SREEPATHY INSTITUTE OF MANAGEMENT & TECHNOLOGY
DEPARTMENT OF ELECTRICAL& ELECTRONICS ENGINEERING
FIRST SERIES TEST – FEB 2020

Duration: 2 Hrs

Max Marks : 50

EE 404 INDUSTRIAL INSTRUMENTATION & AUTOMATION

Course Outcomes (CO): Students will be able to

1	Select Instruments and Transducers for various physical variables
2	Get an insight on Data acquisition, Processing & monitoring System
3	Design various signal conditioning systems for Transducers
4	Analyze dynamic response of various systems
5	Get the concepts of virtual instrumentation
6	Understand the Programming realization of PLC

PART-A
Answer any two questions (2 x 10Marks=20 Marks)

Q No	Questions	Marks	CO	BL
1	Draw the block diagram representation of a Process control system and explain the functions of each block	10		L1
2	a) What is meant by Sensor Time Response? b) Draw & Explain First order sensor time response	5 5	CO1	L2
3	Explain the different characteristics of transducer	10		L1

PART-B
Answer any two questions (2 x 10Marks=20 Marks)

Q No	Questions	Marks	CO	BL
4	Draw and explain the working of Capacitive Pressure Transducer	10		L1
5	With the help of diagram explain the working of Hot wire Anemometer for flow measurement.	10	CO2	L1
6	Explain LVDT. What are its advantages & disadvantages	10		L2

PART-C
Answer any one question (1 x 10Marks=10 Marks)

Q No	Questions	Marks	CO	BL
7	a) Explain the importance of signal conditioning in indutrial instrumentation systems b) Draw & Explain DC signal conditioning circuits	5 5	CO3	L2
8	What is instrumentation Amplifier. List the major requirements.Explain with	10		L2

BL	BLOOM'S LEVEL		
L1	Level -1	Remenbering	Recalling from memory of previously learned material
L2	Level -2	Understanding	Explaining Ideas or Concepts
L3	Level -3 :	Applying	Using information in another familiar situation
L4	Level -4	Analyzing	Breaking information into part to explore understandings and relationships
L5	Level -5	Evaluating	Justify a decision or course of action
L6	Level -6	Creating	Generating new ideas, products or new ways of viewing

SREEPATHY INSTITUTE OF MANAGEMENT & TECHNOLOGY
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
FIRST SERIES TEST – FEB 2020

Duration: 2 Hrs

Max Marks : 50

EC468 SECURE COMMUNICATION

Course Outcomes (CO): Students will be able to	
1	Identify and prevent various security attacks and will be able to interpret various security mechanisms and services.
2	Apply the concepts of modular arithmetics in the field of secure communication
3	Model a secure communication model using various substitution techniques
4	Model a secure communication model using various transposition techniques.
5	Formulate efficient algorithms for the secure transmission of data.
6	Analyze various sources of intrusion and password management techniques to tackle such events.

PART-A
Answer any two questions (2 x 10Marks=20 Marks)

Q No	Questions	Marks	CO	BL
1.a)	Differentiate between active and passive attacks.	5		L2
b)	Discuss attacks on integrity. How it can be prevented?	5	CO1	L2
2	Discuss in detail about various security services	10		L2
3	Examine various security mechanisms in detail	10		L3

PART-B
Answer any two questions (2 x 10Marks=20 Marks)

| Q No	Questions	Marks	CO	BL
4	Explain in detail about Eulcidean algorithm . Using Euclidean algorithm compute the GCD of (88,220)	10		L3
5	Explain the properties of Group, Field and Ring .	10	CO2	L2
6 .a)	Analyse the concept of GF(2).	5		L4
b)	Explain the concept of inverse and identity elements for any operation in a group.	5		L2

PART-C
Answer any one question (1 x 10Marks=10 Marks)

Q No	Questions	Marks	CO	BL
7	Explain in detail about play fair cipher. Encrypt the plain text "Why Don't You ?" using th keyword "MONARCHY".	10	CO3	L3
8	Explain about different types of poly alphabetic ciphers with suitable examples.	10		L2

BL BLOOM'S LEVEL

L1	Level -1	Remenbering	Recalling from memory of previously learned material
L2	Level -2	Understanding	Explaining Ideas or Concepts
L3	Level -3 :	Applying	Using information in another familiar situation
L4	Level -4	Analyzing	Breaking information into part to explore understandings and relationships
L5	Level -5	Evaluating	Justify a decision or course of action
L6	Level -6	Creating	Generating new ideas, products or new ways of viewing
L6	Level -6	Creating	Generating new ideas, products or new ways of viewing
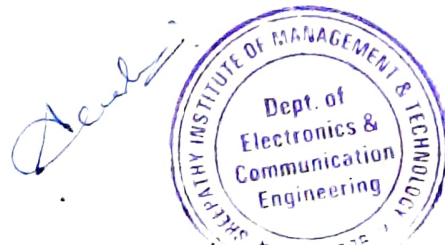
SREEPATHY INSTITUTE OF MANAGEMENT & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
FIRST SERIES TEST – FEB 2020

Duration: 2 Hrs   Max Marks : 50

CS 208 Principles of Database Design

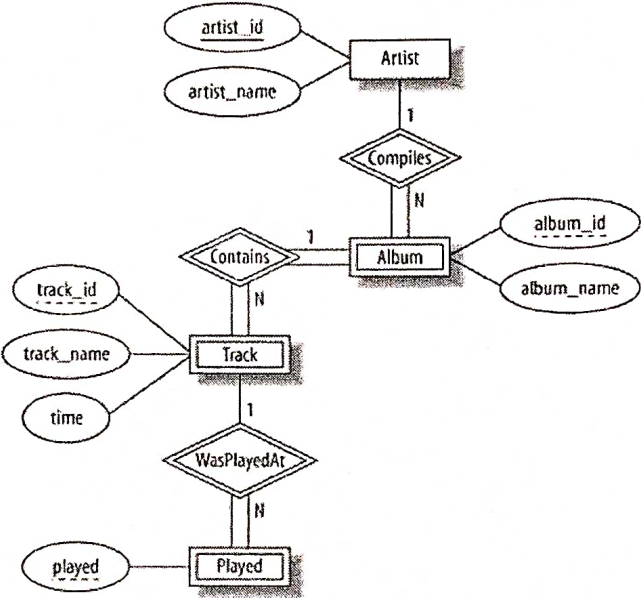| Course Outcomes (CO): Students will be able to	
1	To impart the basic understanding of the theory and applications of database management systems.
2	To know in detail about Relational Schema and Relational Algebra
3	To introduce and discuss the MySQL queries and the working of Database Management Syatems.
4	To introduce functional dependancy, normalisation in databases
5	To know the internal structure of database and Indexing
6	Transaction management and new trends in database systems

PART-A
Answer any two questions (2 x 10Marks=20 Marks)

Q No	Questions	Marks	CO	BL
1	A company has the following scenario: There are a set of salespersons. Some of them manage other salespersons. However, a salesperson cannot have more than one manager. A salesperson can be an agent for many customers. A customer is managed by exactly one salesperson. A customer can place any number of orders. An order can be placed by exactly one customer. Each order lists one or more items. An item may be listed in many orders. An item is assembled from different parts and parts can be common for many items. One or more employees assemble an item from parts. A supplier can supply different parts in certain quantities. A part may be supplied by different suppliers. (i) Identify and list entities, suitable attributes, primary keys, foreign keys and relationships to represent the scenario. (ii) Draw an ER diagram to model the scenario using min-max notation.	10	CO1	L3
2 a 2 b 2 c	What are the salient features of Database Systems? What is the role of parser and optimizer in database systems? How DML is different from DDL? Explain with suitable examples?	4 3 3		L1
3	With neat diagram explain the detailed architecture of database system	10		L2

PART-B
Answer any two questions (2 x 10Marks=20 Marks)

4	Study the tables given below and write relational algebra expressions for the queries that follow.
	 STUDENT(ROLLNO, NAME, AGE, GENDER, ADDRESS, ADVISOR)
	 COURSE(COURSEID, CNAME, CREDITS)
	 PROFESSOR(PROFID,PNAME, PHONE)
	 ENROLLMENT(ROLLNO, COURSEID, GRADE)
	 Primary keys are underlined. ADVISOR is a foreign key referring to PROFESSOR table. ROLLNO and COURSEID in ENROLLMENT are also foreign keys referring to THE primary keys with the same name.
	    (i) Names of female students
	    (ii) Names of male students along with adviser name
	    (iii) Roll Number and name of students who have not enrolled for any course.
		10		L1

5	The relational database schema below represents certain information about albums, songs in the albums and singers of those songs. Foreign keys are given the *same* name as primary keys for easy identification. ALBUMS(ALBUM#, ALBUM-NAME, PRODUCED-BY, YEAR) SONGS(SONG#, SONG-START, DURATION, ALBUM#) SUNGBY(ARITISTNAME, SONG#) In the context of the schema, write relational algebra expressions for the following queries: (a) Names of albums produced by 'HMV' in the year 2018. (b) Names of albums in which an artist with name, 'AVANTHIKA' sung. (c) Names of albumsin which *all* the artists have sung songs.	10 CO2	L3
6a	Use the standard synthesis procedure to generate the set of relations corresponding to the ER diagram below. Identify primary and foreign keys of the generated relations. 	5	L3
6 b	What is meant by referential integrity? How is it implemented using foreign key? Illustrate using a real example.	5	L1

PART-C
Answer any one question (1 x 10Marks=10 Marks)

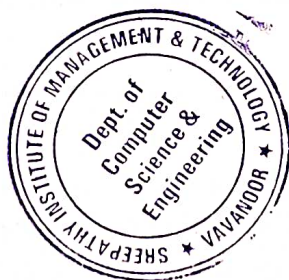|			
7a	Consider two tables STUDENT(ROLLNO,NAME,CLASS) and ENROLLMENT(ROLLNO,COURSENAME) where ROLLNO in ENROLLMENT is a foreign key referring to STUDENT. It is required that every time a STUDENT tuple is deleted, all the ENROLLMENT tuples referring to the deleted STUDENT tuple are also deleted. Write SQL statements to specify this foreign key requirement.	5	L3

				CO3
7b	Write any 5 queries each from Data Manipulation Language and Data Definition Language.			L3
8	Explain in detail about various set operations,views,triggers and aggregate functions in mySQL with a real scenario.		10	L2

BL   BLOOM'S LEVEL

L1	Level -1	Remenbering	Recalling from memory of previously learned material
L2	Level -2	Understanding	Explaining Ideas or Concepts
L3		Applying	Using information in another familiar situation
L4	Level -4	Analyzing	Breaking information into part to explore understandings and relationships
L5	Level -5	Evaluating	Justify a decision or course of action
L6	Level -6	Creating	Generating new ideas, products or new ways of viewing

SREEPATHY INSTITUTE OF MANAGEMENT & TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING
FIRST SERIES TEST – FEB 2020

Duration: 2 Hrs   Max Ma Max Marks: 50

CE374 AIR QUALITY MANAGEMENT			
Course Outcomes (CO): Students will be able to			
1	acquire knowledge about components of environment, history of air pollution, sources of air pollution and air pollutant types.		
2	realize about effect of air pollutants, indoor air pollution and green house effect.		
3	grasp mateorological aspects of air pollutant dispersion.		
4	learn about dispersion of air pollutants in the atmosphere.		
5	know about different methods adopted for air quality monitoring.		
6	learn anout different methods or devices adopted for control of air pollutants.		

PART-A
Answer any TWO questions (2x 10 Marks=20 Marks)

Q No	Questions	Marks	CO	BL
1	(a) Define air pollution. Enlist the normal composition of atmospheric air? (4 marks)	10	.	L1
	(b)Write a note on any one major air pollution episodes(6 marks)			L1
2	(a) Briefly explain the classification of air pollutants with examples. (6marks)	10	CO1	L2
	(b) Write a note on components of environment. (4 marks)			L1
3	(a) Write a note on various sources of air pollution. (5 marks)	10		L1
	(b) The air quality conditions of different Indian cities are worsening these days. What are the reasons? Discuss . (5 marks)			L2

PART-B
Answer any TWO questions (2 x 10 Marks=20 Marks)

Q No	Questions	Marks	CO	BL
4	(a) Write a short note on green house effect? Discuss its importance and problems. (5 marks)	10		L2
	(b) Explain the effect of any five air pollutants on the plant life. (5marks)			L2
5	(a) Discuss the effect of of particulate matter on human health. (6 marks)	10	CO2	L2
	(b) Write a short note on remedial measures for indoor air pollution (4marks)			L2

					L2
6	(a) Explain the effect of any five air pollutants on the health of human beings. (5marks)	10			
	(b) Give a brief description about the sources of indoor air pollution (5 marks)				L1

PART-C
Answer any ONE question (1 x 10Marks=10 Marks)

7	Define the term plume in air pollution? Enlist and explain the different types of plume behaviour with neat sketches?	10			L2
8	(a) Define the term lapse rate? Explain the different types of lapse rate in air pollution studies? (6 marks)	10	CO3	L2
	(b) What is meant by the term atmospheric inversion? Enlist types of inversion. Explain any one. (4marks)			L2

BL	BLOOM'S LEVEL		
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SUDHEER. K. V
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SREEPATHY INSTITUTE OF MANAGEMENT & TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING
FIRST SERIES TEST – FEB 2020

Duration: 2 Hrs   Max Marks : 50

ME402 DESIGN OF MACHINE ELEMENTS II

Course Outcomes (CO): Students will be able to	
1	Analysis and **design** different types of clutches and brakes
2	**Understand** the basics of bearings, types of bearing, lubrication system and **design** of bearings.
3	**Understand** the concept of gears and gear tooth failures and **design** of spur gear and helical gear
4	**Design** bevel and worm gear.
5	**Understand and design** flat belt, v belt and chains drives.
6	**Understand** basic knowledge in Connecting rod and Pressure vessels **design**.

PART-A
Answer any two questions (2 x 10Marks=20 Marks)

Q No	Questions	Marks	CO	BL
1	A differential band brake has a force of 220 N applied at the end of a lever as shown in Fig. The coefficient of friction between the band and the drum is 0.4. The angle of lap is 180°. Find : 1. The maximum and minimum force in the band when a clockwise torque of 450 N-m is applied to the drum; and 2. The maximum torque that the brake may sustain for counter clockwise rotation f the drum.	10	CO1	L4
2	A single plate clutch, effective on both sides, is required to transmit 25 kW at 3000 r.p.m. Determine the outer and inner diameters of frictional surface if the coefficient of friction is 0.255, ratio of diameters is 1.25 and the maximum pressure is not to exceed 0.1 N/mm2. Also, determine the axial thrust to be provided by springs. Assume the theory of uniform wear.	10		L4
3	A centrifugal clutch is to be designed to transmit 15 kW at 900 r.p.m. The shoes are four in number. The speed at which the engagement begins is 3/4th of the running speed. The inside radius of the pulley rim is 150 mm. The shoes are lined with Ferrodo for which the coefficient of friction may be taken as 0.25. Determine: 1. mass of the shoes, and 2. size of the shoes.	10		L5

PART-B
Answer any one question (1 x 15Marks=15 Marks)

4	A compressor running at 350 rpm is driven by a 120 kW motor running at 1400 rpm. The center distance is 400 mm and helix angle is 25°. The motor pinion is made of forged steel and the driven gear is cast steel. Design the gear using 20° FDI system	15	CO3	L5
5	Design a spur gear drive required to transmit 55 kW at 800 rpm of the pinion. The speed ratio is to be 3.2:1. The teeth are to be 20° full depth involute.	15		L5

PART-C
Answer any one question (1 x 15Marks=15 Marks)

6	Design a suitable worm gearing with the following details: Power = 3.75 kW, speed ratio = 27, pressure angle = 14.5°, center distance = 180 mm, worm speed = 1200 rpm. The material for the worm is hardened steel with design stress as 45 Mpa and that for worm wheel is phosphor bronze with a design stress of 52 MPa.	15	CO4	L5
7	A pair of straight bevel gears transmits 15 kW at 1250 rpm of 120 mm diameter pinion. The speed reduction is 3.5. Use 14.5° involute tooth system. The angle between the shaft axles is 90°. The pinion is made of case hardened alloy steel with allowable static stress of 343.34 MPa and gear is cast steel of 0.2%C heat treated with allowable static stress of 191.295 MPa. Determine module, fae width, number of teeth on pinion and gear. Suggest suitable surface hardness for the gear pair. Take service factor as 1.5 and assume teeth are generated.	15		L5

BL	BLOOM'S LEVEL		
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L2	Level -2	Understanding	Explaining Ideas or Concepts
L3	Level -3	Applying	Using information in another familiar situation
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CRECENTINE J KANNAMPADAM

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