</book>
```

- ii) Explain SAX parser 5M

(P.T.O.)

13. A). Consider the following table in the database

10M

Employee details (Table Name):

ID	Age	First Name	Last Name
101	34	Joey	Tribbiani
102	36	Michael	Monty
103	38	Angel	Mary

Write a Servlet program to access these data and display it in the following form
ID: 101, Age:34, First: Joey, Last: Tribbiani.

OR

13. B). Differentiate between ServletContext and ServletConfig, how to read context parameters of servlet. Write a program to read context parameters from servlet. 10M

14. A). i) Explain the anatomy of JSP page. 5M
ii) Write the JSP Script to print the multiplication table. 5M

OR

14. B). i) How to access Java Beans from a JSP? 5M
ii) How can we share data between JSP pages? 5M

15. A). Discuss the following events in JavaScript with example. 10M
i) onclick(), ii) onmouseover(), iii) onload() and iv) onblur()

OR

15. B). Validate registration page with the following fields using JavaScript 10M
i) UserName(Starts with lowercase)
ii) Password(Starts with Uppercase followed by digits only in between 8 to 12)
iii) Phone number(contains 10 digits)
iv) Zip code (contains 6 digits)

H.T No:

R18

Course Code: A36209



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular Examinations December-2022

Course Name: INTRUSION DETECTION & PREVENTION SYSTEMS
(CSC)

Date: 12.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Outline IDS and IPS analysis Schemes. 2 M
2. Determine the need of Clustering. 2 M
3. Identify the need of Tires Architecture for Intrusion Detection. 2 M
4. Distinguish between Centralized and Cooperative Intrusion Detection. 2 M
5. Interpret about Return of Investment. 2 M
6. How can you Justify Quantifying the Risk? 2 M
7. List the steps used in Bro Intrusion Detection. 2 M
8. Defend the importance of NFR Security. 2 M
9. Discuss about the Legal Issues followed for Intrusion Detection. 2 M
10. Classify the Standard of Evidentiary Issues in Intrusion detect. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Demonstrate the different Detection Approaches. 10M
- OR**
11. B). Show how does Association rules is used in Intrusion detection. 10M
12. A). Illustrate about Distributed Intrusion Detection. 10M
- OR**
12. B). Summarize Cooperative Intrusion Detection. 10M
13. A). Explain about Threat briefing. 10M
- OR**
13. B). Summarize about Intrusion detection in Security. 10M
14. A). Can you examine Tool Selection and Acquisition process. 10M
- OR**
14. B). Construct the process of Snorts Intrusion Detection. 10M
15. A). Elaborate Process followed during Law Enforcement and Criminal Prosecution. 10M
- OR**
15. B). Identify US Standard laws of Intrusion detection. 10M

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R18

Course Code: A30528



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: DATA WAREHOUSING & DATA MINING
(CSC)

Date: 14.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

- | | |
|--|-----|
| 1. List OLAP Operations. | 2 M |
| 2. Define Fact Table. | 2 M |
| 3. Outline the Data integration technique. | 2 M |
| 4. Why is data preprocessing needed? | 2 M |
| 5. Explain Support and Confidence in Association. | 2 M |
| 6. What is maximal frequent itemset? | 2 M |
| 7. List different measures for selecting the Best Split. | 2 M |
| 8. Differentiate the supervisor learning and un-supervisor learning. | 2 M |
| 9. Differentiate Agglomerative and divisive Hierarchical methods. | 2 M |
| 10. Define the Outliers. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|---|-----|
| 11.A). Compare the ROLAP, MOLAP and HOLAP server architectures. | 10M |
| OR | |
| 11.B). Outline a three-tier data warehousing architecture with a neat diagram. | 10M |
| 12.A). Summarize the different data mining functionalities. | 10M |
| OR | |
| 12.B). Apply normalization techniques on the following data (in increasing order) for the attribute age: 13, 15,16, 16, 19, 20, 20, 21, 22, 22, 25, 25, 25, 25, 30, 33, 33, 35, 35, 35, 35, 36, 40, 45, 46, 52, 70. | 10M |
| i) Use min-max normalization to transform the value 35 for age onto the range [0.0, 1.0]. | |
| ii) Use normalization by decimal scaling to transform the value 35 for age. | |
| 13.A). Explain the FP-growth algorithm for discovering frequent itemsets with a suitable example. | 10M |

(P.T.O..)

OR

13. B). A database has six transactions. Let $\text{min_sup} = 60\%$ and $\text{min_conf} = 80\%$. Apply the Apriori algorithm to find all frequent itemsets. 10M

TID	Items
1	C, B, H
2	B, F, S
3	A, F, G
4	C, B, H
5	B, F, G
6	B, E, O

14. A). Briefly outline the major steps of K-Nearest neighbour Classification with suitable example. 10M

OR

14. B). Briefly outline the major steps of decision tree classification with suitable example. 10M

15. A). Suppose that the data mining task is to cluster the following eight points (with (x; y) representing location) into three clusters. 10M

A1(1; 11); A2(1; 6); A3(9; 5); B1(6; 9); B2(6; 3); B3(7; 2); C1(3; 5); C2(5; 10): The distance function is Euclidean distance. Suppose initially we assign A1, B2, and C3 as the center of each cluster, respectively. Apply the k-means algorithm to show only.

- The three cluster centers after the first round of execution and
- The final three clusters.

OR

15. B). Analyze each of the following clustering algorithms in terms of the following criteria: 10M

- Shapes of clusters that can be determined
- Input parameters that must be specified
- Advantages and
- Limitations. (a) K-Means, (b) Partitioning Around Medoids (PAM) and (c) Hierarchical

H.T No:

R18

Course Code: A36217



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech V Semester Regular Examinations December-2022

Course Name: CYBER LAWS & ETHICS

(CSC)

Date: 14.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Estimate the penalty for destroying computer source code. 2 M
2. Define crypto jacking. 2 M
3. Show "wrongful gain and wrongful loss". 2 M
4. What is Cyberspace Jurisdiction? 2 M
5. Evaluate the validity of e-contracts. 2 M
6. Examine security issues in e-commerce. 2 M
7. Justify whether the test for determining a 'Rogue Website is Qualitative or Quantitative. 2 M
8. Formulate Cybersquatting. 2 M
9. Select who participates in the drafting of UNCITRAL texts. 2 M
10. Identify the challenges faced by Copyright in Digital World. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). What is the constitution of the Advisory Committee under the Act 2000? Assess the New Changes in the Act. 10M
- OR**
11. B). Summarize the penalties, offences and adjudication under Information Technology Act, 2000. 10M
12. A). Describe various types of cyber jurisdictions with a case study. 10M
- OR**
12. B). Describe various case laws on cyber space jurisdiction. 10M
13. A). Outline the provisions in the IT Act, 2000 for the Cyber Appellate Tribunal. 10M
- OR**
13. B). Describe various Cyber regulations in IT ACT 2000. 10M
14. A). What does reverse domain hijacking Mean? Survey what types of inventions are not patentable in India? 10M
- OR**
14. B). What are SPDI rules? Inspect how is data categorized under SPDI Rule? 10M

(P.T.O..)

15. A). Model the phenomena of cybercrime. What strategies are incorporated to anti- 10M
cybercrime?

OR

15. B). Select what function does a digital signature fulfill as per UNICITRAL model law? 10M

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R18

Course Code: C30162



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: KNOWLEDGE MANAGEMENT

(Common for ECE, CSE, IT & CSC)

Date: 19.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Define Knowledge Leverage. 2 M
2. What is Data Information? 2 M
3. What do you mean by Knowledge Management System? 2 M
4. What is Data Warehousing? 2 M
5. Write a short note on relationship with Knowledge Management to Service sector. 2 M
6. List out the challenges faced by service sector industry. 2 M
7. What is Knowledge Capital? 2 M
8. What is Physical Capital? 2 M
9. What is Business Intelligence? 2 M
10. Define Information Architecture. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). "Technological advances have greatly helped the growth of Knowledge Management, although the field has not yet reached full maturity". Elucidate the statement. 10M
- OR**
11. B). What is Knowledge Leveraging? Explain its key elements in detail. 10M
12. A). Explain the role of Information Technology in Knowledge Management Systems. 10M
- OR**
12. B). Explain the stages involved in developing Knowledge Management Systems. 10M
13. A). Explain the role of Knowledge Management in Service industry. 10M
- OR**
13. B). Explain the role of Knowledge Management in Manufacturing Industry. 10M
14. A). What is KM Process? Explain the steps involved in KM Process. 10M
- OR**
14. B). Explain any five points of difference between Knowledge Capital and Physical Capital. 10M
15. A). Discuss Roadblocks to success in relation to Knowledge Management. 10M
- OR**
15. B). Explain the 10-step process involved in KM Road Map to Amrittiwana. 10M

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R18

Course Code: C30166



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular Examinations December-2022

Course Name: BUSINESS ETHICS & CORPORATE GOVERNANCE
(Common for ECE, CSE, CSC & CSM)

Date: 19.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. What is ethical behavior? 2 M
2. What is nature of ethics? 2 M
3. Who is ethical manager? 2 M
4. What is code of ethics? 2 M
5. What is software piracy? 2 M
6. What is security threat? 2 M
7. What are the obligations of the corporations to the market? 2 M
8. What are the expectations of society from a corporation? 2 M
9. What you mean by Mitigate Risk? 2 M
10. Define Corporate Governance. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss the significance of ethics in business. 10M
- OR**
11. B). Discuss various principles of ethics and is implications in the modern business world. 10M
12. A). Explain the unethical practices in Marketing. 10M
- OR**
12. B). In situations like recessions, explain the role of HR manager in terms of ethical practice. 10M
13. A). How the Criminals Plan the Attacks? Explain with examples? 10M
- OR**
13. B). Discuss about digital signatures in Cyber security. 10M
14. A). What are the various functions of the Board and CEO? 10M
- OR**
14. B). Discuss the future of Corporate Governance in India. 10M
15. A). Explain the Core Elements of the OECD Corporate Governance Principles. 10M
- OR**
15. B). Who can seek remedies against oppression and mismanagement of company? On what grounds can relief be granted in an application seeking relief? 10M

H.T No:

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Course Code: A36635



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech (Minors in AI&ML) V Semester Regular Examinations December-2022

Course Name: **FOUNDATIONS OF ARTIFICIAL INTELLIGENCE**

(Common for CIVIL, EEE, MECH, ECE, IT & CSC)

Date: 19.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Define Artificial Intelligence. 2 M
2. Label the syntax for predicate logic. 2 M
3. Name the three types of classification problems in machine learning. 2 M
4. Compare supervised learning and unsupervised learning. 2 M
5. How to choose step size adaptively in Gradient descent method? 2 M
6. Suggest a real time example for linear regression. 2 M
7. Show the cost function for logistic regression. 2 M
8. Can we use logistic regression for multiple classes? How? 2 M
9. List out the applications of cluster analysis. 2 M
10. Mention the task of clustering. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Compare the procedural knowledge with declarative knowledge. 10M
- OR**
- 11.B). List out and explain any five mostly used artificial intelligence techniques. 10M
- 12.A). Analyze the role of matrix theory and statistics for machine learning. 10M
- OR**
- 12.B). Interpret the idea of machines learning from data with examples. 10M
- 13.A). Find the linear regression equation for the following set of data 10M
- | | | | | |
|---|---|---|---|----|
| X | 2 | 4 | 6 | 8 |
| Y | 3 | 7 | 5 | 10 |
- OR**
- 13.B). Demonstrate the functionality of Gradient descent method for linear regression. 10M
- 14.A). Examine the problem of overfitting with a suitable example. 10M
- OR**
- 14.B). Define classification. Illustrate the usage of logistic regression for performing classification. 10M
- 15.A). Show and interpret the how can we classify the Clustering algorithm. 10M
- OR**
- 15.B). Inspect the implementation of agglomerative hierarchical clustering. 10M

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Course Code: A36761



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech (Minors in DS) V Semester Regular Examinations December-2022

Course Name: DATA SCIENCE USING R

(Common for ECE, CSE, CSC & CSM)

Date: 19.12.2022 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.

10x2=20M

1. Differentiate Big Data and Data Science Hype. 2 M
2. State Statistical Inference. 2 M
3. Define symmetric attributes. 2 M
4. State and write the formula for mean and median. 2 M
5. How do you read a CSV file in R? 2 M
6. How to create an empty Data Frame in R? 2 M
7. Write an R program to display days of a week. 2 M
8. What is function scoping? 2 M
9. Write the definition of histogram. 2 M
10. Define icon-based visualization technique. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Explain the Drew Conway's Venn diagram of data science. 5M
ii) Write a R Program to Find the Sum of natural numbers. 5M
- OR**
11. B). i) Write about data types in 'R'. 5M
ii) Write about conditional statements in 'R' with example. 5M
12. A). Suppose that the data for analysis includes the attribute age. The age values for the data tuples are (in increasing order) 13, 15, 16, 16, 19, 20, 20, 21, 22, 22, 25, 25, 25, 25, 30, 33, 33, 35, 35, 35, 35, 36, 40, 45, 46, 52, 70. 10M
(i) What is the mean of the data? What is the median?
(ii) What is the mode of the data? Comment on the data's modality (i.e., bimodal, trimodal, etc.).
(iii) What is the midrange of the data?
(iv) Can you find (roughly) the first quartile (Q1) and the third quartile (Q3) of the data?
(v) Give the five-number summary of the data.

OR

12. B). Write about different types of attributes with an example. 10M

(P.T.O..)

13. A). i) Explain different ways of create an empty matrix with an example. 5M
ii) Explain with examples on vector arithmetic. 5M

OR

13. B). i) Write a R program to create a Data frame having details of 5 employees. 5M
ii) Write a command to retrieve data from 2,3,4 row from employee data frame. 5M

14. A). Explain different types of relational operators in R programming. 10M

OR

14. B). Write the different types of flow control statements in R programming. 10M

15. A). Explain attribute subset selection with a neat diagram. 10M

OR

15. B). Describe the geometric-projection visualization techniques. 10M
