

H.T No:

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**R18**

Course Code: A30160



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

B.Tech VII Semester Supplementary Examinations April-2025

**Course Name: Disaster Management and Mitigation**  
(Common for all Branches)

**Date: 29.04.2025 AN**

**Time: 3 hours**

**Max.Marks: 70**

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

**10x2=20M**

1. Define disaster. 2 M
2. What do you mean by environmental stress? 2 M
3. What are the different types of environmental disasters? 2 M
4. Define exogenous hazard. 2 M
5. Explain the term landslide. 2 M
6. Define volcano. 2 M
7. Define drought. 2 M
8. What are the causes of soil erosion? 2 M
9. List the different stages of disaster management. 2 M
10. Define rehabilitation. 2 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). Discuss in detail the concept of environmental hazard and its impact on human life. 10M
- OR**
- 11.B). Explain in detail about ecosystem and perception approaches and its relationship with human ecology. 10M
12. A). Discuss in detail about man induced disasters. 10M
- OR**
12. B). Explain in detail about planetary hazards. 10M
13. A). Discuss in detail about effects of earthquakes and their mitigation measures. 10M
- OR**
13. B). Explain in detail about hazardous and environmental effects of volcanoes. 10M
14. A). Discuss in detail about the causes and effects of cyclones. 10M
- OR**
14. B). Explain in detail about the causes and effects of biological hazards. 10M
15. A). Explain the role of public and government officials in pre disaster stage. 10M
- OR**
15. B). Discuss in detail about the post disaster stage in disaster management. 10M

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**R18**

Course Code: A30554



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

B.Tech VII Semester Supplementary Examinations April-2025

**Course Name: Java Programming**

(Common for ME, EEE & ECE)

**Date: 29.04.2025 AN**

**Time: 3 hours**

**Max.Marks: 70**

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

**10x2=20M**

1. Infer the meaning of Platform Independence. 2 M
2. Define Encapsulation. 2 M
3. What is an Abstract Class? 2 M
4. Explain Method Overriding. 2 M
5. Give examples for Checked Exceptions. 2 M
6. Difference between String and StringBuffer Class. 2 M
7. Differentiate Process and Thread. 2 M
8. Interpret the concept of Main Thread. 2 M
9. List out the Access modes in Random Access Files. 2 M
10. Outline the types of Standard Streams. 2 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). Inspect the features of Java in detail. 10M
- OR**
11. B). i) Write a Java application on Constructor Overloading. 5M  
ii) Illustrate the concept of Static Variables and Static Methods. 5M
12. A). i) Explain about Inner Classes. 5M  
ii) Write a Java application on Command Line Arguments. 5M
- OR**
12. B). Distinguish between Method Overloading and Method Overriding. 10M
13. A). Demonstrate Unchecked and Checked Exceptions with program. 10M
- OR**
13. B). i) Outline the procedure for creating Packages in Java with program. 5M  
ii) Write a Java application on User defined exceptions. 5M
14. A). Write about Inter Thread Communication using Synchronization. 10M
- OR**
14. B). i) Determine the Thread Priorities using program. 5M  
ii) Write a Java program on Creating Multiple Threads. 5M
15. A). Illustrate Buffered Input and Buffered Output Stream Classes with example. 10M
- OR**
15. B). i) Explain Scanner Class with a program. 5M  
ii) Write a Java Program to read content from one File and write it into another File. 5M

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H.T No:

**R18**

Course Code: A30555



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

B.Tech VII Semester Supplementary Examinations April-2025

**Course Name: Introduction to Database Management Systems**  
(Common for CE, EEE, ME & ECE)

**Date: 29.04.2025 AN**

**Time: 3 hours**

**Max.Marks: 70**

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

**10x2=20M**

1. List out the Applications of database. 2 M
2. List the operators in Relational Algebra. 2 M
3. Distinguish between Primary key and foreign key. 2 M
4. Write the syntax to create view. 2 M
5. Discuss the basic form of SQL query. 2 M
6. Differentiate between ANY and ALL operators in SQL. 2 M
7. Discuss about Language declaration in SQL. 2 M
8. Define Recursive functions in SQL. 2 M
9. Give an example of lossless join decomposition with explanation. 2 M
10. Define Multivalued dependency. 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

**5x10=50M**

- 11.A). Compare and Contrast File Systems with Database Systems. 10M
- OR**
11. B). Draw and explain in detail about Database Architecture. 10M
12. A). Discuss the importance of Entity Integrity and Referential Integrity constraints. 10M
- OR**
12. B). What are domain Constraints? Explain, check constraints in detail. 10M
13. A). Explain the basic structure of SQL query with an example. 10M
- OR**
13. B). List and explain aggregate functions in SQL with an example. 10M
14. A). What are Triggers? Discuss the use of Triggers with example. 10M
- OR**
14. B). Describe Functions and Procedures in SQL with an example. 10M
15. A). What is Decomposition? Describe problems related to decomposition. 10M
- OR**
15. B). What is Normalization? Explain 1NF, 2NF and 3NF with an Example. 10M

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**R18**

Course Code: A30531



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

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: Python Programming

(Common for all Branches)

Date: 29.04.2025 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

10x2=20M

1. What is Indentation? 2 M
2. What are the rules for naming a variable? 2 M
3. How to open a new file in Python? 2 M
4. Distinguish local and global variables. 2 M
5. Define string Slicing with example. 2 M
6. What is indexing and negative indexing in Tuple? 2 M
7. What are the advantages of object-oriented programming? 2 M
8. Define class and object. 2 M
9. What is the need of Tkinter module in python? 2 M
10. What is meant by Image processing? 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). List out and explain the key features and Applications of Python programming. 10M
- OR**
11. B). Illustrate the syntax of various Loop statements supported by Python programming and explain their execution behavior with neat flow diagrams. 10M
12. A). List the different types of arguments / parameters used in function with suitable examples. 10M
- OR**
12. B). Discuss the different modes for opening a file and closing a file. 10M
13. A). What is a list? Explain the concept of list slicing and list reversing with an example. 10M
- OR**
13. B). What is meant by Data Encryption? What are its types? What are the libraries available in Python for Data Encryption? 10M
14. A). Explain the concept of method overriding with an example. 10M
- OR**
14. B). What are instance methods in Python? How do you define and call instance methods in a class? Illustrate with an example. 10M
15. A). Explain the concept of frames in Tkinter. How are they used to organize widgets in a graphical user interface? Provide an example. 10M
- OR**
15. B). Illustrate the syntax to create Radiobutton widget and write Python program to create Radiobuttons for selecting Gender(Male, Female, Transgender)on the same canvas. 10M

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**R18**

Course Code: C30162



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

**B.Tech VII Semester Supplementary Examinations April-2025**

**Course Name: Knowledge Management**

**(Common for CE, ME, ECE, CSE, IT, CSC & CSM)**

**Date: 29.04.2025 AN**

**Time: 3 hours**

**Max.Marks: 70**

**(Note: Assume suitable data if necessary)**

**PART-A**

**Answer all TEN questions**

**Each question carries TWO marks.**

**10x2=20M**

1. Define the Data-Information-Knowledge-Wisdom relationship. 2 M
2. Differentiate between data and information in the context of organizational knowledge. 2 M
3. Define the role of Information Technology in Knowledge Management Systems (KMS) and provide an example. 2 M
4. List out two Knowledge Management tools. 2 M
5. Write any two challenges faced by companies on the road to knowledge management adoption. 2 M
6. Discuss one major challenge and one future trend in the field of Knowledge Management. 2 M
7. Differentiate between Knowledge Capital and physical capital. 2 M
8. List out the stages of the Knowledge Management process. 2 M
9. Explain the role of web portals in Knowledge Management. 2 M
10. What are some common roadblocks to the success of Knowledge Management programs? 2 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). Discuss the components and characteristics of organizational knowledge in today's knowledge economy. 10M
- OR**
11. B). Critically assess the challenges associated with implementing Knowledge Management programs and propose strategies to overcome them. 10M
12. A). Analyze the role of ERP and BPR in enhancing Knowledge Management practices within organizations. 10M
- OR**
12. B). Evaluate the strategic importance of IT tools in creating a competitive advantage through Knowledge Management. 10M
13. A). Analyze the role of Knowledge Management in the manufacturing industry with examples. 10M
- OR**
13. B). Assess the impact of Knowledge Management on the long-term sustainability of industries, considering environmental and societal factors. 10M
14. A). Critically analyze the stages of the Knowledge Management process, discussing their importance and challenges. 10M

**(P.T.O.)**

**OR**

14. B). Evaluate the impact of Customer Relationship Management (CRM) on Knowledge Management processes within organizations. 10M
15. A). Discuss the role of Business Intelligence and Internet platforms in enhancing Knowledge Management effectiveness. 10M

**OR**

15. B). Evaluate the role of Knowledge Management in organizational restructuring, considering its impact on employee dynamics and business processes. 10M

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**R18**

Course Code: A30475



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

B.Tech VII Semester Supplementary Examinations April-2025

Course Name: **Data Communications**

(AID)

Date: 29.04.2025 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

10x2=20M

1. Define Open system interconnection. 2 M
2. Define the terms: local operating system and network operating system. 2 M
3. Relate guided and unguided transmission lines 2 M
4. List the losses associated with metallic transmission lines 2 M
5. What is signal to quantization noise ratio? 2 M
6. What is time division multiplexing? 2 M
7. What are the main components of a telephone instrument? 2 M
8. What are the advantages and limitations of using digital signals over analog signals in modern telecommunication systems? 2 M
9. Define data communication code. 2 M
10. Which layer implements the error detection and correction mechanism? 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Compare the OSI reference model with TCP/IP reference model 10M  
**OR**
11. B). Explain the concept of M-ary encoding. 10M
12. A). Explain the different losses encountered in transmission lines. 10M  
**OR**
12. B). Identify the different metallic transmission line types and explain in detail about open-wire transmission line. 10M
13. A). For a PCM system, having analog input frequency 4KHz, dynamic range 46dB, and for a maximum decoded voltage of  $\pm 2.55V$ , determine 10M
  - i. minimum sample rate.
  - ii. minimum number of bits used in the PCM code.
  - iii. Resolution.
  - iv. Quantization error.
- OR**
13. B). Explain the block diagram of a single channel PCM transmission system 10M
14. A). Explain the process that occurs when a call is initiated and terminated. 10M  
**OR**
14. B). What are the key challenges and limitations associated with the local subscriber loop? 10M

(P.T.O.)

15. A). How does character synchronization ensure accurate data transmission?

10M

**OR**

15. B). How do Hamming codes detect and correct errors in transmitted data? What are the advantages of using Hamming codes compared to other error detection and correction techniques?

10M

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**R18**

Course Code: A30163



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

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

Course Name: Air Pollution and Control

(Common for all Branches)

Date: 03.05.2025 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

10x2=20M

1. How the air pollution influence the weather? 2 M
2. What are the prime factors affecting the human health ? 2 M
3. What are the important primary meteorological parameters that influence air pollution ? 2 M
4. What is the equation for temperature lapse rate ? 2 M
5. What are the difficulties encountered in collecting the representative Air Pollution Samples ? 2 M
6. What is the classification of particulate pollutants ? 2 M
7. What are the Air Pollution Controlling Devices used for the Particulate Matter (PM) ? 2 M
8. What are the different factors that the application of Air Pollution Control Technology depends on ? 2 M
9. Why the Air Pollutants can only be controlled at the source ? 2 M
10. Who are/were exposed to the atmospheric pollutants under un-controlled conditions in clinical studies ? 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). (i) What are the different methods for determining the effect of pollutants on people? 5M  
(ii) What are the different levels of air pollutants you consider in your area to determine the correlation in epidemiological studies? 5M

**OR**

11. B). (i) What do you mean by Air Pollution Control? 5M  
(ii) What are the limitations of experimental exposures of men regarding the mode of action of pollutant and its effects? 5M

12. A). A factory uses 2,50,000 litres of furnace oil (specific density 0.95) per month. If one million litres of oil used per year, the PM emitted is 4.5 tonnes per year, SO<sub>2</sub> emitted is 58.5 tonnes per year, NO<sub>x</sub> emitted is 7.5 tonnes per year, HC emitted are 0.35 tonnes per year, and CO emitted is 0.54 tonnes per year, calculate the height of chimney required to be provided for safe dispersion of the pollutants. Assume 325 working days. 10M

**OR**

12. B). Discuss in detail about Plume behavior and its types with neat sketches. 10M
13. A). (i) What are the difficulties encountered in Air Pollution Sampling ? 5M  
(ii) Explain the following clearly: Under ideal conditions the air inhale has a qualitative and quantitative balance that maintains the well-being of human beings. 5M

(P.T.O..)

**OR**

13. B). (i) How do you classify the different sampling methods used for the study of Air Pollution? 5M  
(ii) Explain the following briefly: Many of the modern continuous recording instruments for Air Pollution Sampling combine the operations of both Sampling and Analysis. 5M

14. A). All the techniques about the Air Pollution Control Devices are installed before the chimney exit in Industries. Why? 10M

**OR**

14. B). What are the Air Pollution Controlling Devices used for the Gaseous Pollutants? 10M

15. A). (i) As a Mechanical Engineer, what are the factors do you consider when selecting a particular equipment for Controlling Air Pollutant? 5M

- (ii) What is the manufacturing range of Dust Suppression Systems? 5M

**OR**

15. B). Write a brief note on "Global Episodes" of Air pollution disasters. 10M

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**R18**

Course Code: A30559



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

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

Course Name: Introduction to Data Science

(Common for all Branches)

Date: 03.05.2025 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

10x2=20M

1. Discuss two traits of Big Data and explain how they impact the field of Data Science. 2 M
2. List three popular Python libraries used in Data Science and briefly describe their primary functions. 2 M
3. Compare and contrast the characteristics of line charts and scatterplots. 2 M
4. Develop a step-by-step guide for cleaning and munging a dataset obtained from a web scraping process, ensuring the data is ready for analysis. 2 M
5. Provide a brief explanation of supervised learning and give an example. 2 M
6. Describe the fundamental idea behind Bayes' Theorem and how it is applied in machine learning. 2 M
7. Describe how a random forest combines multiple decision trees to improve predictive performance. 2 M
8. Define false positives and false negatives in the context of classification errors. 2 M
9. List two common applications of object recognition. 2 M
10. Describe how machine learning algorithms are used in real-time sentiment analysis. 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Analyze the significance of NLTK in natural language processing. Provide examples of how NLTK can be used for tokenization, stemming, and other text processing tasks. 10M

**OR**

- 11.B). Given a website with structured and unstructured data, outline the step-by-step process of performing web scraping. Include the tools and libraries you would use and explain how web scraping contributes to data acquisition in data science. 10M

- 12.A). Analyze the impact of outliers on the interpretation of data visualized in a scatterplot. Discuss strategies for identifying and handling outliers to ensure accurate analysis and decision-making. 10M

**OR**

- 12.B). Demonstrate how to read a CSV file containing real-world data on weather patterns. Discuss the challenges that may arise during the reading process and how they can be addressed. 10M

- 13.A). Compare and contrast logistic regression and Naïve Bayes classification algorithms. 10M

(P.T.O.)

**OR**

13. B). Given a dataset, apply the k-nearest neighbors (KNN) algorithm. Discuss the process of selecting the appropriate value for 'k' and its impact on the model's performance. Provide an example to illustrate your points. 10M
14. A). Apply linear systems analysis techniques to a given time series dataset. Discuss the concept of lag, trend, and seasonality. Provide an example of how autocorrelation and cross-correlation functions can be utilized in time series analysis. 10M

**OR**

14. B). Implement a simple feedforward neural network for a binary classification task using a dataset of your choice. Discuss the role of activation functions, learning rates, and regularization techniques in training the neural network. 10M
15. A). Evaluate the impact of data quality on the accuracy of object recognition models. Discuss strategies for improving model robustness in the presence of noisy or incomplete training data. 10M

**OR**

15. B). Implement a real-time sentiment analysis model using natural language processing (NLP) techniques. 10M

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**R18**

Course Code: C30165



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

**B.Tech VII Semester Supplementary Examinations April-2025**

**Course Name: Basics of Insurance & Taxation**

**(Common for ECE & CSM)**

**Date: 03.05.2025 AN**

**Time: 3 hours**

**Max.Marks: 70**

**(Note: Assume suitable data if necessary)**

**PART-A**

**Answer all TEN questions**

**Each question carries TWO marks.**

**10x2=20M**

1. Compare Pensions and Annuities. 2 M
2. What are the principles of General Insurance? 2 M
3. What do you understand by the term Claim Management? 2 M
4. What is re-insurance in life insurance? 2 M
5. Distinguish between the previous year and assessment year. 2 M
6. Classify Income tax rate structure in 2023. 2 M
7. Define capital gains. 2 M
8. Explain Section-10 of Income Tax Act. 2 M
9. What is PAN? 2 M
10. Write a short note on TDS. 2 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). Explain in detail about the various types of Life insurance Products. 10M
- OR**
11. B). What are the principles of Life Insurance, explain them in detail. 10M
12. A). Outline various methods of Re-insurance with suitable example. 10M
- OR**
12. B). Briefly discuss the Consumer Protection Act in detail. 10M
13. A). What are the direct and indirect taxes? State with examples. 10M
- OR**
13. B). Assess the Indian government financial policies regarding taxation. 10M
14. A). How income from Business is calculated? 10M
- OR**
14. B). Analyze the Exemptions and Deductions under the Income Tax Act. 10M
15. A). How Income Tax is computed for individuals. 10M
- OR**
15. B). How is the tax refunded? Explain in detail. 10M

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**R18**

Course Code: C30166



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

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

**Course Name: Business Ethics & Corporate Governance  
(CSE)**

**Date: 03.05.2025 AN**

**Time: 3 hours**

**Max.Marks: 70**

**(Note: Assume suitable data if necessary)**

**PART-A**

**Answer all TEN questions**

**Each question carries TWO marks.**

**10x2=20M**

1. Discuss any two types of ethics. 2 M
2. List out the 5 Myths about Business Ethics. 2 M
3. What are the Ethics to be followed while preparing a Financial Report? 2 M
4. What is Mounting Scandals? 2 M
5. What is IPR in Cyberspace? 2 M
6. What is Information Warfare? 2 M
7. Outline the Indian Model of Corporate Governance. 2 M
8. What is Good Governance? 2 M
9. What is Internal Control and Assurance? 2 M
10. What is Irani Committee Report? 2 M

**PART-B**

**Answer the following. Each question carries TEN Marks.**

**5x10=50M**

- 11.A). What are the Major Ethical issues that business faces today? Discuss them with suitable examples. 10M
- OR**
11. B). Explain Carol Gilligan's Theory in detail. 10M
12. A). Briefly explain the Ethical Issues in Health Care Services. 10M
- OR**
12. B). What is Ethical Dilemma? Explain the steps involved in Ethical Dilemma. 10M
13. A). Explain the term "Cyber Crime". What are the measures taken for prevention of these crimes? 10M
- OR**
13. B). What is the Ethical Dimension? Explain the various Ethical dimensions involved in Cyber Crimes. 10M
14. A). Explain the different committee's roles and responsibilities in Board. 10M
- OR**
14. B). Discuss the future of Corporate Governance in India. 10M
15. A). Explain the principles and Importance of Corporate Governance in OECD. 10M
- OR**
15. B). Discuss the report of Irani committee in detail. 10M

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Course Code: A30166



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

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

**Course Name: Environmental Protection and Management**  
(Common for all Branches)

Date: 03.05.2025 AN

Time: 3 hours

Max.Marks: 70

(Note: Assume suitable data if necessary)

**PART-A**

Answer all TEN questions

Each question carries TWO marks.

10x2=20M

1. Define corporate environmental management. 2 M
2. Summarize the main purpose of the Business Charter for Environmental Protection. 2 M
3. Name two types of environmental performance indicators. 2 M
4. Outline the importance of zero-discharge technologies. 2 M
5. Explain the role of an initial environmental review in EMS. 2 M
6. Describe the purpose of continual improvement within an EMS framework. 2 M
7. Name two roles of an environmental auditor. 2 M
8. What is the purpose of an environmental compliance audit? 2 M
9. Define hazardous waste disposal. 2 M
10. Describe one method for treating hazardous waste before disposal. 2 M

**PART-B**

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the concept of sustainable production and consumption in a corporate context. 10M
- OR**
11. B). Summarize the key principles behind the Business Charter for Environmental Protection. 10M
12. A). Develop a plan to implement zero-discharge technology in an industry. Discuss its potential impact on environmental quality. 10M
- OR**
12. B). Create an outline for a pollution prevention initiative targeting industrial waste reduction. 10M
13. A). Define EMS and list two of its main components as per ISO 14001. 10M
- OR**
13. B). List out the benefits of implementing an Environmental Management System. 10M
14. A). Explain the difference between compliance audits and waste audits. Why are both important for environmental management? 10M
- OR**
14. B). Describe the purpose of corrective and preventive actions in the context of environmental audits. 10M
15. A). Create a waste audit plan for a textile industry, focusing on pollution prevention. 10M
- OR**
15. B). Develop a pollution prevention strategy tailored to the pulp and paper industry. Include key steps for waste minimization. 10M

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**R18**

Course Code: A30514



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

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

Course Name: **Computer Networks**

(**Electronics & Communication Engineering**)

Date: **06.05.2025 AN**

Time: **3 hours**

Max.Marks: **70**

(Note: Assume suitable data if necessary)

**PART-A**

Answer all **TEN** questions

Each question carries **TWO** marks.

**10x2=20M**

1. Write about Hybrid Topology with diagram. 2 M
2. Define WAN? Explain it. 2 M
3. Define Framing. What are its characteristics? 2 M
4. What is pure ALOHA and Slotted ALOHA? 2 M
5. What is a Datagram network? 2 M
6. Write about Hierarchical routing. 2 M
7. What are the elements of transport protocols? 2 M
8. What are TCP features? 2 M
9. Define Domain. 2 M
10. What is Name space? How many types of name spaces are there? 2 M

**PART-B**

Answer the following. Each question carries **TEN** Marks.

**5x10=50M**

- 11.A). Explain OSI reference model and compare it with TCP/IP. 10M
- OR**
11. B). Explain selective repeat protocol with neat diagram. 10M
12. A). Given 1101011011 data frame and generator polynomial  $G(x)=x^4+x+1$ . Derive the transmitted frame. 10M
- OR**
12. B). Compare and contrast a controlled access protocol with a channelizing protocol. 10M
13. A). Explain different various congestion control mechanisms in detail with examples. 10M
- OR**
13. B). Derive optimality principle with a suitable example. 10M
14. A). Describe three way hand shaking protocol to establish the transport level connection. 10M
- OR**
14. B). Explain in detail about crash recovery. 10M
15. A). What is cryptography and explain RSA algorithm with an example? 10M
- OR**
15. B). What is an electronic mail? Explain in detail about sending and receiving e-mail with diagrams? 10M

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