

H.T No:

--	--	--	--	--	--	--	--	--	--

R18

Course Code: A30514



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

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

Course Name: **COMPUTER NETWORKS**

(Common for CSE, IT & CSM)

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. Compare guided and unguided transmission media. 2 M
2. Outline a few application areas of computer networks. 2 M
3. Contrast error correction and error detection techniques. 2 M
4. Name the OSI layers in which repeater, hub, router and a switch work. 2 M
5. Recall the role played by ICANN in networks. 2 M
6. State the optimality principle. 2 M
7. List any two application layer protocols that use UDP. 2 M
8. List the three timers used by TCP. 2 M
9. State an authoritative record in DNS. 2 M
10. Summarize the role played by the user agent in E-mail. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Differentiate between OSI and TCP/IP by drawing both reference models. 10M

OR

11. B). Illustrate simplex, half-duplex and full-duplex modes of transmission. Compare the three types of guided transmission media. 10M

12. A). Interpret how CSMA/CD protocol improves efficiency. Draw IEEE 802.3 frame format labelling the fields present. 10M

OR

12. B). Illustrate working of Go-Back-N and Selective Repeat sliding window protocols with an example. 10M

13. A). Outline the impact of congestion on network efficiency. Explain how congestion control is handled at network layer. 10M

OR

13. B). Compare IPv4 and IPv6 in at least four aspects. Draw both IPv4 and IPv6 headers with necessary labelling. 10M

(P.T.O..)

14. A). Draw the header format of TCP protocol and explain the fields present in the header. 10M

OR

14. B). Analyse the function of TCP sliding window and its role played in handling flow control at transport layer. 10M

15. A). Summarize the role played by HTTP protocol in the application layer. 10M

OR

15. B). Illustrate the functioning of DNS with your own example. 10M

H.T No:

R18

Course Code: A30525



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

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

Course Name: SOFTWARE ENGINEERING

(CSM)

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 Software Engineering. 2 M
2. What are the phases of Unified process? 2 M
3. Why scenario-based modeling is popular in requirement modeling? 2 M
4. Explain elements of requirement analysis. 2 M
5. Define Design pattern concept. 2 M
6. What is use case? Explain. 2 M
7. Write a short note on Black box testing. 2 M
8. List out software quality attributes. 2 M
9. Give the different categories of risks. 2 M
10. What is meant by software review? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Describe the Waterfall Model, Iterative Waterfall Model. 10M
- OR**
11. B). What are Agile process models? Explain in detail. 10M
12. A). Discuss briefly about Requirements Elicitation and Analysis. 10M
- OR**
12. B). Discuss how requirements are elicited and validated in software project. 10M
13. A). Explain the following: 10M
i) Design process ii) Design Model and iii) Design concepts.
- OR**
13. B). Explain in detail about Interaction Diagrams with example. 10M
14. A). Analyze various functional and unit testing techniques in detail. 10M
- OR**
14. B). Compare the block box testing with white box testing. 10M
15. A). What do you mean by risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk. 10M
- OR**
15. B). Explain about formal technical reviews. 10M

H.T No:

--	--	--	--	--	--	--	--	--	--

R18

Course Code: A36603



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

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

Course Name: **ARTIFICIAL INTELLIGENCE & APPLICATIONS**
(CSM)

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. Define AI. 2 M
2. Outline any one AI problem. 2 M
3. Identify any two issues in Knowledge representation. 2 M
4. Compose the statement "Everyone is loyal to somebody" using predicate logic. 2 M
5. Determine equation for conditional probability $P(H|E)$ using bayes theorem. 2 M
6. Analyze any two needs of probabilistic reasoning in AI. 2 M
7. List out different learning's in AI. 2 M
8. Build a simple identification tree. 2 M
9. Define expert system. 2 M
10. Outline any one application of expert systems. 2 M

PART-B

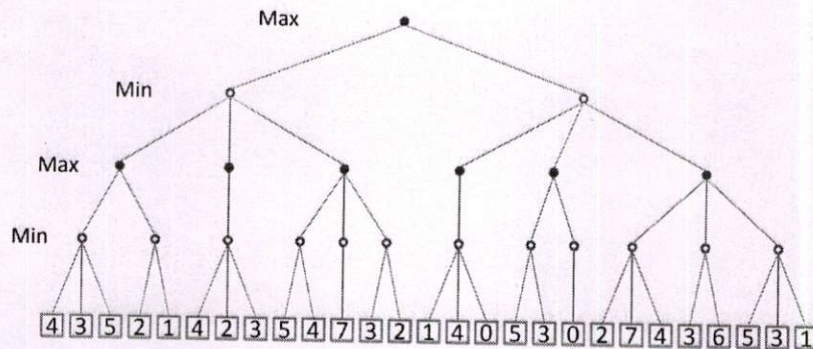
Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the steps involved in ant colony optimization. 10M

OR

11. B). Utilize the min max algorithm on the figure below 10M



12. A). Distinguish propositional logic and predicate logic with examples. 10M

OR

12. B). Explain any two knowledge representation techniques with example. 10M

13. A). Elaborate Dempster-Shafer theory in detail 10M

OR

13. B). Discuss partial order planning in detail. 10M

(P.T.O..)

14. A). Compare Rote and symbol based learning. 10M
- OR**
14. B). Demonstrate explanation based learning. 10M
15. A). Explain steps of natural language processing with help of suitable example. 10M
- OR**
15. B). Discuss the pitfalls in developing expert systems and architecture stages in the development of an expert systems. 10M

H.T No:

--	--	--	--	--	--	--	--	--	--

R18

Course Code: A36605



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular Examinations December-2022

Course Name: **THEORY OF COMPUTATION**
(CSM)

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. Differentiate between DFA and NFA. 2 M
2. Consider the String $X=110$ and $y=0110$ find
a) XY b) X' c) YX d) Y' 2 M
3. Find out the language generated by the regular expression $(0+1)^*$. 2 M
4. Name the four closure properties of RE. 2 M
5. Design equivalence of PDA and CFG. 2 M
6. Define ambiguous grammar and CFG 2 M
7. Define the pumping Lemma for CFLs 2 M
8. Discuss the applications of Turing machine. 2 M
9. Illustrate Halting Problem. 2 M
10. Describe post correspondence problem. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Given $\Sigma = \{a,b\}$ Analyze and construct a DFA which recognize the language $L = \{b^m ab^n : m, n > 0\}$ 10M

OR

11. B). Give the NFA that accepts all strings that end with 01. Give its transition table and the extended transition function for the input string 00101. Also construct a DFA for the above NFA using subset construction method. 10M

12. A). i) Describe a Regular Expression. Write a Regular Expression for the set of strings that consists of alternating 0's and 1's. 5M
ii) Construct Finite Automata equivalent to the regular expression $(ab+a)^*$. 5M

OR

12. B). State pumping lemma. Demonstrate how the set $L = \{a^n b^n / n \geq 0\}$ is not a regular. 10M

13. A). i) Identify CFG for the language $L = \{0^i 1^j 0^k \mid j > i+k\}$. 5M
ii) Define derivation tree. Explain its uses with an example. 5M

OR

13. B). Design PDA for odd number of palindromes. 10M

(P.T.O.)

14. A). i) Explain Model of Turing Machine in detail. 5M
ii) Explain different types of turning machine. 5M

OR

14. B). What is PDA? What are its closure properties? Draw a PDA that accepts $\{0^n 1^n \mid n \geq 0\}$ 10M

15. A). i) Plan and explain on decidable and un-decidable problems with an example. 5M
ii) Design and prove that for two recursive languages L1 and L2 their union and intersection is recursive. 5M

OR

15. B). i) Compare the difference between recursive and recursively enumerable languages. 5M
ii) Explain Chomsky hierarchy of languages. 5M

H.T No:

R18

Course Code: A36613



CMR COLLEGE OF ENGINEERING & TECHNOLOGY

(UGC AUTONOMOUS)

B.Tech V Semester Regular Examinations December-2022

Course Name: **ADVANCED PYTHON PROGRAMMING**

(CSM)

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. What are the operators support by python? 2 M
2. Which method is used to read the content of a file which is already created? 2 M
3. Define Slicing in Matrix Manipulation. 2 M
4. How do you load a data set into a Data Frame? 2 M
5. What are the key features of SciPy? 2 M
6. List out the 3 types of Plots offered by Matplotlib. 2 M
7. How do you load data into a data base in Python? 2 M
8. What are the uses of flask? 2 M
9. List any 2 advantages of PyQt. 2 M
10. Explain about Rich Text labels in GUI programming. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). List out the Standard IO statements in Python? Write a program for factorial of a given number using Recursion? 10M
- OR**
11. B). Outline the Object Oriented Programming features supported by Python. 10M
12. A). Illustrate the procedure for creating Vectors and Matrices with examples. 10M
- OR**
12. B). Define Data Wrangler. How do you determine it using Python Pandas? 10M
13. A). Extrapolate NLTK (Natural Language Tool Kit) library in detail. 10M
- OR**
13. B). List out the different types of Plotting using Pandas. 10M
14. A). Design a Database Programming using Python to perform the following operations 10M
 - i) Create
 - ii) Insert
 - iii) Update
 - iv) Delete

OR

14. B). Elaborate Flask basic application structure. 10M

(P.T.O..)

15. A). Differentiate the process of designing GUI using Qt Designer and Hand coding with an example. 10M

OR

15. B). Write an application for Currency Converter. 10M

H.T No:

--	--	--	--	--	--	--	--	--	--

R18

Course Code: A36606



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

B.Tech V Semester Regular Examinations December-2022

Course Name: **COMPUTER VISION**

(CSM)

Date: 16.12.2022 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. Give the importance of Computer Vision. 2 M
2. Compare and contrast digital image and binary image. 2 M
3. List the objectives of image enhancement techniques. 2 M
4. Write the significance of color model. 2 M
5. Define Hole Filling. 2 M
6. List out the techniques of image segmentation. 2 M
7. What is SIFT and HOG in feature extraction? 2 M
8. Define Boundary with a neat diagram. 2 M
9. What are the metrics to detect an object in an environment? 2 M
10. State the attention models. 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Discuss goals of Computer vision and Image processing. 10M
- OR**
11. B). Illustrate Geometric camera models. 10M
12. A). Briefly explain color fundamentals. 10M
- OR**
12. B). Discuss about image sampling and quantization. 10M
13. A). Explain a region growing method to segment an image and what are the drawbacks of this method. 10M
- OR**
13. B). Demonstrate Hit-or-Miss Transformation. 10M
14. A). Explain First and second order edge detection operators. 10M
- OR**
14. B). Differentiate Exhaustive Vs. Stochastic Search. 10M
15. A). What is Human Machine Interaction? How it will be in the real world? 10M
- OR**
15. B). Demonstrate Adaboost approaches in object modeling & Detection. 10M

H.T No:

--	--	--	--	--	--	--	--	--	--

R18

Course Code: C30165



CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

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

Course Name: **BASICS OF INSURANCE & TAXATION**

(Common for EEE, ECE, CSE, IT & 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 are different personal general insurance products? 2 M
2. Discuss pensions and annuities. 2 M
3. Examine claim management. 2 M
4. What is third party administration? 2 M
5. Outline direct and indirect taxes. 2 M
6. Distinguish between tax planning and tax evasion. 2 M
7. What is income exempt u/s 10 of the I.T. Act? 2 M
8. What are permissible deductions under chapter VI of I.T ? 2 M
9. Define advance payment of tax. 2 M
10. What is tax collection at source? 2 M

PART-B

Answer the following. Each question carries TEN Marks.

5x10=50M

- 11.A). Explain the principles of life insurance. 10M
- OR**
11. B). Interpret clauses and covers of different personal general insurance products. 10M
12. A). Examine legal framework of claim management as well claim settlement. 10M
- OR**
12. B). Summarize re-insurance in life insurance, retention limits and methods of re-insurance. 10M
13. A). Discuss tax structure and its role in Indian economy. 10M
- OR**
13. B). Appraise fundamental principles of income tax and concepts. 10M
14. A). Examine income from business, income from house property and income from other sources. 10M
- OR**
14. B). What is income act? Explain exemptions and deductions under the income tax act. 10M
15. A). Interpret computation of income in individuals with types of assessment. 10M
- OR**
15. B). Examine filing of return, e-filing and advance payment of tax. 10M

H.T No:

--	--	--	--	--	--	--	--	--	--

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 its 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 do 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:

--	--	--	--	--	--	--	--	--	--

R18

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
