# KGRL COLLEGE OF PG COURSES(AUTONOMOUS)

(Affliated to Adikavi Nannaya University)

Accredited NAAC with ‘B+’ Grade

# MCA-20201 II Semester

Computer Networks (Model Question Paper**)**

Time : 3 Hours

Max. Marks : 75

**SECTION – A ( 4X15=60 Marks)**

**Answer ALL Questions**

1. ( a) With a neat block diagram explain the TCP/IP reference model. List out the limitations

Of the model. [15]

(OR)

1. What are the functions of the physical layer?
2. Give the physical description, characteristics, and uses of all the guide transmission

|  |  |
| --- | --- |
| media. | [5+10] |
| 2 (a) Explain Sliding Window Protocol |  |
| (b) Differentiate Error detection and Correction Codes | [8+7] |
| (OR) |  |
| (c) Explain Link State Routing Protocol |  |
| (d) What are the methods of congestion control in datagram subnets | [10+5] |
| 3 (a) what is TCP protocol? How is connection management done by TCP? |  |
| (b) Explain how TCP controls congestion | [8+7] |
| (OR) |  |
| (c) Explain SMTP and MIME | [15] |
| 4(a) Compare the different network devices | [15] |
| (OR) |  |
| (b) Write brief notes on Mobile Adhoc Networks and Sensor networks | [15] |

**SECTION – B** **(5X3=15 Marks)**

**Answer any FIVE Questions**

5.

1. ATM Reference Model
2. Explain Frequency Division Multiplexing
3. Give the format of IPv4 header
4. IPv4 Address Classes

(e)What are the various timers used by TCP and what are their purposes?

1. Difference between TCP and UDP
2. Short Notes on Firewalls

(h) Wireless Access Points

# KGRL COLLEGE OF PG COURSES(AUTONOMOUS)

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MCA- 20202 II Semester

OBJECT ORIENTED PROGR AMMING THROUGH JAVA MODEL QUESTION PAPER

Time: 3 Hrs. Max Marks: 75M

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**SECTION- A (4 X 15 = 60 M)**

**Answer ALL Questions**

1. a) Explain about Principles of Object Oriented Languages. [15M]

(Or)

1. What is the purpose of constructor in Java programming [15M]

2. a) Define inheritance. What are the benefits of inheritance? What costs are associated

with inheritance? How to prevent a class from inheritance? [15M]

(Or)

b) Write a program to demonstrate hierarchical and multiple inheritance

using interfaces. [15M]

3. a) Explain in details about Thread. [15M]

(Or)

b) Discuss about Applet Life Cycle. [15M]

4 a) Write a program with nested try statements for handling exception. [15M]

(Or)

b) How to move/drag a component placed in Swing Container? Explain. [15M]

## SECTION– B (5X3=15Marks)

### Answer any FIVE Questions

5. ( a) Differentiate between print() and println() methods in Java.

( b) What are symbolic constants? Explain with examples.

(c) What are the methods available in the character streams?

(d) Write about Java features.

(e) What is the difference between error and an exception?

(f) What is synchronization and why is it important?

(g )What is the significance of Legacy class? Give example.

( h) Write about Threads

# KGRL COLLEGE OF PG COURSES(AUTONOMOUS)

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# MCA-20203 II Semester

DATA BASE MANAGEMENT SYSTEM

(Model Question Paper)

Time : 3 Hours Max. Marks: 75M

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**SECTION – A ( 4X15=60 Marks)**

**Answer ALL Questions**

1. a) .List various advantages of Data Base approach over Traditional File system [ 15M] approach.

(or)

b). What is ER Diagram? What are the symbols used in it? Design and Draw an ER diagram for a banking system.

a) Explain the different set operations used in SQL. [15M]

(or)

b) Discuss the Shadow Paging Recovery Technique .Under what circumstances does it not

require a log?

1. a). What are Multimedia Databases? How data is stored and indexed in Multimedia. [15M]

(or)

b.) Explain XML with the help of an example

.

1. a). What do you mean by Normalization? What do you mean by Multi-valued and Join Dependency. Also Explain 4th and 5th Normal forms with the help of examples. [15M]

(or)

b) Discus the architecture of Data Warehousing? What are the different challenges in maintaining these? Discus any two applications of Data Warehouses.

SECTION –B (5X3=15)

**Answer any FIVE Questions**

**5.**

* 1. What do you mean by a Data Base instance and a Data Base schema?
  2. What is DDL in SQL? List the different DDL commands used in SQL.
  3. Explain the Cartesian Product operation in Relational Algebra.
  4. What is a Database View and how does it help in Database Security?
  5. Differentiate between char and varchar2 data types in oracle.
  6. What do you mean by integrity of data? List any two integrity constraints.
  7. What is Two-Phase Locking?
  8. What is Data Farming?

# KGRL COLLEGE OF PG COURSES (AUTONOMOUS)

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MCA-20204 II -Semester

FORMAL LANGUAGE AND AUTOMATA THEORY

(Model Question Paper)

### Time: 3Hrs Max Marks: 75M

**SECTION – A ( 4X15=60 Marks)**

**Answer ALL Questions**

# 1. (a ) List and explain the steps involved in designing a finite state machine with an

# example.

# (or) [15M]

# ( b) Prove that all context free languages are not closed under intersection?

# 2 . ( a) Prove that complement of recursive language is recursive?

# (or) [15M]

# (b) Construct the regular grammar to generate the following Language

# L={ a2n-1 | n ≥1}.

# 

# (a) Construct an NFA equivalent to the regular expression (ab+aba)\*.

# (or) [15M]

# ( b) Construct Griebach Normal Form Equivalent to the context free grammar

# S->ASB/AB, A->a, B->b

# 4. (a) State and explain the differences between Moore and Mealy Machine.

# (or) [15M]

# (b) Design a Turing Machine to accept the set of all palindrome over {0,1}\*

# Draw the Trasition diagram for the same.

## SECTION– B (5X2=10Marks)

### Answer any FIVE Questions

# 5. a) List and explain the elements of Finite State System?

# b) Give an example of a context sensitive grammar but which is not context free?

# c) With the help of an example explain Non-Deterministic Automata with ε -moves?

# d) If a regular grammar G is given by S->aS/a, find DFA machine accepting L(G).

# e) List the applications of Context Free Grammar?

# f) Give an example to explain the concept of Undecidable Problem?

# g) predicate calculus

# h) NFA

# KGRL COLLEGE OF PG COURSES (AUTONOMOUS)

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MCA-20205 II -Semester

Data Mining Concepts and Techniques

(Model Question Paper)

Time: 3 Hours Max. Marks: 75M

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SECTION – A (4X15=60 Marks)

Answer ALL Questions

|  |  |
| --- | --- |
| 1. a) Explain with a neat diagram the three-tier architecture of a Data Warehouse | 7M |
| b) Explain the OLAP operations in a Multidimensional data. | 8M |
| Or |  |

1. Why do we pre-process data? Explain different techniques in data cleaning, integration

|  |  |
| --- | --- |
| and transformation | 15M |

1. a) Data Mining should be applicable to any kind of data repositories, including data

|  |  |
| --- | --- |
| streams. What are the different kinds of data on which mining can be applied? | 10M |
| b) Mention different issues in Data Mining. | 5M |
| Or |  |
| c) Explain in detail how the data is measured differently in statistical descriptions | 8M |
| d) Where can data mining be applied? Explain different domains of applications | 7M |
| 3. a) Explain FP-Growth Algorithm with an example. | 8M |
| b) Explain AOI Algorithm. | 7M |
| Or |  |
| c) Explain Apriori property and explain the algorithm associated with it | 8M |
| d) How to generate Closed and Max patterns | 7M |

1. a) What is the difference between classification and Prediction? How a decision tree is

|  |  |
| --- | --- |
| constructed | 10M |
| b) Explain Support Vector Machines concept | 5M |
| Or |  |

1. Explain Bayesian Classification Methods. How Classification by back propagation is

|  |  |
| --- | --- |
| Obtained | 7M |
| d) Explain k-means Clustering and compare that with k- medoids algorithm | 8M |

SECTION – B (5X3=15 Marks)

Answer any FIVE Questions

* 1. DBSCAN Algorithm
  2. Tree Pruning
  3. Concept Description.
  4. Frequent Item sets using vertical data format
  5. Multilevel Association Rules
  6. Data Visualization
  7. Similarity and Dissimilarity of data
  8. Data Cube Technology

# KGRL COLLEGE OF PG COURSES (AUTONOMOUS)

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# MCA-20206 II Semester

Artificial Intelligence and Expert Systems

( Model Question Paper**)**

Time : 3 Hours Max. Marks : 75M

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SECTION – A ( 4X15=60 Marks)

Answer ALL Questions

1. a) Describe any one informed search strategy and uninformed search strategy.

(OR) [15M]

b) Explain four basic kinds of agents that underlie almost all intelligent systems.

1. a) Explain how optimal strategies lead to optimal decisions in games.

(OR) [15M]

* 1. Describe resolution and unification

1. a) Explain different approaches to uncertain reasoning.

(OR) [15M]

* 1. Describe multi attribute utility functions

1. a) Explain the stages in the development of an expert system.

(OR) [15M]

b) Briefly explain the concept of neural networks.

SECTION – B (5X2=10 Marks)

Answer any FIVE Questions

5.

1. Define AI. What is Turing Test?
2. Specify the basic components of a problem.
3. Write a short notes on CSP.
4. Give the BNF of sentences in propositional logic.
5. Axioms of probability.
6. Axioms of utility theory.
7. Applications of expert systems
8. Frames

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