GANDHI INSTITUTE OF ENGINEERING & TECHNOLOGY UNIVERSITY,
GUNUPUR – 765022

B. Tech (Third Semester)

CYCLE TEST – I

Applied Statistics [AIML/DS]

Time: 75 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 Mean, Median and Mode?	2	1
b.	Explain Retrospective study with example.	1	2
c.	Write all the components of a table.	1	1
d.	Differentiate between grouped and ungrouped frequency distribution.	1	1
e.	Explain the procedure of finding the mean of a frequency distribution using the Step Deviation Method.	2	2

PART – B **(10 x 2 = 20 Marks)**

Answer ALL Questions

		Marks	CO#	Blooms Level
2.a.	In a sample study about coffee habit in two towns, the following information was received: Town A: Females were 40%; Total coffee drinkers were 45% and Males non-coffee drinkers were 20%. Town B: Males were 55%; Males non-coffee drinkers were 30% and Females coffee drinkers were 15%. Present the above data in a suitable form.	6	1	2
b.	Draw the stem and leaf diagram of the following data: -23.678, -12.45, -3.4, 4.43, 5.5, 5.678, 16.87, 24.7, 56.8	4	1	2
	(OR)			
c.	In 2000, out of a total of 1,750 workers of a factory, 1,200 were members of a trade union. The number of women employed was 200, of which 175 did not belong to a trade union. In 2002, the number of union workers increased to 1,580, of which 1,290 were men. On the other hand, the number of non-union workers fell to 208, of which 180 were men. In 2004, there were 1,800 employees who belonged to a trade union and 50 who did not belong to a trade union. Of all the employees in 2004, 300 were	6	1	2

P.T.O

women, of whom only 8 did not belong to a trade union. 6 1 2

Present the above data in a suitable form.

d. Draw the box plot of the following data: 4 1 2
53, 42, 39, 35, 18, 63, 65, 52, 46

3.a. Draw the histogram for the following frequency distributions:

Variable	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	12	30	35	65	45	25	18

6 2 2

b. Proof that the sum of the squares of deviations of the given set of observations is minimum when taken from the arithmetic mean. 4 2 1

(OR)

c. Calculate the mean for the following frequency distribution by using direct formula and step deviation method and compare the result.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Students	6	5	8	15	7	6	3

6 2 2

d. Distinguish between primary and secondary data and discuss various methods of collecting primary data. 4 1 1

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B. Tech (Third Semester)

CYCLE TEST – I

Intermediate Communication Skills and Critical Thinking

Time: 75 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 Comprehensive listening .	1	K1
b. Illustrate open-mindedness and examine how it supports comprehensive listening.	2	k2
c. Discuss any two symptoms of Stage Fear.	3	K1
d. Give two examples of Empathetic listening.	2	K2
e. Suggest two techniques to manage nervousness on stage.	3	K2

PART – B **(10 x 2 = 20 Marks)**

Answer ALL Questions	Marks	CO#	Blooms Level
2.a. Analyze how hearing is different from listening.	5	2	K2
b. Analyze how comprehensive listening contributes to effective relationship building and problem solving.	5	1	K4
(OR)			
c. Lucubrate the types of Listening.	5	2	K1
d. Discuss why comprehensive listening is important for engineering students.	5	1	K2
3.a. Active Listening helps in resolving Conflicts. Justify.	5	2	K2
b. Explain the strategies to overcome stage fear.	5	3	K1
(OR)			
c. Discuss the role of the audience in public speaking.	5	1	K2
d. Enumerate the things to avoid while dealing with stage fear.	5	3	K2

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GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR

B. TECH III SEMESTER CYCLE TEST - I

DIGITAL ELECTRONICS

CSE / CSE (AIML) / CSE (DS)

Time: 75 Minutes **Maximum: 30 Marks**

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

PART - A **(2 × 5 = 10 Marks)**

1. Answer ALL questions.

		CO #	Blooms Level
a.	Convert $(634)_8$ to binary, hexadecimal, and decimal.	CO1	L2
b.	Find the radix of the number system were $24 + 17 = 40$.	CO1	L1
c.	What is Gray code? Convert $(100110101)_2$ into Gray code.	CO1	L2
d.	State Distributive Law of Boolean Algebra.	CO1	L1
e.	Find the complement of the function $F = x'yz' + x'y'z$.	CO1	L3

PART - B **(10 × 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	L3
b.	Establish the following identities of Boolean algebra: (i) $A\,(A + B) = A$ (ii) $AB + \bar{A}C = (A + C)(\bar{A} + B)$	5	CO1	L3
	(OR)			
c.	Convert the decimal number 347.625 to a single-precision floating-point binary number.	5	CO1	L3
d.	Simplify the following Boolean functions to a minimum number of literals (i) $x\,(x' + y)$ (ii) $xy + x'z + yz$	5	CO1	L3

P.T.O

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	L2
b.	Apply DeMorgan's theorem to prove that $\overline{A\overline{B} + \overline{C}D + EF} = (\overline{A} + B)(C + \overline{D})(\overline{E} + \overline{F})$ Draw the corresponding logic circuit.	5	CO1	L3
	(OR)			
c.	Draw the truth table and output expression of exclusive-OR gate. Show that the dual of the exclusive-OR is equal to its complement.	5	CO1	L2
d.	Reduce the Boolean Expression. $A + B[AC + (B + \overline{C})D]$	5	CO1	L3

Gandhi Institute of Engineering & Technology University, Gunupur – 765022,

B. Tech (Third Semester)

CYCLE TEST – I

Artificial Intelligence & Expert Systems

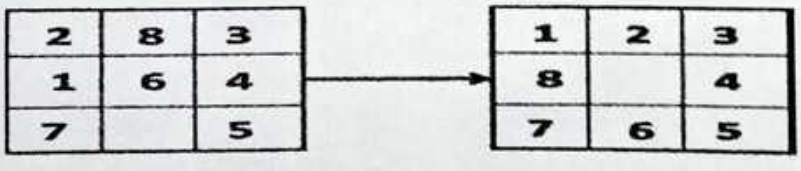
Time: 75 Minutes Maximum: 30 Marks

(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. Describe the 4 rules of AI Agents.	CO2	K1
b. Discuss the various goals of Artificial Intelligence.	CO2	K2
c. Explain the PEAS Representation with an example.	CO1	K1
d. Discuss the various types of Searching Algorithms.	CO1	K2
e. Explain the features of a Production System.	CO1	K1

PART – B **(10 x 2 = 20 Marks)**

Answer ALL Questions	Marks	CO#	Blooms Level
2.a. Discuss the Various techniques of Artificial Intelligence.	5	CO2	K3
b. Diagrammatically explain Simple Reflex and Goal Based Agents.	5	CO2	K1
(OR)			
c. Explain the various applications of Artificial Intelligence.	5	CO2	K3
d. Describe with example various approaches to knowledge Representation.	5	CO2	K1
3.a. Draw the State Space tree of Water Jug Problem with unmarked Jug capacity of 4L and 3L and requiring 2L in the 4L Jug.	5	CO1	K3
b. Diagrammatically explain Model-Based Reflex and Utility Agents.	5	CO1	K2
(OR)			
c.  Initial State Goal State Draw the State Space Tree for this 8-puzzle problem	5	CO2	K3
d. Describe the Advantages and Limitations of Artificial Intelligence.	5	CO1	K3

GANDHI INSTITUTE OF ENGINEERING & TECHNOLOGY UNIVERSITY, GUNUPUR – 765022

B. Tech (Third Semester)

CYCLE TEST – I

Database Management Systems

Time: 75 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 terms: Composite Attribute, Multi valued Attribute	CO1	1
b.	Define terms: Relational schema, Relational instance	CO1	2
c.	Define terms: Generalization, Aggregation	CO2	2
d.	Define terms: Object-Based logical model	CO2	3
e.	Define terms: Data Definition Language, Data Manipulation Language	CO1	1

PART – B **(10 x 2 = 20 Marks)**

Answer ALL Questions		Marks	CO#	Blooms Level
2.a.	Design the diagram of a Three Tier Architecture of Database system concepts and explain each level briefly.	5	2	3
b.	What are the different types of Database Languages and Database Interfaces, explain each one.	5	1	1
	(OR)			
c.	Explain briefly different mapping cardinalities with neat diagrams.	5	2	4
d.	What are the relational model constraints, briefly explain.	5	2	3
3.a.	Design an ER Model by identifying entities, relationships, attributes for a BANK Database System.	5	2	3
b.	Briefly elaborate the different steps used to convert an ER Model into Relational Model by considering suitable example.	5	2	3
	(OR)			
c.	Design an ER Model by identifying entities, relationships, attributes for a COMPANY Database System.	5	2	3
d.	Explain: The advantages of the DBMS Approaches and also the role of different Database users ?	5	1	1

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B. Tech (Third Semester)

CYCLE TEST – I

Object Oriented Programming Using Java

Time: 75 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.	Illustrate the concept of Class and Object in Java.	1	2
b.	Why is Java called a "write once, run anywhere" language?	1	2
c.	Write a Java program to find the biggest of 3 numbers using the ternary operator.	2	2
d.	What will be the output of the following code? `int x = 5; System.out.println(x++ + ++x);`	1	4
e.	List out the difference between & and && operations in Java.	1	1

PART – B (10 x 2 = 20 Marks)

Answer ALL Questions		Marks	CO#	Blooms Level
2.a.	Develop a Java program to find the reverse of a number by reading the number as a Command Line Argument.	5	1	3
b.	List out the features of Java Language.	5	1	1
	(OR)			
c.	Discuss in detail the different types of variables used in a Java class with an example.	8	2	4
d.	List out the differences between length and length() in Java.	2	1	1
3.a.	Analyse the significance of the **static** keyword with respect to variables and methods in Java, with an example.	5	2	4
b.	Explain the ~ and ! operator with an example.	5	2	3
	(OR)			
c.	Design a Rectangle class with a non-static method to initialize length and breadth. Implement methods to compute area and perimeter, and create two objects of the class and test the functionalities	5	2	4
d.	Develop a Java program that eliminates duplicate elements from an array and displays the resulting array.	5	2	3