CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022
Course Name: ELECTRONIC MEASUREMENTS & INSTRUMENTATION
(Electronics & Communication Engineering)

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. If a DC voltmeter indicates 101 V instead of actual 100V, calculate the relative error in percentage. Also suggest, is it suitable for measuring 2% accuracy level?   2 M

2. A moving coil meter takes 50mA to produce full scale deflection, the potential difference across its terminals be 75mV. Suggest series resistance for using the instrument as a voltmeter reading range of 0-100V.   2 M

3. List the applications of spectrum analyzer and power (harmonic) analyzer.   2 M

4. Identify a suitable circuit and input signal to generate triangular wave in a function generator.   2 M

5. Recall the use of Lissajous figures from CRO.   2 M

6. Summarise the principle of dual beam oscilloscope and dual trace CROs.   2 M

7. Compare resistance thermometer with thermistor.   2 M

8. Illustrate the working of piezo electric transducer and mention its application.   2 M

9. If P= 10kΩ, Q=5.5kΩ and R = 2kΩ, check the balance condition of bridge and find the value of S for bridge balanced condition.   2 M
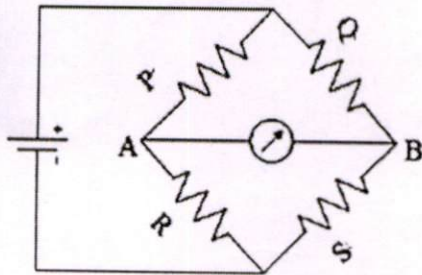
10. Write briefly about data acquisition system (DAS).   2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). Explain the following: i) Types of errors   5M
                              ii) Accuracy and precision.   5M

OR

11. B). With the help of neat diagram illustrate the function of Permanent Magnet Moving Coil instrument.   10M

(P.T.O..)

12. A). Analyse the basic circuit of a spectrum analyser and examine how the spectra of the Complex wave is displayed.   10M

<center>OR</center>

12. B). Explain the basic elements of a function generator and discuss the various wave form generation.   10M

13. A). Assuming necessary parameters derive the expression for the electro static deflection for a analog CRO.   10M

<center>OR</center>

13. B). Draw the basic block diagram of a digital storage CRO and explain the principle working and applications.   10M

14. A). *Explain* briefly bonded and un bonded type strain gauges with their principle of operation and sketches.   10M

<center>OR</center>

14. B). Explain the working principle of LVDT with a neat sketch and characteristics. Give the advantages, disadvantages and applications of LVDT.   10M

15. A). The arms of the Maxwell's inductance and capacitance bridge are shown. If the bridge is balanced find the unknown components Rx and Lx. (Write the bridge balance equation and solve)   10M
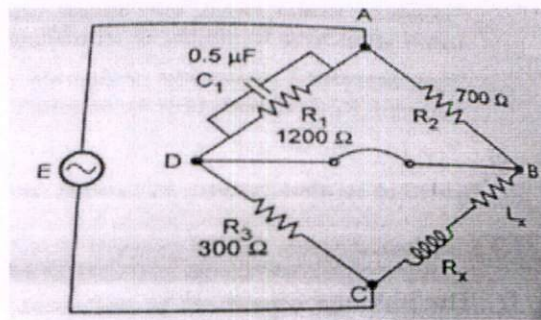
<center>OR</center>

15. B). Explain the concept of measurement of fluid flow rate and get the expression using hot wire anemometer.   10M

<center>*****</center>

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022

Course Name: ANTENNA & WAVE PROPAGATION

(Electronics & Communication Engineering)

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 an antenna.	2 M
2.	What is the difference between E-plane and H-plane pattern	2 M
3.	What are the types of array?	2 M
4.	What are the advantages of Binomial arrays?	2 M
5.	What are the parameters to be considered for the design of a helical antenna?	2 M
6.	Why Yagi antenna is preferred in television receivers?	2 M
7.	Explain how the efficiency of parabolic reflector affected by spillover.	2 M
8.	What is zoning for Lens antenna?	2 M
9.	What is inverse and multipath fading?	2 M
10.	What is meant by Surface wave?	2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A).	Explain about radiation from a Quarter-wave monopole	10M
	OR	
11. B).	i) Explain current distribution of linear dipoles.	5M
	ii) Explain about field regions of an antenna.	5M
12. A).	With a neat diagram explain the principle of folded dipole and discuss the construction and operation of Yagi antenna.	10M
	OR	
12. B).	Explain the structure of helical antenna and explain different modes of operation.	10M
13. A).	i) Explain about salient features of Microstrip Antennas.	5M
	ii) What are the advantages and limitations of Microstrip antennas? Explain	5M
	OR	
13. B).	Explain in detail about Cassegrain feed system.	10M

(P.T.O..)

14. A). i) Derive expression for the array factor of a linear broadside array of 'n' elements. 5M
ii) In a linear array of 4 isotropic elements spaced $\lambda/2$ apart and with equal currents fed in phase, plot the radiation pattern in polar co-ordinates. 5M

OR

14. B). i) Explain the advantages and disadvantages of binomial arrays. 5M
ii) Explain how gain measurement is done using antenna measurement setup. 5M

15. A). Explain the phenomenon of duct propagation. What are the atmospheric condition under which duct propagation can take place? 10M

OR

15. B). Discuss the salient features of sky ware propagation. Bring out the various problems associated with this mode of propagation. How are there problems over come? 10M

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022
Course Name: LINEAR & DIGITAL IC APPLICATIONS
(Electronics & Communication Engineering)

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. Find the reasons why open loop is not preferred for linear applications.   2 M
2. Define input offset voltage.   2 M
3. Illustrate the circuit diagram of first order high pass filter.   2 M
4. Illustrate the block diagram of PLL.   2 M
5. List the specifications of ADC and DACs.   2 M
6. Compare successive approximation ADC with dual slope ADC.   2 M
7. Define noise margin in IC logic family.   2 M
8. Demonstrate noise margin and propagation delay with respect to CMOS logic.   2 M
9. Interpret 8x1 Multiplexer using 4x1 Multiplexers.   2 M
10. List different types of memories.   2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). i) Formulate the expression for CMRR for the first stage differential amplifier.   5M

ii) For the circuit shown below V_{ref}=2 V, +V_{sat}=+10V, -Vsat=-10V, R_1=10K and   5M
R_2=1K.(a) Determine V_{UTP} and V_{LTP}.(b) Let V_i be a triangular waveform with a zero average voltage ,a 10V peak amplitude and a 10mS time period. Sketch V_0 versus time over two periods.
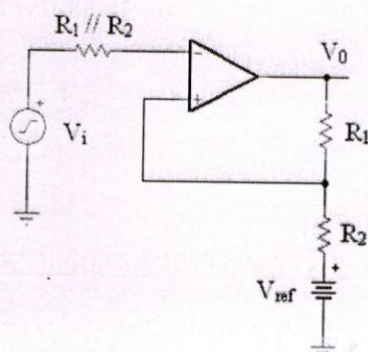
OR

11. B). Derive the gain equation of differential amplifier using OP-AMP.   10M

12. A). Design a Monostable multivibrator using 555 timer to produce a pulse width of 100m sec. 10M

OR

12. B). Translate triangular wave using a square wave generator. 10M

13. A). Analyze successive approximation A/D converter faster than dual-slope A/D converter? Explain. 10M

OR

13. B). With the help of a neat circuit diagram and waveforms, explain the operation of a dual slope ADC. 10M

14. A). Draw the schematic circuit of CMOS NAND gate and explain its operation with the help of Truth-Table. 10M

OR

14. B). i) Design a serial binary adder. 5M
ii) Design a full subtractor with logic gates. 5M

15. A). i) Design a 4-bit comparator using 74×85 IC. 5M
ii) Distinguish between combinational and sequential circuit. 5M

OR

15. B). i) Demonstrate the working principle of SRAM. 5M
ii) Define the terms: 5M
    a) Memory address
    b) Memory read operation
    c) Memory write operation

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022
Course Name: DIGITAL SIGNAL PROCESSING
(Electronics & Communication Engineering)

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.	Define stability.	2 M
2.	Draw the parallel form of digital filter.	2 M
3.	Find the DFT of x(n)={1,1,0,0}.	2 M
4.	Construct the 4-point radix-2 DIT FFT Butterfly structure for DFT.	2 M
5.	List any two properties of Butterworth LPF.	2 M
6.	What is meant by Bilinear Transformation?	2 M
7.	What are the disadvantages of Fourier series method?	2 M
8.	Define the characteristics feature of rectangular window.	2 M
9.	What is the need for multirate DSP?	2 M
10.	What is overflow oscillations?	2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A).	i) Test the following systems for linearity, time invariance, causality and stability y(n)=x(n)-x(-n-1)+x(n-1)	5M
	ii) A digital system is characterized by the y(n)=x(n)+ay(n-1), assuming that the system is relaxed initially, determine its impulse response.	5M

OR

11. B).	Write the difference between Direct form-I and canonical form.	10M

12. A).	i) An 8-point sequence is given by x(n)={2,2,2,2,1,1,1,1} find Radix-2 DIT FFT.	5M
	ii) Develop a radix-2 DIF FFT Algorithms for evaluating the DFT for N=8.	5M

OR

12. B).	Define DFT and then state and prove properties of DFT.	10M

13. A).	Explain the IIR filter design approximation using bilinear Transformation method.	10M

OR

13. B).	i) Discuss in detail about spectral transformation.	5M
	ii) Explain how IIR digital filter are designed from analog filter.	5M

(P.T.O..)

14. A). i) Draw and explain frequency response of FIR design filter.   5M

ii) Design a high pass filter using hamming window with a cut off frequency of 1.2 radians/second and N=9.   5M

OR

14. B). i) Draw and explain the rectangular window frequency response.   5M

ii) Compare all window techniques of FIR filter.   5M

15. A). Explain the application of sampling rate conversion in sub band coding.   10M

OR

15. B). i) Design multirate systems and sampling rate conversion.   5M

ii) Discuss the role of finite length representation and the associate errors.   5M

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022
Course Name: DIGITAL DESIGN THROUGH VERILOG HDL
(Electronics & Communication Engineering)

| 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.	Define a parameter with an example.	2 M
2.	Define task and function with the help of syntaxes.	2 M
3.	What are the tristate gates and what are their truth tables?	2 M
4.	What are multiple-output gates and what are their syntaxes and truth tables?	2 M
5.	Define conditional statements and give an example.	2 M
6.	Define a case statement and give an example.	2 M
7.	Outline the differences between tasks and functions.	2 M
8.	Define a user – defined primitive and write its syntax.	2 M
9.	Define simulation and synthesis in Verilog.	2 M
10.	List out all the basic memory components.	2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). Explain all the operators in Verilog HDL.   10M

OR

11. B). i) Illustrate the different levels of design description with examples.   5M
ii) How do we verify the functionality of the design in verilog HDL?   5M

12. A). Explain continuous assignment structures and write a Verilog HDL code for a full adder circuit using the data style of modeling.   10M

OR

12. B). Explain all the delays in the continuous assignment with the help of examples. Also, write a Verilog HDL code for the D-flip-flop using the data style of modeling.   10M

13. A). i) What is the difference between a sequential block and a parallel block? Explain using an example. Can a sequential block appear in a parallel block?   5M
ii) How does the casex statement differ from the case statement.   5M

OR

13. B). Explain the various kinds of loop statements with the help of examples.   10M

(P.T.O..)

14. A). i) Explain path delays and conditional pin-to-pin delays with the help of examples.   5M

ii) Explain module parameters with the help of examples.   5M

OR

14. B). Define user-defined primitives? Explain combinational and sequential UDPs with the help of examples.   10M

15. A). i) Explain the feedback model, capacitive model, and implicit model using suitable diagrams.   5M

ii) Explain static machine coding using an example.   5M

OR

15. B). Explain all different test bench techniques with examples.   10M

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022
Course Name: COMPUTER ORGANIZATION
(Electronics & Communication Engineering)

Date: 14.12.2022 AN	Time: 3 hours	Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.

10x2=20M

1.	List the types of computers.	2 M
2.	What do you mean by an addressing mode?	2 M
3.	Construct 4-bit binary ripple carry adder.	2 M
4.	Outline the principle of non-restoring method of division.	2 M
5.	Differentiate between hardwired &microprogramed design of control unit.	2 M
6.	List the characteristics of peripheral devices.	2 M
7.	What is the purpose of pipelining?	2 M
8.	Differentiate throughput and speedup.	2 M
9.	What is memory interleaving?	2 M
10.	Compare cache size and block size.	2 M

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

5x10=50M

11.A).	Explain about various functional units of a basic computer.	10M
	OR	
11. B).	Develop a flowchart for Instruction execution cycle.	10M
12. A).	Explain about carry look ahead adder and compare it with ripple carry adder.	10M
	OR	
12. B).	Design 4-bit arithmetic circuit and explain with function table.	10M
13. A).	Design Control unit of basic computer in microprogrammed control.	10M
	OR	
13. B).	Explain DMA operation. what is the role of DMA controller?	10M
14. A).	Explain about data hazards and instruction hazards.	10M
	OR	
14. B).	Write short notes on: i) Concurrent access	5M
	ii) Cache coherency	5M
15. A).	Explain in detail about hierarchical memory organization.	10M
	OR	
15. B).	Differentiate among various mapping techniques used in cache memory.	10M

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022
Course Name: INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS
(Common for EEE, MECH & ECE)

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 E-R Model?	2 M
2.	Write the advantages of DBMS.	2 M
3.	Write the SQL command to create an index.	2 M
4.	Write about any 6 SQL data types.	2 M
5.	Write a query to display average salary of Employee using aggregate functions.	2 M
6.	Write a query to display employee details from Employee table where salary greater than Rs 50,000 and less than RS 90,000.	2 M
7.	List any two PL/SQL Exceptions	2 M
8.	What will you get by the cursor attribute SQL%ROWCOUNT?	2 M
9.	What is the purpose of normalization?	2 M
10.	What is Update Anomaly?	2 M

PART-B
Answer the following. Each question carries TEN Marks.   **5x10=50M**

11.A).	Compare File based systems with database management system.	10M
	OR	
11. B).	Explain in detail about set operations, grouping, aggregation operations.	10M
12. A).	Write suitable examples for creating Primary Key, Foreign Key, Not Null, Unique, Check constraints.	10M
	OR	
12. B).	Write in detail about Views and Indexes.	10M
13. A).	List and explain with suitable examples SQL Comparison Operators.	10M
	OR	
13. B).	Explain with suitable examples Group BY and Having Clause.	10M
14. A).	Explain with suitable examples Packages in PL/SQL.	10M
	OR	
14. B).	Discuss in detail about Control Statements in PL/SQL.	10M
15. A).	Explain in detail second Normal Form with suitable examples. List few disadvantages of Normalization.	10M
	OR	
15. B).	Explain Insert, delete, update anomalies.	10M

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular/Supplementary Examinations December-2022
Course Name: KNOWLEDGE MANAGEMENT
(Common for ECE, CSE, IT & CSC)

Date: 19.12.2022 AN   Time: 3 hours   Max.Marks: 70

(Note: Assume suitable data if necessary)
PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   10x2=20M

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

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). "Technological advances have greatly helped the growth of Knowledge Management, although the field has not yet reached full maturity". Elucidate the statement.   10M

OR

11. B). What is Knowledge Leveraging? Explain its key elements in detail.   10M

12. A). Explain the role of Information Technology in Knowledge Management Systems.   10M

OR

12. B). Explain the stages involved in developing Knowledge Management Systems.   10M

13. A). Explain the role of Knowledge Management in Service industry.   10M

OR

13. B). Explain the role of Knowledge Management in Manufacturing Industry.   10M

14. A). What is KM Process? Explain the steps involved in KM Process.   10M

OR

14. B). Explain any five points of difference between Knowledge Capital and Physical Capital.   10M

15. A). Discuss Roadblocks to success in relation to Knowledge Management.   10M

OR

15. B). Explain the 10-step process involved in KM Road Map to Amrittiwana.   10M

*****

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-filling and advance payment of tax.	10M

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Regular Examinations December-2022
Course Name: BUSINESS ETHICS & CORPORATE GOVERNANCE
(Common for ECE, CSE, CSC & CSM)

Date: 19.12.2022 AN | Time: 3 hours | Max.Marks: 70

(Note: Assume suitable data if necessary)
PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   10x2=20M

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

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). Discuss the significance of ethics in business.   10M

OR

11. B). Discuss various principles of ethics and is implications in the modern business world.   10M

12. A). Explain the unethical practices in Marketing.   10M

OR

12. B). In situations like recessions, explain the role of HR manager in terms of ethical practice.   10M

13. A). How the Criminals Plan the Attacks? Explain with examples?   10M

OR

13. B). Discuss about digital signatures in Cyber security.   10M

14. A). What are the various functions of the Board and CEO?   10M

OR

14. B). Discuss the future of Corporate Governance in India.   10M

15. A). Explain the Core Elements of the OECD Corporate Governance Principles.   10M

OR

15. B). Who can seek remedies against oppression and mismanagement of company? On what   10M
grounds can relief be granted in an application seeking relief?

*****

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)

CMR

B.Tech (Minors in AI&ML) V Semester Regular Examinations December-2022
Course Name: FOUNDATIONS OF ARTIFICIAL INTELLIGENCE
(Common for CIVIL, EEE, MECH, ECE, IT & CSC)

Date: 19.12.2022 AN   Time: 3 hours   Max.Marks: 70

(Note: Assume suitable data if necessary)
PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   **10x2=20M**

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

PART-B
Answer the following. Each question carries TEN Marks.   **5x10=50M**

11.A). Compare the procedural knowledge with declarative knowledge.   10M

OR

11. B). List out and explain any five mostly used artificial intelligence techniques.   10M

12. A). Analyze the role of matrix theory and statistics for machine learning.   10M

OR

12. B). Interpret the idea of machines learning from data with examples.   10M

13. A). Find the linear regression equation for the following set of data   10M

X	2	4	6	8
Y	3	7	5	10

OR

13. B). Demonstrate the functionality of Gradient descent method for linear regression.   10M

14. A). Examine the problem of overfitting with a suitable example.   10M

OR

14. B). Define classification. Illustrate the usage of logistic regression for performing classification.   10M

15. A). Show and interpret the how can we classify the Clustering algorithm.   10M

OR

15. B). Inspect the implementation of agglomerative hierarchical clustering.   10M

*****

CMR
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   10M
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.
(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

<div align="center">OR</div>

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

<div align="center">OR</div>

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

<div align="center">OR</div>

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

<div align="center">*****</div>