

H.T No:

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R18

Course Code: A30523



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Web Technologies

(Common for CSE & IT)

Date: 06.01.2025 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 simple PHP script. 2 M
2. Differentiate while and do-while statement in PHP. 2 M
3. How ordered list is done in HTML? 2 M
4. List the data types supported in XML schema. 2 M
5. State the types of servlets. 2 M
6. Different between HTML and XML. 2 M
7. Write any five HTML tags. 2 M
8. Define cookies. 2 M
9. Differentiate server and client-side programming. 2 M
10. Define DOM. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the database connection in PHP with suitable examples. 10M
- OR**
11. B). i) How to write HTML code in PHP. 5M
ii) Explain the use of GET and POST methods in PHP. 5M
12. A). Discuss the working of XML elements and attributes. 10M
- OR**
12. B). Explain the types of List and CSS in HTML with examples. 10M
13. A). With a neat diagram explain the life cycle of Servlet. 10M
- OR**
13. B). Write a Servlet program to implement the user login module. 10M
14. A). Explain the Cookies and sessions for session tracking. 10M
- OR**
14. B). What is directive and explain the JSP directives with suitable? 10M
15. A). Draw the detailed DOM object structure and explain its usage. 10M
- OR**
15. B). Explain the various Java Script functions and event handlers. 10M



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Compiler Design

(Common for CSE & CSD)

Date: 08.01.2025 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 an interpreter? | 2 M |
| 2. Define the Assembler. | 2 M |
| 3. What do you mean by a syntax tree? | 2 M |
| 4. What is left factoring? | 2 M |
| 5. What are the limitations of static allocation? | 2 M |
| 6. Draw the DAG for the statement $a = (a*b+c)-(a*b+c)$. | 2 M |
| 7. What do you mean by copy propagation? | 2 M |
| 8. What is a flow graph? | 2 M |
| 9. What is meant by loop invariant computation? | 2 M |
| 10. What is global data flow analysis? | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | |
|---|-----|
| 11.A). What are the different phases of compiler? Explain the phases in detail. Write down the phases in detail. Write down the output of each phase for the expression $a:=b+c*50$. | 10M |
| OR | |
| 11. B). Give the minimized DFA for the following expression $(a/b)*abb$. | 10M |
| 12. A). Explain Context free grammars with examples. | 10M |
| OR | |
| 12. B). Check whether the following grammar is a LL(1) grammar.
$S \rightarrow iEtS \mid iEtSeS \mid a$
$E \rightarrow b$
Also define the FIRST and FOLLOW procedures. | 10M |
| 13. A). Discuss in detail about the Syntax Directed Definitions. | 10M |
| OR | |
| 13. B). Analyze the grammar and syntax-directed translation for desk calculator and show the annotated parse tree for expression $(3 + 4) * (5 + 6)$. | 10M |
| 14. A). Compare and contrast of static, stack and Heap allocation. | 10M |
| OR | |
| 14. B). Explain in detail Peephole optimization. | 10M |
| 15. A). What do you mean by machine dependent and machine independent optimization explain in detail? | 10M |
| OR | |
| 15. B). i) What is control and data flow analysis? | 3M |
| ii) Explain about principle source of optimization technique. | 7M |

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R18

Course Code: A30521



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Scripting Languages

(Common for CSE & IT)

Date: 10.01.2025 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 Ruby? 2 M
2. How are cookies used in Ruby CGI scripts? 2 M
3. What is the purpose of extending Ruby with C? 2 M
4. How is memory allocated in Ruby extensions? 2 M
5. What is PERL? 2 M
6. Define scalar values and give an example in PERL. 2 M
7. How does PERL interact with the filesystem? 2 M
8. Define the pack and unpack functions and their purpose. 2 M
9. List the control flow statements available in TCL. 2 M
10. What are procedures in TCL? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss the package management system in Ruby. How does RUBYGEMS simplify package handling? 10M

OR

11. B). Illustrate the implementation process of SOAP web services with example. 10M

12. A). Describe the steps involved in creating and using a Jukebox extension in Ruby. 10M

OR

12. B). Explain the key steps to manage memory when creating Ruby objects in C? 10M

13. A). Describe PERL's impact on web scripting, particularly in CGI scripts and server-side programming. 10M

OR

13. B). Explain control structures like if, else, for, while, and foreach with suitable examples. 10M

14. A). Discuss advanced loop structures and controls in PERL, such as foreach, for, Finer point, next, last, and redo. 10M

OR

14. B). Explain the Dirty Hands Internet Programming and Security issues. 10M

15. A). Explain the structure and syntax of a basic TCL program. 10M

OR

15. B). Discuss the concept of trapping in TCL. Why is it important in scripting? 10M

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R18

Course Code: A30532



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Software Project Management

(Common for CSE & IT)

Date: 16.01.2025 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 phases of waterfall model. 2 M
2. How to improve team effectiveness? 2 M
3. List the different phases of life cycle process. 2 M
4. Define iteration workflow. 2 M
5. What is pragmatic planning? 2 M
6. Define check point of a process. 2 M
7. Write the responsibility of an organization. 2 M
8. List the software policies of an organization. 2 M
9. Define an indicator. List different types of indicators. 2 M
10. What are the 3 fundamentals sets of management metrics? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). With a neat diagram explain waterfall model. What are the five necessary improvements in waterfall model? 10M
- OR**
11. B). Explain in detail about how various methods/techniques/technologies can help in reducing the software product size. 10M
12. A). Explain about the primary objectives, essential activities and evaluation criteria for the following stages of life cycle process. 10M
i)Elaboration phase ii) Transition phase
- OR**
12. B). Explain about model-based architecture in a management perspective. 10M
13. A). Distinguish between major milestones and minor milestones of a process. 10M
- OR**
13. B). Write about the planning of an iteration in each phase of the life cycle process. 10M
14. A). Explain about the roles and responsibilities of various authorities / persons in a default line of business organization. 10M
- OR**
14. B). Elaborate in detail about Process Automation. 10M
15. A). List and explain the seven core metrics. 10M
- OR**
15. B). Demonstrate the next generation software cost models. 10M



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Data Visualization

(Computer Science & Engineering)

Date: 16.01.2025 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 ordinal data. 2 M
2. Draw the reference visualization pipeline. 2 M
3. List the advantages of Cartograms over Choropleth maps. 2 M
4. What is Flow visualization? 2 M
5. Define any two general aspects of time characterization. 2 M
6. State the advantages of parallel coordinates. 2 M
7. Enlist four types of interrelationships among data items. 2 M
8. Write the formula to compute the x-component of the spring force between two nodes in a graph. 2 M
9. Mention the impact of Information Density at extremes. 2 M
10. State the importance of benchmarking. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Describe how visualization intersects with various disciplines. 10M
- OR**
11. B). There are numerous strategies for dealing with missing data in a data set. Comment on the strengths and weaknesses of each of these strategies. 10M
12. A). Map projections are used to visualize geospatial data. Why are these projections difficult? 10M
- OR**
12. B). Describe Visual variables for spatial data. 10M
13. A). Explain characteristics of Time Oriented data. 10M
- OR**
13. B). Explain the basic structure of a typical MDS algorithm. 10M
14. A). Write the procedure to draw a tree and suggest enhancements to improve space utilization. 10M
- OR**
14. B). Write the recommended computations needed for document analysis in the following applications: 10M
(i) Selecting a Sushi restaurant with good reviews
(ii) identifying poll pulse of a nation during elections.
15. A). Discuss the various strategies to avoid misleading visualizations. 10M
- OR**
15. B). Explain modern integrated visualization system. 10M

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R18

Course Code: A30542



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Cloud Computing

(CSM)

Date: 06.01.2025 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 parallel computing? 2 M
2. What are the benefits of cluster computing? 2 M
3. According to NIST, name one of the essential characteristics of cloud computing. 2 M
4. What is the difference between a public cloud and a private cloud? 2 M
5. What is cloud management? 2 M
6. What are the applications of cloud? 2 M
7. What is Platform as a Service (PaaS)? 2 M
8. What are the advantages of SaaS? 2 M
9. What is the Salesforce Sales Cloud? 2 M
10. What is Microsoft SharePoint? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the concept of High-Performance Computing (HPC). 10M
- OR**
- 11.B). Define nano computing and explain its significance in the context of advancements in nanotechnology. 10M
- 12.A). Explain the concept of "Cloud Computing as a Platform". 10M
- OR**
- 12.B). Explain the four cloud deployment models. 10M
- 13.A). Compare and contrast the different approaches for cloud migration. 10M
- OR**
- 13.B). Explain the concept of cloud computing architecture. 10M
- 14.A). Discuss the essential characteristics of Platform as a Service (PaaS). 10M
- OR**
- 14.B). Discuss other emerging cloud service models beyond IaaS, PaaS, and SaaS. 10M
- 15.A). Discuss the SAP HANA Cloud Platform and the virtualization services provided by SAP in detail. 10M
- OR**
- 15.B). Explain the key components and services of Google Cloud Platform (GCP). 10M

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R18

Course Code: A36710



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: **Web & Social Media Analytics**
(CSD)

Date: 06.01.2025 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 Business Intelligence. 2 M
2. What is Big Data? 2 M
3. Compare and Contrast Text Mining & Text Analytics. 2 M
4. Define Machine Learning. 2 M
5. List the applications of Sentiment Analysis. 2 M
6. What are the approaches to sentiment analysis? 2 M
7. Define Web Mining. 2 M
8. List the types of search Engines. 2 M
9. What is Social Network Analysis? 2 M
10. Give the differences between Blog and Online Communities. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the concept of DSS in detail. 10M
- OR**
11. B). Explain in detail about Applications of Big Data. 10M
12. A). Explain the types of NLP Techniques in detail. 10M
- OR**
12. B). Explain Machine vs Man on Jeopardy. 10M
13. A). Illustrate the steps for Sentiment Analysis using ML. 10M
- OR**
13. B). Classify the different types of Sentiment Analysis 10M
14. A). Write a detailed note on Web metrics of Web Analytics. 10M
- OR**
14. B). i) What is a search engine? Explain about search engines. 5M
ii) Describe process of social network analysis. 5M
15. A). Explain how social media analytics helps to develop and grow the business? 10M
- OR**
15. B). Explain in detail about the following terms –Goal competition, Goal value and Goal Conversion rate. 10M

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R18

Course Code: A36210



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Concepts of Ethical Hacking

(CSC)

Date: 06.01.2025 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 different phases of malicious hacking? 2 M
2. What are the different types of hacker attacks? 2 M
3. What is vulnerability assessment? What are its limitations? 2 M
4. What makes a good penetration test? Explain. 2 M
5. Why do attacker need footprinting? 2 M
6. What is Cyber Stalking? 2 M
7. What is remote exploitation? 2 M
8. Define Rootkit. 2 M
9. List the two challenges the deliverable must accomplish. 2 M
10. What is incident management? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Explain Risk Assessment with suitable example. 4M
ii) Evaluate the importance of reporting in penetration testing. 6M
- OR**
11. B). Why is ethical hacking necessary? Explain the scope and limitation of ethical hacking. 10M
12. A). Illustrate the different types of penetration tests. 10M
- OR**
12. B). Sketch and illustrate about the structure of penetration testing report. 10M
13. A). List and explain all the countermeasures against social engineering. 10M
- OR**
13. B). Explain social engineering through impersonation on social networking sites. 10M
14. A). State remote exploitation. Discuss the history and examples for remote exploitation. 10M
- OR**
14. B). What is enumeration? What information can be enumerated by intruders? Explain the different enumeration techniques. 10M
15. A). With an example illustrate the three basic phases to develop an effective security awareness program. 10M
- OR**
15. B). List the contents of Incident response plan and enumerate in detail the contents of the plan. 10M

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R18

Course Code: A30013



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Business Management & Financial Analysis

(Common for EEE, ME, ECE, AIM & AID)

Date: 06.01.2025 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 planning in the Organization 2 M
2. Define Scientific Management Theory. 2 M
3. What is meant by production management and its importance. 2 M
4. What are the functions of Financial Management? 2 M
5. Define the term 'inflation'. 2 M
6. Define Elasticity of Demand. 2 M
7. What is meant by Opportunity Cost? 2 M
8. Write the concept of market equilibrium. 2 M
9. Define liquidity ratios and explain with example. 2 M
10. Describe the concept of leverage and its impact on a company's financial health. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Define management. Explain in detail the principles of management. 10M
- OR**
11. B). Explain the concept of management and write any two motivational theories. 10M
12. A). Discuss the challenges and opportunities presented by e-commerce and the strategies that businesses can adopt to thrive in the digital age. 10M
- OR**
12. B). Explain about different plant layouts. 10M
13. A). Apply the concept of elasticity of demand to analyze the impact of price changes on the revenue of a firm. Discuss the implications for pricing strategies. 10M
- OR**
13. B). Explain the deference between Micro and Macro Economics. 10M
14. A). Apply the concept of break-even point and Discuss assumptions and limitations. 10M
- OR**
14. B). What is meant by market and explain different markets in the business environment. 10M

(P.T.O.)

15. A). Define ratio analysis and explain different types of ratios. 10M

OR

15. B). Prepare Trading and Profit Loss Account for the year ending 31st March 2016 from the books of Mr. Abdullah. 10M

	SR.		SR.
Stock (31.March.2015)	15,000	Carriage outwards	4,000
Purchases	165,000	Wages	30,000
Purchases return	10,000	Sales returns	5,000
Postage	3,000	Salaries	20,000
Discount received	5,000	Stationeries	2,000
Bad debts	1,000	Interest	8,000
Sales	300,000	Insurance	4,000
Stock (31.March.2016)	80,000		

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R18

Course Code: A36608



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Deep Learning

(Common for CSM & AIM)

Date: 08.01.2025 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 Machine Learning with Deep Learning with example. 2 M
2. Define Overflow and Underflow in Machine Learning. 2 M
3. What is difference between simple linear and multiple linear regressions? 2 M
4. Explain the significance of loss function in a machine learning algorithm. 2 M
5. Explain the role of hyper parameter tuning in neural network training. 2 M
6. Write the applications of CNN. 2 M
7. Discuss the importance of pooling layer in Convolutional Neural Networks. 2 M
8. Write about sentiment analysis with example. 2 M
9. Describe the shape or dimension of input data for a recurrent neural network. 2 M
10. List three differences between LSTM and GR. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the concept of Bayes theorem with an example. 10M

OR

11. B). Explain Gradient based optimization and constrained optimization in detail. 10M

12. A). Compare and contrast single layered model and multi layered perceptron model. 10M

OR

12. B). Write about stochastic Gradient Descent algorithm in detail. 10M

13. A). Compare overfitting and under fitting using the concept of Bias and Variance with suitable examples. 10M

OR

13. B). Explain the role of filter, padding, and strides in a convolution layer of a CNN with an example. 10M

14. A). Explain Back propagation with its algorithm. 10M

OR

14. B). Justify the advantage of auto encoder over principal component analysis for dimensionality reduction. 10M

15. A). Write a short note on: 10M

- i) Deep Q Learning
- ii) Pruning
- iii) Sparse decomposition

OR

15. B). Define Reinforcement Learning? Explain the Markov decision processing with an example. 10M

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R18

Course Code: A31202/A36705



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Data Mining

(Common for IT & AID)

Date: 08.01.2025 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 Classification. 2 M
2. What is Data Warehouse? 2 M
3. Define SPM. 2 M
4. What are Association rules in Data Mining? 2 M
5. Define Tree Pruning. 2 M
6. Define KNN. 2 M
7. What is Density based clustering method? 2 M
8. What is clustering in datamining? 2 M
9. Define Patterns. 2 M
10. Define Text and Web data. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain about Classification of data Mining system. 10M
- OR**
11. B). Discuss about Integration of Data Mining system with a Data Warehouse. 10M
12. A). Which type of algorithms are commonly used for learning association rules? 10M
- OR**
12. B). Explain about Graph pattern mining. 10M
13. A). Differences between clustering and classification. 10M
- OR**
13. B). Explain about Decision tree classifier and its advantages. 10M
14. A). Explain about hierarchical and Partitioning methods. 10M
- OR**
14. B). Define Outlier Analysis. Explain about Grid based clustering method. 10M
15. A). Explain about spatial data mining. 10M
- OR**
15. B). Define Patterns? Explain about mining sequence patterns in transactional data base. 10M

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R18

Course Code: A36212



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Mobile & Wireless Security

(CSC)

Date: 08.01.2025 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 security services offered by Mobile networks. 2 M
2. Write about protocols in mobile computing. 2 M
3. List any two security issues with Wireless LANs. 2 M
4. Mention the three methods of Wireless Authentication Modes. 2 M
5. State two challenges faced by MANETs in adopting mobile IP. 2 M
6. State any four applications of ad hoc wireless network. 2 M
7. List any two security issues in GSM Networks. 2 M
8. Differentiate between 3G and 4G networks. 2 M
9. Describe any two security issues in IoT systems. 2 M
10. Mention any two attacks on IoT systems and IoT devices. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss the differences between Elliptic Curve Cryptography over RSA and justify the need for using ECC for wireless security. 10M
- OR**
11. B). What is the need for an Adaptive Encryption Protocol in Mobile Computing? With an illustration explain how the adaptive encryption protocol is used in mobile computing. 10M
12. A). What are the requirements and applications of wireless LANs and explain the security issues in wireless networks. 10M
- OR**
12. B). Briefly explain AAA Architecture. 10M
13. A). Illustrate architecture of MANET, explain in detail. 10M
- OR**
13. B). List one issue of integrating MANET with mobile IP network. 10M
14. A). Differentiate 5G and 4G networks with respect to security and give illustrations. 10M
- OR**
14. B). Define 5G Architecture and security features. Also illustrate the security risks introduced with 5G networks. 10M
15. A). Illustrate the best practices for securing IoT systems. 10M
- OR**
15. B). What is Identity and Access Management, and Why It's Essential to IoT, how do you approach the Identity Management in the IoT Era? 10M

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R18

Course Code: A36702



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Big Data Processing

(AID)

Date: 10.01.2025 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 difference between Parallel system and Distributed system. 2 M
2. Identify the advantages and disadvantages of NoSQL. 2 M
3. Define the term HDFS in Hadoop environment and State how HDFS stores massive data in Hadoop Cluster. 2 M
4. How to Identify block replication in HDFS? 2 M
5. Define Data Locality in Map Reduce. 2 M
6. Define what happens if the mapper output does not match the reducer input. 2 M
7. Write any three HiveQL DDL command with its syntax and example. 2 M
8. What is meant by data analysis using R? 2 M
9. Write any Four HBase commands with output. 2 M
10. Write differences between HBase and Hive. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). What are the characteristics of big data? Explain the differences between BI and Data Science. 10M

OR

11. B). Describe the various applications of big data analytics. 10M

12. A). Elaborate the basic concepts of HDFS architecture with neat sketch. 10M

OR

12. B). Illustrate Hadoop Clusters are arranged in several racks with a real time example. 10M

13. A). Explain Map Reduce Types and Formats. 10M

OR

13. B). Explain the working principle of Map Reduce. 10M

14. A). Compare Hive with traditional databases and Explain the Built-in Functions in Hive with syntax. 10M

OR

14. B). Describe the architecture of HIVE with a neat sketch. 10M

15. A). Explain Storage mechanism in HBase. Compare Row oriented and Column Oriented database structures. 10M

OR

15. B). Describe how Cassandra is integrated with Hadoop and Discuss the tools related to Hadoop. 10M

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R18

Course Code: A36601



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Machine Learning

(CSD)

Date: 10.01.2025 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 machine learning? List some examples of machine learning application. 2 M
2. How unsupervised learning differs with supervised learning? 2 M
3. Define the terms bias and variance. 2 M
4. State the general MLE method. 2 M
5. Is PCA supervised or unsupervised? Why. 2 M
6. What is a dendrogram? Give an example. 2 M
7. What is a decision tree? List some advantages. 2 M
8. What is cross entropy? Give its formula. 2 M
9. What is an Activation function? List some activation functions. 2 M
10. What is the basic idea of back propagation algorithm? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Illustrate in brief about vavnik-chervonekis dimensions with an example. 5M
ii) Explain how association rule learning is used in real life situations. 5M

OR

- 11.B). i) Discuss supervised learning strategy of learning a class from positive and negative examples. 5M
ii) How classification differs with Regression? Explain. 5M

- 12.A). i) Assess Bayesian Decision theory for a binary classification problem. 5M
ii) Briefly describe about Bernoulli and Gaussian Density. 5M

OR

- 12.B). i) Explain Apriori algorithm and its advantages in brief. 5M
ii) How to minimize the expected risk using utility theory? Explain. 5M

- 13.A). i) Where factor analysis would be expected to work well? Examine in detail. 5M
ii) How LDA works for dimensionality reduction? Demonstrate. 5M

OR

- 13.B). i) How PCA constructs the principal components? Discuss in brief. 5M
ii) Assess the steps in Expectation – Maximization algorithm. 5M

(P.T.O.)

14. A). What do you mean by information gain and entropy? How is it used to build the decision trees? Illustrate using an example. 10M

OR

14. B). i) Dissect the geometric interpretation of the linear discriminant for two classes in brief. 5M
ii) What are linearly separable classes? Describe the approach that divides into a set of linear problems if the classes are not linearly separable? 5M

15. A). i) Compare Two- class Discrimination and Multi-class Discrimination. 5M
ii) Explain about multilayer perceptron along with its architecture in brief. 5M

OR

15. B). i) Summarize how brain functions and that is related to parallel processing in brief. 5M
ii) Model a perceptron that implements Boolean function OR and its geometric interpretation with an example. 5M

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R18

Course Code: A36215



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Principles of Software Engineering
(CSC)

Date: 10.01.2025 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 software engineering. 2 M
2. When is the Prototyping model useful? 2 M
3. Describe the use of Context models. 2 M
4. What is Requirements elicitation? 2 M
5. What is Cohesion? 2 M
6. Describe Functional Independence. 2 M
7. Define black-box testing. 2 M
8. List different approaches in System testing. 2 M
9. Define quality assurance system. 2 M
10. List the two characteristics of risk management. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Summarize different phases of the Unified Process. 5M
ii) Compare it with waterfall model. 5M

OR

11. B). Compare and contrast different Evolutionary Process Models. 10M
12. A). Discuss distinct tasks in Requirements engineering. 10M

OR

12. B). Differentiate functional and non-functional requirements. 10M
13. A). Summarize any five fundamental software design concepts. 10M

OR

13. B). Draw a Use Case diagram for an ATM *withdrawal* of money by a credit card holder. 10M
14. A). Discuss the Metrics for maintenance. 10M

OR

14. B). Discuss different Test strategies for conventional software. 10M
15. A). Discuss different steps and causes in Statistical software quality assurance 10M

OR

15. B). i) Summarize different categories of risks. 5M
ii) Discuss different factors used in Risk identification. 5M

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R18

Course Code: A36611



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Soft and Evolutionary Computing
(CSM)

Date: 10.01.2025 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 applications of soft computing applications. 2 M
2. Define crisp sets. 2 M
3. State adoptive linear neuron function. 2 M
4. What is an unsupervised learning network? 2 M
5. State the methods of membership value assignments. 2 M
6. List the measures of fuzziness. 2 M
7. Describe ANFIS and its applications. 2 M
8. Explain the Inverse kinematics problem. 2 M
9. Define crossover property. 2 M
10. List the applications of genetic algorithms. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Summarize evolutions of various models of Artificial neural networks. 10M
- OR**
11. B). Outline the Fuzzy sets and Fuzzy relations. 10M
12. A). Explain multiple adaptive linear neuron algorithm and architecture. 10M
- OR**
12. B). Discuss Kohonen Self Organizing Maps (SOM) algorithm. 10M
13. A). Explain the fuzzy system and its elements. 10M
- OR**
13. B). Summarize functional blocks of Fuzzy Inference System. 10M
14. A). Compare neural systems and fuzzy systems. 10M
- OR**
14. B). ANFIS as a universal approximator. Discuss. 10M
15. A). Explain basic operations in genetic algorithm. 10M
- OR**
15. B). Describe Genetic algorithm cycle and fitness function. 10M

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R18

Course Code: A36213



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Digital Forensics

(CSC)

Date: 16.01.2025 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 objectives of Computer Forensics and Digital Forensics. 2 M
2. What is the process of cybercrime investigation? 2 M
3. What are the court documents required for criminal investigation? 2 M
4. Differentiate between retrieved and un-retrieved communications. 2 M
5. How do you create a shared folder in an operating system? 2 M
6. What is the importance of forensic mindset? 2 M
7. List the computer forensics workstations and software. 2 M
8. Define network forensics. 2 M
9. List mobile forensics tools. 2 M
10. Explain various ethical issues related to computer forensic in digital forensic. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Illustrate with a necessary steps that are carried out in the analysis of cyber-criminalistics area. 10M

OR

11. B). Write in detail about holistic approach to cyber-forensics. 10M

12. A). What are the major steps of a crime scene investigation? 10M

OR

12. B). Write in detail about the various court orders and documents required for a criminal investigation. 10M

13. A). What are the major steps involved in evidence management and presentation? 10M

OR

13. B). Explain the following with an examples or use cases: 10M

- i) Who should be notified of a crime?
- ii) What are all the parts needs to be gathered as evidence?
- iii) How to apply a probable cause?

14. A). Explain in detail about 'Computer Forensics Life Cycle'. 10M

OR

14. B). Write in detail about 'Network Forensics'. 10M

15. A). Write in detail about the legal aspects and IT Acts related to digital forensics. 10M

OR

15. B). What are the recent trends in mobile forensics techniques and methods used to search and seizure electronic evidence? 10M

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R18

Course Code: A36610



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Internet Technologies

(Common for CSM & AIM)

Date: 16.01.2025 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 various types of arrays that PHP supports. How to declare PHP arrays. 2 M
2. For what purpose does PHP employ the \$ symbol? Provide an example to clarify. 2 M
3. Give an example to define an ordered list. 2 M
4. Explain XML. What are XML's benefits? 2 M
5. List out classes and interfaces in Servlet API. 2 M
6. Describe the Common Gateway Interface. 2 M
7. In JSP, what are implicit objects? 2 M
8. Differences between HTML and JSP. 2 M
9. Define Event. How JavaScript handles events? 2 M
10. What is the difference between GET and POST methods in JavaScript. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). How to read data from web form control like Text boxes explain with an example. 10M
- OR**
11. B). Describe database connectivity in PHP using MySQL as an example. 10M
12. A). Give an example of a table tag and its properties. 10M
- OR**
12. B). How can an XML file use both internal and external DTDs? Provide an Example 10M
13. A). Provide a clear diagram to illustrate the Servlet Lifecycle. 10M
- OR**
13. B). What is JDBC? How to use JDBC to establish a connection to a database using Servlet. 10M
14. A). Discuss about the code snippets of declaration, directives and expressions in detail. 10M
- OR**
14. B). Give an explanation of the various session tracking techniques in JSP. 10M
15. A). Describe the different data types and operators that are accessible in JavaScript, using examples. 10M
- OR**
15. B). Create a JavaScript program that indicates if a given integer is prime or not. 10M



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Design Patterns

(CSD)

Date: 16.01.2025 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 key components of a Design Pattern description? | 2 M |
| 2. | Identify the objects of Model view controller in Smalltalk. | 2 M |
| 3. | List the seven problems in Lexi's design. | 2 M |
| 4. | Identify the significance of Monoglyph | 2 M |
| 5. | What are the consequences of the Abstract Factory? | 2 M |
| 6. | How many objects is Singleton responsible for creating? | 2 M |
| 7. | What are the two variations of the Adapter pattern? | 2 M |
| 8. | Write intent of Proxy pattern. | 2 M |
| 9. | Identify What is the intent of Strategy pattern? | 2 M |
| 10. | Write benefits and drawbacks of Mediator pattern. | 2 M |

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- | | | |
|-----------|--|----------|
| 11.A). | Sketch the Design Pattern relationships and explain in detail. | 10M |
| OR | | |
| 11. B). | How a Design pattern solves the design problem? Illustrate with an example. | 10M |
| 12. A). | Justify the need of Recursive composition, compositor and composition in Document Structure. | 10M |
| OR | | |
| 12. B). | Explain in detail about "supporting multiple window systems". | 10M |
| 13. A). | i) The Singleton uses a special method to instantiate objects. What is special about this?
ii) What are the implementation issues of prototype design pattern? Discuss. | 5M
5M |
| OR | | |
| 13. B). | i) What are consequences of Builder pattern? Explain Builder pattern implementation.
ii) Write sample code of Prototype pattern. | 5M
5M |
| 14. A). | Discuss the pattern name, Applicability, Consequences and Related Patterns of the following patterns i) Bridge ii) Proxy. | 10M |
| OR | | |
| 14. B). | i) When can be a Flyweight pattern effectively be applicable? Explain.
ii) What are the different language features that are exploited by proxy pattern? . | 5M
5M |
| 15. A). | Explain the Motivation, Participants, Structure and Implementation of following Patterns
i) State ii) Template Method. | 10M |
| OR | | |
| 15. B). | i) Write some of the benefits and liabilities of the Visitor pattern.
ii) Discuss briefly about Strategy Pattern. | 5M
5M |

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R18

Course Code: A37202



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Pattern Recognition

(AID)

Date: 16.01.2025 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 the primary objective of pattern recognition? 2 M
2. What is the difference between supervised and unsupervised learning? 2 M
3. What is the key principle behind the Nearest Neighbor Algorithm? 2 M
4. How does the Naïve Bayes Classifier handle feature independence? 2 M
5. What is the primary difference between a Markov Model and a Hidden Markov Model? 2 M
6. How does pruning help in reducing overfitting in Decision Trees? 2 M
7. What is the main objective of a Support Vector Machine? 2 M
8. What is boosting in the context of ensemble learning? 2 M
9. Why is clustering important in data analysis? 2 M
10. How does hierarchical clustering work? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Describe the significance of proximity measures in pattern recognition and provide examples. 10M

OR

11. B). Explain the role and evaluation methods of classifiers in Pattern Recognition. 10M

12. A). Explain the Nearest Neighbor Algorithm and its Variants. 10M

OR

12. B). Discuss the Bayes Theorem and its application in the Bayes Classifier. 10M

13. A). Describe the process of constructing a Decision Tree for pattern classification. 10M

OR

13. B). How is overfitting addressed in Decision Tree induction? 10M

14. A). Discuss the methods for constructing ensembles of classifiers. 10M

OR

14. B). Explain the role of the kernel trick in SVM and provide examples of common kernel functions. 10M

15. A). Discuss the hierarchical clustering algorithm in detail, including its types, steps involved, and how dendrograms are used? 10M

OR

15. B). Explain the process of selecting representative patterns in clustering large datasets and its impact on the performance of clustering algorithms. 10M

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R18

Course Code: A36704



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Data Science Using R

(AID)

Date: 18.01.2025 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 data Science? 2 M
2. Describe about over fitting. 2 M
3. List the types of variables available in R. 2 M
4. List the different types of attributes. 2 M
5. Importance of R data frame. 2 M
6. Describe about R connector. 2 M
7. Explain Control Statements in R programming with an example. 2 M
8. Demonstrate Call a function within another function with example 2 M
9. Define data cube aggregation and explain the methods of it briefly. 2 M
10. Illustrate the importance of Data Visualization. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the import packages in R and give examples. 10M
- OR**
11. B). Describe recursion in R and explain about basic R operators with examples. 10M
12. A). Explain Datatypes in R and write R code to tabulate a function $f(x)=3x^2 +2x+1$ in the interval (-1,1) in steps of 0.2. 10M
- OR**
12. B). A random sample of size 100 is taken from an infinite population having mean 76 and variance 256. What is the probability that x will be between 75 and 78 ? 10M
13. A). Discuss the concept of recycling in vectors and what effect does concatenate function has on vectors? Explain with an example. 10M
- OR**
13. B). Explain which matrix operations are applicable to data frames? Explain with examples. 10M
14. A). i) Explain about relational operators and logical operators. 5M
ii) Explain about for loop and while loop. 5M
- OR**
14. B). Explain in detail about math functions in R with an example each. 10M

(P.T.O.)

15. A). Explain about logistic regression. Heights (in cm) of father and son are given as follows 10M
Father (X) 150 152 155 157 160 161 164 165
Son (Y) 154 156 158 159 160 162 161 164
Fit a regression line predict the height of son given the height of father (X=170).

OR

15. B). Discuss about various visualization techniques. 10M

H.T No:

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R18

Course Code: A30544



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Internet of Things

(CSC)

Date: 18.01.2025 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 features of IoT? 2 M
2. What is meant by Machine to Machine (M2M)? 2 M
3. Why is node discovery necessary in a network? 2 M
4. What is the importance of data dissemination? 2 M
5. Explain briefly the importance of design challenges in IoT. 2 M
6. What is the importance of security in IoT systems? 2 M
7. List the elements of a home automation system. 2 M
8. Name three common applications of IoT in everyday life. 2 M
9. List the python packages for IoT. 2 M
10. What are the different tools used in IoT development? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). How would you use the functional blocks of IoT, communication models, and APIs in developing the logical design of an IoT system? 10M
- OR**
11. B). Explain Software Define Network architecture with neat diagram. 10M
12. A). Demonstrate how data aggregation and dissemination are implemented in an IoT network. 10M
- OR**
12. B). Identify and explain the concepts of MAC protocol survey and Survey of routing protocols. 10M
13. A). Illustrate how specific development challenges in IoT can be addressed in a real world project. 10M
- OR**
13. B). Explain the security challenges faced in IoT. 10M
14. A). Explain the surveillance application models enabled by IoT. 10M
- OR**
14. B). List and explain the various components used for industry applications using IoT. 10M
15. A). Demonstrate the use of IoT tools in developing a specific application. 10M
- OR**
15. B). Explain the process of developing sensor-based applications using an embedded system platform. 10M

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R18

Course Code: A30530



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Artificial Intelligence

(CSD)

Date: 18.01.2025 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 the Turing test? How is it useful to measure the intelligence of a machine? 2 M
2. What are the advantages of Heuristic searching techniques? 2 M
3. What are the techniques to represent knowledge? 2 M
4. Define probability theory 2 M
5. What is resolution? 2 M
6. Differentiate planning categories 2 M
7. Explain symbol-based learning. 2 M
8. What is inductive learning? 2 M
9. Define text classification. 2 M
10. What is robotics? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss any 2 uniformed search methods with example. 10M
- OR**
11. B). Solve the 8-puzzle using hill climbing and determine heuristic function that makes this works specify the limitations of hill climbing. 10M
12. A). Explain syntax and semantic of FOL. 10M
- OR**
12. B). Illustrate the use of first order logic for simple representation. 10M
13. A). Prove the generalized form of Bayes theorem 10M
- OR**
13. B). What is meant by non-deterministic domains? Explain planning and adoption for non-deterministic domain 10M
14. A). Briefly explain about neural networks in current trends in AI. 10M
- OR**
14. B). Explain about supervised and unsupervised learning 10M
15. A). What is NLP? Explain information retrieval, Information extraction. 10M
- OR**
15. B). Define robot hardware. Explain robotic software architecture. 10M

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R18

Course Code: A36612



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech VI Semester Supplementary Examinations January-2025

Course Name: Natural Language Processing

(Common for CSM & AIM)

Date: 18.01.2025 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 makes natural language Processing difficult? 2 M
2. What are Karaka relations? 2 M
3. Infer Zipf's Law. 2 M
4. Define the terms Precision and Recall with formulas. 2 M
5. How can unknown words be handled in the tagging process? 2 M
6. Distinguish between non-word and real-word error. 2 M
7. What are Lexical cohesion devices? List them? 2 M
8. What is Bilingual Corpora? What are its Limitations? 2 M
9. What is NLG? List the main tasks in NLG. 2 M
10. What makes machine translation hard? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). i) Discuss the challenges of NLP in brief. 5M
ii) Explain the importance of Language and Grammar in NLP. 5M

OR

11. B). i) Outline the Lexical Rules in LFG with an example. 5M
ii) Explain n-gram Model with an example. 5M

12. A). i) Compare and Contrast Word Net with Frame Net Lexical Databases. 5M
ii) What are the benefits of eliminating stop words? Give examples in which this scenario is harmful. 5M

OR

12. B). Explain in brief about classical Information Retrieval System models. 10M

13. A). i) Describe the Phrase Level Construction with an example sentence. 5M
ii) Implement Earley Parsing Algorithm. 5M

OR

13. B). i) Write a Short note on TF-IDF with an example. 5M
ii) What is Parsing? Demonstrate on Top-Down Parsing in brief. 5M

14. A). Categorize the corpus based WSD System approaches in detail. 10M

OR

14. B). i) What are Lexical Semantics? How to study the relationship among lexemes? Overleaf. 5M
ii) Explain Lesk's algorithm with an example. 5M

(P.T.O.)

15. A). i) How is Interleaved architecture different from Integrated architecture? Elaborate. 5M
ii) Summarize on Applications of NLG. 5M

OR

15. B). i) Compare the direct MT System with the transfer system. 5M
ii) Assess the Characteristics that are common among Indian Languages in brief. 5M
