



GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester)

CYCLE TEST - I

Applied Statistics (CSE - AIML - DS)

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART - A

($2 \times 5 = 10$ Marks)

Q.1. Answer ALL questions

- | | CO # | Blooms Level |
|---|------|--------------|
| a. Write all methods of primary data | 1 | 1 |
| b. Write the empirical relation between mean, median and mode
$\text{mode} = 3 \text{ median} - 2 \text{ mean}$ | 1 | 1 |
| c. Find D_6 and P_{72} for the following observations: 12, 9, 4, 17, 25, 29, 10 and 21. | 1 | 2 |
| d. Find the weighted Harmonic Mean of the first 'n' natural number whose weights are equal to the corresponding number. | 2 | 2 |
| e. Find the mean of cube of first 10 even natural numbers. | 2 | 2 |

PART - B

($10 \times 2 = 20$ Marks)

Answer ALL Questions

Marks CO# Blooms Level

- | | | | |
|---|---|---|---|
| 2.a. Out of a total number of 1, 807 women who were interviewed for employment in a textile factory of Mumbai; 512 were from textile areas and the rest from the non-textile areas. Amongst the married women who belonged to textile areas, 247 were experienced and 73 inexperienced, while for non-textile areas, the corresponding figures were 49 and 520. The total number of inexperienced women was 1,341 of whom 111 resided in textile areas. Of the total number of women, 918 were unmarried and of these the number of experienced women in the textile and non-textile areas was 154 and 16 respectively. Tabulate. | 5 | 2 | 2 |
| b. Draw the stem and leaf diagram of given observations: 4.7, -30, 2.38, 13.7, 9.38, -11.324, -7.523, 18.198, 17.527, 32.55, 21, 17, 14, 28.382, 17.98 | 5 | 2 | 2 |

(OR)

- | | | | |
|--|---|---|---|
| c. Draw the histogram for the following frequency distributions: | 5 | 1 | 3 |
|--|---|---|---|

Variable	10	20	40	60	90	120
Frequency	12	30	70	130	120	75

Marks

Electronics

Marks

- d. Draw the box plot of the following data: 43, 76, 87, 32, 5 1 3
30, 65, 43, and 27.

- 3.a. Arithmetic Mean height of 50 students of a college is 5.8 inches. The height of 30 of these is given in frequency distribution below. Arithmetic Mean height of 20 students is to be found. 5 2 3

x_i	64	66	68	70	72
Height (inch)	5'4"	5'6"	5'8"	5'10"	6'0"

- b. In the frequency distribution of 100 families, given below are the number of families corresponding to expenditure group are missing from the table. Median is known to be 50. Find the missing frequency. 5 1 4

Expenditure	00 - 20	20 - 40	40 - 60	60 - 80	80 - 100
No. of families	14	?	27	?	15

(OR)

- c. Find mean using Step - Deviation method. 5 2 3

Class	10 - 19	20 - 29	30 - 39	40 - 49	50 - 59
Frequency	8	8	15	11	8

- d. For given frequency distribution, calculate G.M and H.M. 5 1 4

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
# Students	3	7	15	25	8

>>>>>>>>>>>>>>>>>>END<<<<<<<<<<<<<

5 - 15 12

25 - 36



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GIET UNIVERSITY, GUNUPUR
B. Tech - III Semester : CYCLE TEST - I
21BCSES23001 / 21BCMES23001 / 21BCDES23001 - Digital Electronics
CSE / CSE (AIML) / CSE (DS)

Time: 01:30 Hrs

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART - A

($2 \times 5 = 10$ Marks)

1. Answer ALL questions.

- | | CO # | Blooms Level |
|---|------|--------------|
| a. Convert 6348 to binary, hexadecimal, and decimal. | CO1 | 2 |
| b. State Distributive law of Boolean algebra. | CO1 | 1 |
| c. Find the complement of the function $F = x'y'z' + x'y'z$. | CO1 | 3 |
| d. Draw the truth table for the Boolean function:
$F = A + BC$. | CO2 | 1 |
| e. Convert the following expression into a standard product of sums. $Y = A(A + B + C)$ | CO2 | 2 |

PART - B

($10 \times 2 = 20$ Marks)

Answer ALL Questions.

- | | Marks | CO# | Blooms Level |
|---|-------|-----|--------------|
| 2.a. Add the two numbers (-12, +7) using both 1's and 2's complement method. | 5 | CO1 | 3 |
| b. Establish the following identities of Boolean algebra: | 5 | CO1 | 3 |
| (iii) $A(A + B) = A$ | | | |
| (iv) $AB + \bar{A}C = (A + C)(\bar{A} + B)$ | | | |
| (OR) | | | |
| c. Convert the decimal number 347.625 to a single-precision floating-point binary number. | 5 | CO1 | 2 |
| d. Simplify the following Boolean functions to a minimum number of literals | 5 | CO1 | 3 |
| (iii) $x(x' + y)$ | | | |
| (iv) $xy + x'z + yz$ | | | |

- 3.a. In a tabular form, write the "2421" code and "Excess-3" code of decimal digit "0 to 9".
What are the special properties of these codes?

5 CO1 2

- b. Apply DeMorgan's theorem to prove that

$$\overline{AB + \overline{C}D + EF} = (\overline{A} + B)(\overline{C} + D)(\overline{E} + \overline{F})$$

Draw the corresponding logic circuit.

(OR)

5 CO2 3

- c. Reduce the Boolean Expression.

$$A + B[AC + (B + \overline{C})D]$$

5 CO1 3

- d. Express the Boolean function as a sum of minterms: $F = A + B'C$. Now, convert the sum of minterms to another canonical form.

5 CO2 2



Data Base Management Systems (CSE, AIML, DS)

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART - A

(2 x 5 = 10 Marks)

Q.1. Answer ALL questions

Q.1. Answer ALL questions		CO #	Blooms Level
a.	Create a table for Student with following attributes Sid Number, Sname Varchar2, Marks Number and Average Number (3, 2).	2	4
b.	What are the features of Database language?	1	1
c.	The syntax to insert a value to the existing table.	2	2
d.	What do you mean by Specialization and Generalization	2	2
e.	Enlist the various relationships of database with suitable example?	1	2

PART - B

(10 x 2 = 20 Marks)

Answer ALL Questions

Answer ALL Questions		Marks	CO#	Blooms Level
2.a.	Explain 3 level- architecture with block-diagram.	5	1	2
b.	Explain about Data abstraction with its levels?	5	1	2

(OR)

c. Explain about DBA and his/her responsibility on DBMS? 5 1 2

d. Discuss the various disadvantages of file system and explain how it can be overcome in DBMS 5 1 2

3.a. Draw an ER diagram for University Management System

b. Give the following queries in the relational algebra using the relational schema

student(id, name)

EnrolledIn(id, code)

subject(code, lecturer)

10

i. What are the names of students in both cs1500 and cs1200?

ii. What are the names of all the students in cs1500?

iii. Who teaches cs1500 or cs3020?

5 2

1

1

$$\frac{\pi_{\text{id name}}(s)}{\pi_{\text{ID}}(s)} \text{ code} = \text{P.T.O}$$

OR

c. Give the following queries in SQL

i. To change the column EMPNO NUMBER (4) TO
EMPNO NUMBER (6) in Employees table.

ii. To display name, job, salary of employees
whose name is starting with 'B'.

iii. To display empno, name, job, salary whose
salaries not from 10000 to 30000.

5 2 3

d. With relevant examples discuss the various
operations in Relational Algebras.

5 2 3

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B. Tech (Third Semester)

CYCLE TEST - I

OOPS Using Java

PART -

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

Q.1. A PART - A

(2 x 5 = 10 Marks)

- | | | | |
|-----------|---|------|--------------|
| a. | Q.1. Answer ALL questions | CO # | Blooms Level |
| b. | a. Differentiate between "static" and "instance" variables in Java. | 1 | 1 |
| c. | b. Describe "label break" with an example. | 1 | 1 |
| d. | c. Write a program to a number (Using command line arguments) and test whether it is even or odd. | 1 | 1 |
| e. | d. What is the role of "bytecode" in Java? | 1 | 1 |
| PF | e. What is the final method? Explain its role with an example. | 2 | 1 |

PART - B

(10 x 2 = 20 Marks)

Answer ALL Questions

Marks	CO#	Blooms Level
-------	-----	--------------

- | | | | | |
|------|---|---|---|---|
| 2.a. | Explain the architecture of JVM with a neat diagram. | 5 | 1 | 2 |
| b. | Write a program to read two matrices and multiply them. | 5 | 1 | 1 |

(OR)

- | | | | | |
|------|---|---|---|---|
| c. | Briefly explain all the features of Java. | 5 | 1 | 2 |
| d. | What is a "jagged array"? Write a program to display the following:
0 1 2
3 4 5 6
7 8 | 5 | 1 | 1 |
| 3.a. | List out the characteristics of a constructor. Explain "constructor overloading" with an example. | 5 | 2 | 2 |
| b. | Explain the usage of this keyword with an example of each. | 5 | 2 | 2 |

(OR)

- | | | | | |
|----|---|---|---|---|
| c. | Explain all the usages of super keyword with examples on each. | 5 | 2 | 2 |
| d. | Differentiate between method overloading and method overriding with examples of each. | 5 | 2 | 2 |



Introduction to Data Science (CSE, CSE-DS)

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART - A

(2 x 5 = 10 Marks)

Q.1. Answer ALL questions

- | | | | |
|----|--|------|--------------|
| a. | Define the term Data Science in simple word | CO # | Blooms Level |
| b. | Differentiate between supervised and unsupervised learning. | 1 | 1 |
| c. | Discuss the relations between AI, ML, Deep Learning and Data Science | 1 | 2 |
| d. | Find the mean, Median and Mode of the following Data
59, 65, 61, 62, 53, 55, 60, 70, 64, 56, 58, 58, 62, 62, 68, 65, 56, 59, 68, 61, 67 | 2 | 3 |
| e. | Define Skewness and the types it with examples. | 1 | 1 |

PART - B

(10 x 2 = 20 Marks)

Answer ALL Questions

- 2.a. Briefly describe the Application of Data Science in various field

Marks CO# Blooms Level

5 1 1

- b. Illustrate all the stages of Data Analytics Lifecycle with proper diagram

5 1 1

(OR)

- c. Describe The NOIR scale of data classification

5 1 2

- d. Identify the Security issues faced by organizations of all sizes as they attempt to secure sensitive data.

5 1 2

- 3.a. Find the variance and standard deviation for the following data:

No. of order	f
10 – 12	4
13 – 15	12
16 – 18	20
19 – 21	14
Total	n = 50

5 2 3

- b. Find the mean of the following distribution using step deviation method

Class Interval	0-08	08-16	16-24	24-32	32-40	40-48
Frequency	10	20	14	16	18	22

5 2 3

OR

- c. Find the mode of the Following Distribution

Class	0-20	20-40	40-60	60-80	80-100	100-120	120-140
Frequency	6	8	10	12	6	5	3

5 2 3

- d. The following data related to the profit of 1000 companies. Calculate the coefficient of Skewness and comment on it

Profits(in Lakhs)	100- 120	120- 140	140- 160	160- 180	180- 200	200- 220	220- 240
No of Companies	17	53	199	194	327	208	2

5 2 3

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2, 53, 4

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GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester)

CYCLE TEST - I

Engineering Economics and Costing (CSE, DS)

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART - A

(2 x 5 = 10 Marks)

Q.1. Answer ALL questions

- | | CO # | Blooms Level |
|--|------|--------------|
| a. Define engineering economics. | 1 | 1 |
| b. The individual demand function is given by $Q_x = 30 - 3P_x$.
the price of commodity (P_x) in rupees is given as
7, 6, 5, 4, 3, 2, 1. Find out the individual demand | 1 | 2 |
| c. Define marginal cost. | 2 | 2 |
| d. What is semi-variable cost? | 2 | 2 |
| e. Differentiate between complementary goods and substitutes goods. | 1 | 2 |

PART - B

(10 x 2 = 20 Marks)

Answer ALL Questions

Marks	CO#	Blooms Level
-------	-----	--------------

- | | | | |
|---|---|---|---|
| 2.a. Elucidate the concept of Micro and Macro economics. | 5 | 1 | 3 |
| b. The person income is Rs. 100 per day and the quantity demanded for product M is 1000 units, if the person income declines to Rs. 80 per day and the quantity demanded decreases to 700 units.
Find the Income Elasticity of demand. | 5 | 2 | 4 |

(OR)

- | | | | |
|---|---|---|---|
| c. Explain the law of supply. | 5 | 1 | 3 |
| d. Diagrammatically explain the law of diminishing return. | 5 | 2 | 4 |
| 3.a. State any two methods for measuring elasticity of demand. | 5 | 1 | 4 |
| b. Define Perfect competition. State the salient features of perfect competition. | 5 | 2 | 2 |

(OR)

- | | | | |
|---|---|---|---|
| b. Explain the law of Returns to scale of production. | 5 | 2 | 2 |
| c. Elaborate the nature and scope of engineering economics. | 5 | 1 | 2 |



GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester)

CYCLE TEST - II

Sub: Applied Statistics

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART - A

($2 \times 5 = 10$ Marks)

Q.1. Answer ALL questions

- | | | |
|--|---|----|
| a. Define quartile deviation. | 1 | K1 |
| b. What platy-kurtic? | 1 | K1 |
| c. What is correlation? | 1 | K2 |
| d. What is statistics? | 2 | K2 |
| e. What is the formula of standard error of sample mean for finite population? | 2 | K2 |

PART - B

($10 \times 2 = 20$ Marks)

Answer ALL Questions

Mar ks	C O#	Bloo ms Leve
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2. Calculate the Standard Deviation and Variance.

a.	Value	90	80	70	60	50	40	30		5	2	K2
	—	—	—	—	—	—	—	—				
	99	89	79	69	59	49	39					
	Frequency	2	12	22	20	14	4	1				

- b. Calculate Spearman's Rank Correlation.

X _i	39	65	62	90	82	75	25	98	36	78		5	3	K2
Y _i	47	53	58	86	62	68	60	91	51	89				

(OR)

- c. Calculate two Line of Regression Equations

Sales (X _i)	9 1	9 7	10 8	12 1	6 7	12 4	5 1	7 3	11 1	5 7		5	3	K3
Purchase s(Y _i)	7 1	7 5	69 0	97 0	7 9	91 9	3 1	6 1	80 55	4 54				

- d. Plot a Scatter Plot for the following are the heights and weight of 10 students of a class and write correlation between height and weight.

5 2 K3

Height	62	72	68	58	65	70	66	63	60	72
Weight	50	65	63	50	54	60	61	55	54	65

3. Let $X_1, X_2, X_3, \dots, X_n$ be a random sample from Normal distribution $N(\mu, 1)$ population. Show that $t = \sum_{i=0}^n X_i^2$ is an unbiased estimator of $\mu^2 + 1$.
- b. The mean and variance of a random sample of 64 observation were computed as 160 and 100 respectively. Compute the 95% confidence limits for population mean.
- (OR)**
- c. Let $X_1, X_2, X_3, \dots, X_n$ be a random sample from $N(\mu, \sigma^2)$ population with p.d.f $f(X, \mu, \sigma^2) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2}\left(\frac{X-\mu}{\sigma}\right)^2}$. Find the maximum likelihood estimator of μ .
- d. A random sample of 700 units from a large consignment and in that 200 were damaged. Find 95% confidence limit for the proportion of damage units in the consignment.

5 3 2

5 3 K3

5 2 K4



GIET UNIVERSITY, GUNUPUR
B. Tech - III Semester : CYCLE TEST - II
21BCSES23001 / 21BCMES23001 / 21BCDES23001 - Digital Electronics
CSE / CSE (AIML) / CSE (DS)

Time: 01:30 Hrs

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART - A

($2 \times 5 = 10$ Marks)

1. Answer ALL questions.

- | | CO # | Blooms Level |
|---|------|--------------|
| a. What is the difference between combinational circuit and sequential circuit? | CO2 | 1 |
| b. Draw the logic diagram of 2-bit by 2-bit binary multiplier. | CO2 | 2 |
| c. What is meant by priority encoder? How is it different from encoder? | CO2 | 1 |
| d. State the difference between "latch" and "flip-flop". | CO3 | 1 |
| e. Write characteristics equation and excitation table for the T flip-flop. | CO3 | 2 |

PART - B

($10 \times 2 = 20$ Marks)

Answer ALL Questions.

- 2.a. Simplify the following Boolean function using a four variable K-map:

$$F(A, B, C, D) = \Sigma (0, 1, 3, 4, 5, 7, 9, 11, 15)$$

and then, realize the simplified functions using logic gates.

- b. Implement the following function:

(i) $F = A(CD + B) + BC'$ using NAND gates.

(ii) $F = (A + B)(C + D)E$ using NOR gates.
(OR)

- c. What is a full adder circuit? Draw its truth table. Design a full adder circuits using two half adder circuits and 'OR' gate.

5 CO2 3

5 CO2 3

5 CO2 3

P.T.O

d.



- d. Construct the 3×8 decoder using 2×4 decoders. 5 CO2
- 3.a. Design a combinational circuit which will convert a 4 bit binary number to 4 bit gray code. 5 CO2
- b. Implement the Boolean function
 $F(x, y, z) = \Sigma(1, 2, 6, 7)$ with a multiplexer. 5 CO2
(OR)
- c. What is the race-around condition? How is it eliminated in a master-slave J-K flip-flop? 5 C
- d. Explain how a J-K can be constructed using D flip-flop. 5



GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Third Semester)

CYCLE TEST – II

Database Management System

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right hand margin indicate marks.)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer ALL questions	CO #	Blooms Level
a. Explain Cache Memory.	CO3	2
b. What is called mirroring?	CO3	1
c. Define Isolation Property with example.	CO4	2
d. Explain about Locking and Timestamp.	CO4	2
e. Explain about database recovery system.	CO4	2

PART – B

(10 x 2 = 20 Marks)

Answer ALL Questions

Marks CO# Blooms Level

- 2.a. Describe the different types of file organization? 5 CO3 2
b. Discuss about network and object oriented data models? 5 CO3 2

(OR)

- c. Illustrate about RAID in detail 5 CO3 3
d. Consider the universal relation $R=\{A,B,C,D,E,F,G,H,I\}$ and the set of functional dependencies $F=\{AB \rightarrow C, A \rightarrow DE, B \rightarrow F, F \rightarrow GH, D \rightarrow IJ\}$ 5 CO3 3
i. What is the key for R?
ii. Decompose R into 2NF
3.a. Explain about atomicity, Consistency property of a transaction with Bank accounts A and B, funds transfer example? 5 CO4 2
b. Discuss about different states of a transaction? 5 CO4 2

(OR)

- b. Explain about 2PL and S2PL. 5 CO4 2
c. Explain about normalisation and different type of normal form. 5 CO4 2



GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester)

CYCLE TEST - II

Object-Oriented Programming using JAVA

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right-hand margin indicate marks.)

PART - A

(2 x 5 = 10 Marks)

Q.1. Answer ALL questions

- | | CO # | Blooms Level |
|---|------|--------------|
| a. What is a daemon thread? How do you create a daemon thread in Java? | CO3 | K1 |
| b. Write a program to display "Hello Friend" using an applet | CO4 | K2 |
| c. List out the basic differences between checkbox and radio button. Write down the steps to create three checkboxes (Cricket, Football, Hockey) and two radio buttons (Yes, No). | CO4 | K2 |
| d. Differentiate between <code>sleep()</code> and <code>join()</code> methods with their syntax. | CO3 | K1 |
| e. What is an "anonymous inner class"? Explain with an example. | CO4 | K1 |

PART - B

(10 x 2 = 20 Marks)

Answer ALL Questions

- | | Marks | CO# | Blooms Level |
|--|-------|-----|--------------|
| 2.a. What is synchronization? Explain the role synchronized method with a suitable example. | 5 | CO3 | K2 |
| b. Write a program to display a sum of the values entered in two text-fields while clicking a button. | 5 | CO4 | K2 |
| (OR) | | | |
| c. Write a program to create two threads, one thread to display all even numbers between 10 & 50, and another thread to display odd numbers between 10 & 50. | 5 | CO3 | K2 |
| d. Write a program to exhibit all the methods of MouseListener interface. | 5 | CO4 | K2 |



- 3.a. Explain the role of InputStream and OutputStream classes. Write a program to count the total characters present in a file (excluding the spaces). 5 CO3 K2
- b. Write a program to demonstrate event handling associated with "choicebox". 5 CO4 K2
- (OR)**
- c. Write a program to copy the contents of a file "one.txt" into "two.txt" and check the possible list of exceptions. 5 CO3 K2
- d. Write a program to draw a smiley using applet. 5 CO4 K2

Introduction to Data Science

Time: 90 Minutes

Maximum: 30 Marks

(The figures in the right-hand margin indicate marks.)

PART - A

(2 x 5 = 10 Marks)

Q.1. Answer ALL questions

- | | CO # | Blooms Level |
|--|------|--------------|
| a. Define the term evaluation of model and represent Mean square error | 3 | 1 |
| b. List down some of the metrics used to evaluate a Regression Model. | 3 | 2 |
| c. What is the difference between simple linear and multiple linear regressions? | 3 | 4 |
| d. Discuss about Loss Function and Cost Function | 4 | 2 |
| e. Explain the concept of k-Fold cross-validation in one sentence | 4 | 2 |

PART - B

(10 x 2 = 20 Marks)

Answer ALL Questions

Marks CO# Blooms Level

- 2.a. Define the term simple linear regression. Evaluate the regression from the given data and evaluate the standard error.

6 3 3

X	1	3	10	16	26	36
Y	42	50	75	100	150	200

- b. Define the term evaluation of the model. Describe Relative error and Absolute error.

4 3 1

(OR)

- c. Describe the importance of Polynomial regression. Find Polynomial regression of degree two from the given data.

6 3 3

X	3	4	5	6	7
Y	2.5	3.2	3.8	6.5	11.5

- d. Describe the different Plot to Visualized the data.
3.a. Define the term multiple linear regression. Evaluate the regression line from the given data

4 3 2

X1	1	3	4	5	8
X2	3	5	8	10	13
Y	6	8	11	13	15

5 3 3

- b. Calculate mean, median and mode from the following data pertaining to marks in IDS out of 140 marks for 80 students in a class.

Marks more than	0	20	40	60	80	100	120
No of Students	80	76	50	28	18	9	3

(OR)

- c. Define Bias and variance. What is the need of Bias variance trade off.
- d. How does cross-validation assist in identifying Overfitting or Underfitting in a model?

5 3 3

6 4 1

4 4 2



GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester)
CYCLE TEST - II

Engineering Economics and Costing

90 Minutes

(The figures in the right hand margin indicate marks.)

Maximum: 30 Marks

($2 \times 5 = 10$ Marks)

PART - A

Q.1. Answer ALL questions

- a. What is Prime cost? CO4 K1
- b. State the reasons for estimation of depreciation of a fixed asset. CO3 K3
- c. What do you mean by overhead? What are its types? CO3 K2
- d. Define Future worth. CO3 K2
- e. What is Equal payment series capital recovering amount factor? CO3 K3

($10 \times 2 = 20$ Marks)

PART - B

Answer ALL Questions

2.a. Prepare an imaginary cost sheet.

5 Co3 K3

b. Calculate:

Calculate:

i. P/V ratio,

ii. Profit at the sale of Rs 20,00,000 from the following:

Year 2016	Year 2017
Rs Sales 50,000	Rs 80,000
Profit 10,000	25,000

5 Co3 K4

(OR)

c. Explain What is breakeven analysis? Explain with graph by using assumed figures? 5 Co3 K3

d. Calculate depreciation and book value of an asset for the first 5 years from the following information under straight line method of depreciation: Cost of asset on zero period is Rs 1,90,000. Salvage value is Rs 10,000 at the end of it working life of 9 years 5 Co3 K4

3.a. Explain the various functions of RBI. 5 Co4 K4

b. State the conditions of present value method? 5 Co3 K4

d.

(OR)

b. What is cash flow diagram? Elaborate its components 5 Co3 K3

c. Explain the application of uniform payment series sinking fund amount factor with an example. 5 Co3 K3

Applied Statistics
(CSE(AIML), CSE(DS))

Time: 3 hrs

Maximum: 70 Marks

Answer all questions

(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- | | CO # | Blooms Level |
|---|------|--------------|
| a. What is frequency polygon? | CO2 | K1 |
| b. Define cumulative frequency distribution. | CO2 | K1 |
| c. The distributions X and Y with total number of observations 36, 64 and mean 4, 3 respectively are combined. What is the Mean of the resulting distributions X+Y? | CO2 | K2 |
| d. What is the formula of standard error of difference of two independent sample proportion? | CO2 | K2 |
| e. What is value of $z_{\frac{\alpha}{2}}$ for $\alpha=0.01$? | CO2 | K1 |

PART – B

(15 x 4 = 60 Marks)

Answer ALL questions

	Marks	CO #	Blooms Level
	7	CO2	K3

2. a. In 1995 out of total 2000 workers in a factory, 1550 were members of a trade union. The number of women workers employed was 250, out of which 200 did not belong to any trade union. In 2000, the number of union workers was 1725 of which 1600 were men. The number of non – union workers was 380, among which 155 were women.
- b. Draw the stem and leaf diagram of given observations:
- 44, 46, 47, 49, 63, 64, 66, 68, 72, 72, 75, 76, 81, 84, 88, -23.678, -12.45, -3.4, 4.43, 5.5, 5.678, 16.87, 24.7, 56.8

8 CO3 K2

(OR)

- c. Draw the box plot of the following data: 70, 33, 50, 65, 30, 55, 65, 52, 53, 42, 39, and 35.
- d. Draw the histogram for the following frequency distributions:

7 CO3 K4

CO3 K2

Variable	10 – 15	15 – 20	20 – 25	25 – 30	30 – 40	40 – 60	60 – 80
Frequency	7	19	27	15	12	12	8

- 3.a. Find the Weighted Arithmetic Mean of the following data. The following are the percentage of marks in an examination. 7 CO3 K3

Subject	Marks (X_i)	Weight (W_i)
English	60	1
Hindi	75	2
Math	63	1
Physics	59	3
Chemistry	55	3

- b/ Plot a Scatter Plot for the following are the heights and weight of 10 students of a class. 8 CO2 K3

Height	62	72	68	58	65	70	66	63	60	72
Weight	50	65	63	50	54	60	61	55	54	65

- c. Find the mode for the frequency distribution. (OR) 7 CO3 K3

Weight (in kg)	93 – 97	98 – 102	103 – 107	108 – 112	113 – 117	118 – 122	123 – 127	128 – 132
No. of students	3	5	12	17	14	6	3	1

- d. Calculate two Line of Regression Equations 8 CO3 K4

Sales (X_i)	91	97	108	121	67	124	51	73	111	57
Purchases (Y_i)	71	75	69	97	70	91	39	61	80	47

- 4.a/ Let t_1 and t_2 be two unbiased estimators of θ . Show that estimator $t = at_1 + (1 - a)t_2$ is an unbiased estimator of θ . 7 CO3 K4

- b/ If X_1, X_2 , and X_3 constitute a random sample of size 3 from normal population with mean μ and variance σ^2 . Find the most efficient estimator

among the three statistics $t_1 = \frac{X_1 + X_2 + X_3}{3}$, $t_2 = \frac{X_1 + 2X_2 + X_3}{4}$ and $t_3 = X_1 + \frac{X_2 + X_3}{2}$.

(OR)

- c. Let $X_1, X_2, X_3, \dots, X_n$ be a random sample from a population with population density function $f(X, \theta) = \theta X^{\theta-1}; 0 < X < 1, \theta > 0$. Find the sufficient estimator for θ . 7 CO3 K4

- d. A research worker wishes to estimate the mean of population by using sufficiently large sample. The probability is 0.95 that the sample mean will not differ from the true mean by more than 25% of the standard deviation. 8 CO3 K4

How large a sample should be taken?

- 5.a. A coin is tossed 900 times and had appeared 490 times. Does this result support the hypothesis that a coin is unbiased? Use 5% level of significance. 7 CO3 K4

- b. In big city 325 men out of 600 men were found to be smokers. Does this information support the conclusion that the majority of men in this city are smokers? 8 CO3 K3

(OR)

- c. Following information is related to 2 places A and B test. Whether there is any significance between their mean wages. Use $\alpha=5\%$. 7 CO3 K4

	A	B
Mean Wages	47	49
Standard Deviation	28	40
No. of Workers	1000	1500

- d. A stenographer claims that she can take decision at the rate of 120 wpm. Can we reject her claim on the basis of 100 trials in which she demonstrate a mean of words with standard deviation of $\alpha=5\%$? 8 CO3 K4

--- End of Paper ---



Time: 3 hrs

GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester Regular) Examinations, December - 2023
22BCMPC23001 – Data Base Management Systems
(CSE, CSE(AIML),CSE(DS))

Maximum: 70 Marks

(2 x 5 = 10 Marks)

PART - AQ.1. Answer ALL questions

- List the differences between DROP and DELETE.
- Create a table for Student with following attributes Sid Number, Sname Varchar2, Marks Number and Average Number (3, 2). Enter 5 students detail into it.
- Define Normalization and Explain 2NF.
- How does B-tree differ from a B+ tree? Why B+ tree usually preferred as an access structure to a data file?
- Define Isolation Property with example.

CO #	Blooms Level
CO1	K2
CO1	O2
CO2	K2
CO3	K2
CO4	K2

PART - BAnswer ALL questions

- Discuss about DBMS Users. Explain about DBA and his/her responsibility on DBMS.
- Explain the structure of DBMS With neat diagram.

(OR)

(15 x 4 = 60 Marks)

Marks	CO #	Blooms Level
-------	------	--------------

- Draw an ER diagram for Ticket Booking Management System.
- Discuss the various disadvantages of file system. Explain how it can be overcome in DBMS.

3.a. Give the following queries in SQL

i) To change the column EMPNO NUMBER (4) TO EMPNO NUMBER (6)

in Employees table.

ii) To display name, job, salary of employees whose name is starting with 'B'.

iii) To display empno, name, job, salary, location whose salaries not from

10000 to 30000.

iv) Find the name of the employee working at Mumbai.

- b. Explain about Normalization with its advantages.

(OR)

8	CO1	K3
7	CO1	K2

8	CO1	K4
7	CO1	K2

8	CO2	K3
---	-----	----

7	CO2	K2
---	-----	----

7	CO2	K2
---	-----	----

- c. Consider two set of FD's F and G and find out whether they are equivalent or not. 8 CO2 K3
 $F: \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\} \text{ & } G: \{A \rightarrow CD, E \rightarrow AH\}$
- d. With relevant examples discuss the various operations in Relational Algebra. 7 CO2 K2
 4.a. Describe the storage structure of B+ tree files and their access method with examples. 8 CO3 K2
 b. Illustrate about RAID in detail. 7 CO3 K2
- (OR)
- c. The primary keys of the records are given as: 5,1,3,12,10,18,2,7,4,20 8 CO3 K2
 Using B+ tree of order 4 explain how the records are arranged in the file
- d. What are Armstrong 's axioms and why its required? Use Armstrong axioms to prove the soundness of decomposition rule and pseudo transitive rule. 7 CO3 K2
- 5.a. Explain about log based recovery in DBMS. 8 CO4 K2
 b. Discuss on strict two-phase locking protocol and time stamp- base protocol. 7 CO4 K2
- (OR)
- c. Explain the Properties of transactions. How can you implement atomicity in transactions? Explain in detail. 8 CO4 K2
 d. Explain about deadlock handling mechanism in DBMS. 7 CO4 K2

--- End of Paper ---



GIET UNIVERSITY, GUNUPUR - 765022

B. Tech (Third Semester) Examinations, December - 2023

21BCSPE23011/22BCSPE23011- Introduction to Data Science
(CSE,CSE(DS))

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

(2 x 5 = 10 Marks)

PART - AQ.1. Answer ***ALL*** questions

- | | | | |
|----|---|-----|----|
| a. | Define Data science. What is the difference between structured and unstructured data. | CO1 | K1 |
| b. | Differentiate between Ordinal and Ratio type of data. | CO1 | K4 |
| c. | If the mean of a dataset is 50 and the standard deviation is 10, interpret this in the context of the data. | CO2 | K3 |
| d. | Define the procedure for finding the Standard Error for a dataset. | CO3 | K1 |
| e. | Explain the concept of k-Fold Cross Validation. | CO4 | K2 |

(15 x 4 = 60 Marks)

PART - BAnswer ***ALL*** questions

- | | | | | |
|-------|--|----|-----|---|
| 2. a. | Illustrate all the stages of Data science project Lifecycle with proper diagram. | 12 | CO1 | 2 |
| b. | Discuss the role of data science in the field of Education. | 3 | CO1 | 2 |

(OR)

- | | | | | |
|------|--|----|-----|---|
| c. | Explain the fundamental principles of data security, and why are they important in the digital age? What are the major threats to data security. | 10 | CO1 | 2 |
| d. | Explain the different ways of collection of data. | 5 | CO1 | 2 |
| 3.a. | With neat diagram describe the skewness in data distribution. | 7 | CO2 | 1 |
| b. | Based on the frequency distribution given below, evaluate coefficient of variance. | 8 | CO2 | 3 |

Annual tax paid (Rs Thousand)	5-10	10-15	15-20	20-25	25-30	30-35	35-40
No of Operators	18	30	46	28	20	12	6

(OR)

- | | | | | |
|----|---|---|-----|---|
| c. | Describe normalization. Describe the different methods of normalization. | 7 | CO2 | 1 |
| d. | Evaluate the Karl Pearson measure of skewness in basis of Mean, mode and standard deviation from the following data | 8 | CO2 | 3 |

Class interval	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22
Frequency	40	35	46	98	125	87	45	24

- 4.a. Explain Residual plot and scatter plot with proper representation. 5 CO3 1
- b. Define the term simple linear regression. Evaluate the regression from the given data and evaluate the standard error. 10 CO3 3

X	1	3	10	16	26	36
Y	42	50	75	100	150	200

(OR)

- c. Differentiate between Linear Regression and Polynomial Regression. 5 CO3 4
- d. Describe the importance of Polynomial regression. Find Polynomial regression of degree two from the given data. 10 CO3 3

X	1	3	4	7	9
Y	1	6	1	8	20

- 5.a. Define Bias and variance. What is the need of Bias variance trade off. 10 CO4 2
- b. Discuss about the train and test sample set in a dataset. What are its application in a model? 5 CO4 2

(OR)

- c. How does Ridge Regression contribute to stable and reliable predictions in the presence of noise in the data? Explain with example. 10 CO4 2
- d. How model error is different from generalized error. 5 CO4 4

--- End of Paper ---