Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: 19MCA2TH01

MCA - II Semester Regular Examinations, December-2020
DATABASE MANAGEMENT SYSTEMS

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.
Answering the question in Part-A is Compulsory & Four Questions should be answered from Part-B
All questions carry equal marks of 12.

PART-A

1. (a) List out DML commands
   (b) What is self join
   (c) What is cardinality ratio of a relationship set?
   (d)) Illustrate Join Dependency
   (e) What is Serializability
   (f) what are the operation on files

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a)) Illustrate the 3-tier schema architecture of DBMS
   (b) What is need for ER diagrams- Draw and explain E-R diagram of an Airline reservation system

3. (a)) What is join operation in relational algebra? Discuss in detail about variants of joins
   (b) List out SQL DATE and String functions with example

4. (a) Describe the referential Integrity constraints?
   (b) Explain BCNF and 4Nf with example.

5. (a) What is transaction? Briefly describe recovery algorithms.
   (b) Explain read-only, write-only & read-before-write protocols in serializability

6. (a) What is the difference between primary and secondary indexes.
   (b) Explain Tree based Indexing

7. (a) What is hash based indexing . Explain.
   (b) Differentiate Extendible vs. Linear Hashing techniques.

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Subject Code: 19MCA2TH02

MCA - II Semester Regular Examinations, December-2020

OBJECT ORIENTED PROGRAMMING

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.

Answering the question in Part-A is Compulsory & Four Questions should be answered from Part-B

All questions carry equal marks of 12.

PART-A

1. (a) What are the features of Object Oriented Programming Languages?
   (b) What is meant by scope and life time of a variable?
   (c) Define package?
   (d) What is the difference between multi threading and multitasking?
   (e) Write a short note on AWT?
   (f) Explain the concept of Applets?

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Briefly explain about classes and objects in Java?
   (b) Write a Java Program to find the sum of digits of a given number?

3. (a) Describe about different types of constructors?
   (b) Write a short note on 'this' keyword with an example?

4. (a) Describe the different forms of Inheritance?
   (b) Explain the usage of 'super' keyword?

5. (a) Explain the usage of try, catch, throw, throws and finally with an example?

6. (a) Briefly explain about the following layout managers
   (i) Border Layout
   (ii) Flow Layout
   (iii) Grid Layout

7. (a) Explain the Applet life cycle?
   (b) Write a short note on Tabbed panes and Scroll panes?

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Subject Code: 19MCA2TH03

MCA - II Semester Regular Examinations, December-2020
OPERATING SYSTEMS

Time: 3 hours

Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B.**
Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B
All questions carry equal marks of 12.

PART-A

1. (a) What are the services offered by an Operating System?
(b) Define Scheduling. What is the need of scheduling?
(c) Distinguish pre emptive and non pre emptive scheduling.
(d)Define semaphore.
(e)Differentiate page and segment.
(f)What are the goals of protection?

[2+2+2+2+2+2]

PART-B

4X 12 = 48

2. Define Operating System. Explain the types of Operating Systems in detail.

3. (a)Define process scheduling. Explain inter process communication, with an example.
(b)Explain different types of threaded libraries

4. Explain the following
(a) SJF (b) RR (c)Deadlock detection principle

5. Define synchronization. Explain critical section problem with an example in detail.

6.Explain the following
(a) Logical address Vs Physical address (b)File access methods   (c)File structure

7. (a)Explain disk scheduling algorithms in detail.
(b)Define threat. Explain different types of threats with a real time example.

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Subject Code: 19MCA2TH04

MCA - II Semester Regular Examinations, December-2020
OPERATIONS RESEARCH

Time: 3 hours   **Max Marks: 60**

Question Paper Consists of **Part-A** and **Part-B**.
Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B
All questions carry equal marks of 12.

PART-A

I.(a) Explain in brief about different phases in Operations Research?

(b) What is called the Primal problem in L.P.P?

(c) What is degeneracy ?

(d) Explain birth and death model ?

(e) Define saddle point and give one real example ?

(f) Describe the role of dummy activity in a network.   [2+2+2+2+2+2]

PART-B

4X 12 = 48

2. (a) Describe the stages of Development of Operations Research
   (b) Discuss the limitations of Operations Research.

3. (a) Formulate the following L.P.P and solve the problem by graphical method.
A manufacturer produces two types of models M_1 and M_2. Each M_1 model requires 4hours of grinding and 2 hours of polishing, where as each M_2 model requires 2 hours of grinding and 5 hours of polishing. The manufacturer has 2 grinders and 3 polishers. Each grinder works for 40 hours a week and each polisher works for 60 hours a week. Profit on an M_1 model is Rs.3 and on M_2 model is Rs.4. Whatever is produced in a week is sold in the market. How should the manufacturer allocate his production capacity to the two types of models so that he/she may make the maximum profit in a week?

   (b) Use the Simplex method to solve the following LP problem

   Maximize $Z=4x+3y+6z$

   Subject to $2x+3y+2 \le 440, 4x+3z \le 470, 2x+5y \le 430; x \ge 0, y \ge 0, z \ge 0$

4. (a) The Funny Toys Company has four men available for work on four separate jobs. Only one man can work on any one job. The cost of assigning each man to each job is given in the following table. The objective is to assign men to jobs in such a way that the total cost of assignment is minimum.

Person/Job	1	2	3	4
1	15	11	13	15
2	17	12	12	13
3	14	15	10	14
4	16	13	11	17

(b) Solve the following transportation problem.

					Supply
	21	16	25	13	11
	17	18	14	23	13
	33	27	18	41	19
Demand	6	10	12	15	43

5. (a) A TV repairman finds that the time spent on his job an exponential distribution with mean 30 minutes. He repairs sets in the in which they came in and the arrival of sets is approximately Poisson with an average rate of 10 per 8 hours a day. What is the repairman's expected idle time each day ? How many jobs are ahead of the average set just brought in ?

(b) In a railway marshalling yard, goods trains arrive at a rate of 30 trains per day. Assume that the inter arrival time follows an exponential distribution and the service time (the time taken to hump a train) distribution is also exponential with an average 36 minutes. Then find (i)The average number of trains in the queue. (ii)The probability that the queue size exceeds 10 (iii)Expected waiting time in the queue (iv)The probability that the number of trains in the system exceeds 10 (v)The average number of trains in the system

6. (a) Explain the dominance principles
(b) Using dominance principle,

		Playar B stratagies			
		I	II	III	IV
Playar A stratagies	1	1	7	3	4
	2	5	6	4	5
	3	7	2	0	3

7. (a) Explain PERT and CPM elaborately.

(b) Construct a network for the project whose activities and precedence relationships are give below:

Activities	A	B	C	D	E	F	G	H	I
ImmediatePredecessor	-	A	A	-	D	B, C, E	F	D	G, H

Subject Code: 19MCA2TH05

MCA - II Semester Regular Examinations, December-2020
ORGANIZATIONAL STRUCTURE AND PERSONNEL MANAGEMENT

Time: 3 hours   Max Marks: 60

Question Paper Consists of **Part-A** and **Part-B**.
Answering the question in **Part-A** is Compulsory & Four Questions should be answered from Part-B
All questions carry equal marks of 12.

PART-A

1. (a) List out principles of Scientific Management Theory.

   (b) Explain merits of formal organizations.

   (c) Describe various functions of Human Resource Management

   (d) Define Corporate Planning and list out various steps in Corporate Planning Process.

   (e) Examine Maslow's Theory of Motivation.

   (f) Explain applications of Benchmarking in Organizations.

                                                                          [2+2+2+2+2+2]

PART-B

                                                                          4X 12 = 48

2. (a) Define Management. Explain importance of Managerial Functions in executing business effectively.

   (b) Briefly discuss various roles and responsibilities of manager.

3. (a) Define Organizational Structure. Explain key characteristics of Organizational Structure.
   (b) Discuss Strengths and Weaknesses of Matrix Organizational Structure.

4. (a) List out any four differences between Training and Development.
      (b) Explain different methods of training followed in organizations. Suggest a suitable and effective training method for software employees.

5. (a) Elaborate steps in Environment Scanning Process.
   (b) Describe SWOT Analysis as a way to guide Internal Analysis with an example.

6. (a) Briefly discuss steps in Communication Process.
   (b) Critically examine various methods of communication followed in organizational hierarchies.

7. (a) Describe various steps for setting Human Resource Information System (HRIS) in organization.
   (b) Explain the role of Exit Interviews in improving employee performance.

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