

CENTRAL UNIVERSITY OF HARYANA

Third Semester Term End Examinations January 2023

Programme: Master of Computer Application (MCA)

Session: 2022-23

Semester: Third

Max. Time: 3 Hours

Course Title: Artificial Intelligence and Expert System

Max. Marks: 70

Course Code: SBS CS 01 03 19 C 4004

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student are required to answer any two parts of each question. Each part carries seven marks.

Q 1.

(4X3.5=14)

- a) Differentiate between Informed Search and Uninformed Search.
- b) What are various applications of Artificial Intelligence.
- c) What do you mean by problem solving in Artificial Intelligence.
- d) Convert the following sentence according to Quantifiers.
“ All man drink tea” (use of Universal Quantifier)
“Some boys are intelligent” (use of Existential Quantifier)
- e) Explain the architecture of an Expert system.
- f) Explain various approaches and properties of knowledge representation.
- g) What is the importance of Natural Language in AI?

Q 2.

(2X7=14)

- a) Define the BAYE's Theorem. What is the probability that person has disease dengue with neck pain?

Given: 80 % of time dengue causes neck pain.

$P(\text{dengue}) = 1/30,000.$

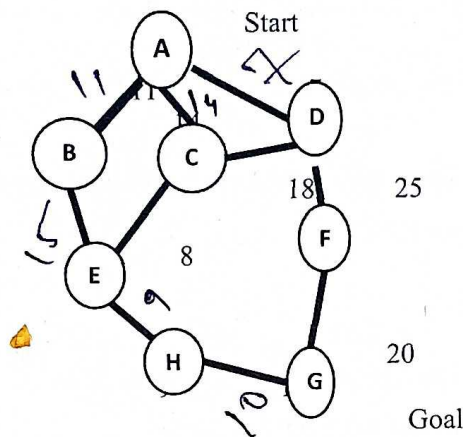
$P(\text{neck pain}) = .02$

- b) Discuss different properties of search algorithms.
- c) Explain in the detail Branch and Bound Algorithm with appropriate example.

Q3.

(2X7=14)

- a) Translate the Following into First Order Logic.
 - (i) Everyone who saves money earns interest.
 - (ii) If there is no interest, then nobody saves money.
- b) Write AO* algorithm? How AO* algorithm is used for problem reduction? Explain with appropriate example.
- c) Explain the Best First Search. Find the search steepest Best First Search for following graph.



Straight Line Distance

A	B	C	D	E	F	G	H
40	32	25	35	19	17	0	10

Q4.

(2X7=14)

- a) What are the various components of Expert Systems? Explain in detail.
- b) Explain the First Order Logic (FOL) in AI.
- c) Describe different type of knowledge required to build an expert system.

Q 5.

(2X7=14)

- a) Explain the process of Knowledge acquisition and validation.
- b) Explain the expert system architecture. And what are the components of Expert Systems.
- c) Describe in detail the following (any two)
 - (i) Problem reduction representation
 - (ii) Resolution principle
 - (iii) Decision Trees
 - (iv) Fuzzy Logic

Central University of Haryana

Term End Examination January 2023

Programme: Journalism and Mass Communication

Semester: III

Course Title: Film Appreciation

Course Code: SHSS DJMC 010324 GEC 3104

Session: 2022-2023

Maximum Time: 03 Hour

Maximum Marks: 70

Category: GEC

Please Note:

1. Section No. 1 has seven questions and students are required to answer any four. Each question carries three and half (3.5) Marks.
2. Section No. 2 to 5 have three Questions each and students are required to answer any two questions from each section. Each question carries Seven (7) Marks.

Section 1. Write short notes on:

- Q. a. Film as a medium of expression?
- Q. b. World Cinema.
- Q. c. What do you mean by OTT?
- Q. d. Write a short note on 'Mise-en-scene'.
- Q. e. Film Festivals.
- Q. f. Note on Regional cinema with example
- Q. g. Define CBFC.

Section 2.

- Q. a. Write a note on film genres?
- Q. b. Write comprehensively about the Semiotics in films.
- Q. c. Write an exclusive note on narrative forms of films?

Section 3.

- Q. a. Write an extensive note on 'National Cinema'
- Q. b. 'South Indian Cinema achieving a place in main stream cinema', comment.
- Q. c. Write a note on 'Film Movement in India' and its relevance.

Section 4.

- Q. a. What is 'Montage'? Explain in detail.
- Q. b. Write a comprehensive note on Diegetic elements in films?
- Q. c. Define different Camera shots in films?

Section 5.

- Q. a. Write down the review on a Hindi feature film of your choice.
- Q. b. What are the National Film Awards?
- Q. c. Write down a note on National film festival of your choice.

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations January 2023

Programme: MASTER OF COMPUTER APPLICATIONS

Session: 2022-23

Semester: III

Max. Time: 3 Hrs

Course Title: Compiler Design

Max. Marks: 70

Course Code: SBS CS 01 03 18 C 4004

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student are required to answer any two parts of each question. Each part carries seven marks.

Q 1. (4X3.5=14)

- a) List the various compiler construction tools.
- b) What does a semantic analyzer do?
- c) What are the problems with top down parsing?
- d) Discuss the working of LEX Tool.
- e) What are the benefits of intermediate code generation?
- f) Give the syntax-directed definition for if-else statement.
- g) What are the properties of optimizing compiler?

Q 2. (2X7=14)

- (a) What is Compiler? Explain various phases of compiler with the help of suitable example.
- (b) Describe the role of Lexical analyser with the help of suitable diagram.
- (c) What do you mean by the term tokens, patterns & lexemes? How Relational operator, Identifier, constants and white spaces are recognized by lexical analyzer?

Q3. (2X7=14)

- (a) What is predictive parsing? Explain pre-requisites of predictive parsing with suitable examples.
- (b) How to computer First & Follow sets in LL(I) parsing? Computer First & Follow sets for the following grammar:

$S \rightarrow ABC$

$A \rightarrow a \mid bbD$

$B \rightarrow a / \epsilon$

$C \rightarrow b / \epsilon$

$D \rightarrow c / \epsilon$

(c) Show that the following grammar LR(1) but not LALR(1) by constructing the parsing table-

$S \rightarrow Aa \mid bAc \mid Bc \mid bBa$

$A \rightarrow d$

$B \rightarrow d$

Q 4.

(2X7=14)

(a) Explain the Static allocation, Stack allocation & Heap allocation with appropriate example.

(b) What is symbol table? Describe the various data structure used for implementing the symbol table.

(c) Write Short note on:

(i) Type checking

(ii) Activation record and Activation Tree

Q 5.

(2X7=14)

(a) Explain quadruple, triple and indirect triple and translate the expression

$X = -(a + b) * (c + d) + (c + d + e)$ into quadruple, triple and indirect triple.

(b) Define code optimization? Explain peephole optimization in detail.

(c) Write an algorithm for construction of DAG and construct the DAG with the following three address code of dot program.

(1) $t1 := 4 * i$

(2) $t2 := a[t1]$

(3) $t3 := 4 * i$

(4) $t4 := b[t3]$

(5) $t5 := t2 * t4$

(6) $t6 := \text{prod} + t5$

(7) $\text{prod} := t6$

(8) $t7 := i + 1$

(9) $i := t7$

(10) if $i \leq 20$ go to (1).

CENTRAL UNIVERSITY OF HARYANA

Term End Examinations January, 2023

Programme: Master of Computer Application (MCA)

Session: 2021-22

Semester: Third

Max. Time: 3 Hours

Course Title: Information and Network Security

Max. Marks: 70

Course Code: SBS CS 01 03 20 C 4004

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student are required to answer any two parts of each question. Each part carries seven marks.

Q 1.

(4X3.5=14)

- a) Define how symmetric encryption system differ from asymmetric encryption system.
- b) Differentiate between Host-Based & Network Based IDS.
- c) Discuss the need of security in network communication?
- d) What are the challenges in establishment of secure networks?
- e) Distinguish between a denial-of-service attack and distributed denial-of-service attack?
- f) Use the Caesar Cipher to encrypt and decrypt the message "CENTRALUNIVERSITYOFHARYANA", and the key (shift) value of this message is 3.
- g) Why security of web is necessary to protect data from unauthorized user?

Q 2.

(2X7=14)

- a) Shows how you can encrypt plaintext 5 using the RSA public-key encryption algorithm. Use prime numbers 7 and 11 to generate the public and private keys.
- b) How Digital Signatures are related to Public Key Cryptographic Systems? Discuss the requirements to be fulfilled by digital signature application.
- c) Explain various cryptographics techniques with suitable examples.

Q3.

(2X7=14)

- a) Explain the Network Security Model. What are the Characteristics of information Security?
 - b) Discuss various types of intrusions possible in a network system. What are the approaches used for detection of the intrusions?
 - c) Discuss different types of Denial of Service attack along with defense mechanism.
- Di Handwritten*

Q 4.

(2X7=14)

a) Suppose that two parties A and B wish to set up a common secret key (D-H Key) between themselves using the Diffie Hellman key exchange technique. They agree on 7 as the modulus (q) and 5 as the primitive root (P). Party A chooses 3 and party B chooses 4 as their respective secrets. Their D-H key is ?

b) Explain the NIST Cyber Security Framework.

c) Explain the Algorithms for public key encryption – RSA with suitable example.

Q 5.

(2X7=14)

a) Discuss various types of Firewalls at different layers TCP/IP stack along with their advantages and disadvantages.

b) Define the Caesar Cipher Encryption and Decryption with suitable example.

c) Write short notes on any four of the following:

A) Network security tools,

C) Botnets,

E) Dealing with unwanted traffic

B) Rootkits,

D) Key Loggers,

F) TCP/IP security issues

Programme: Master of Computer Application (MCA)

Semester: 3rd

Course Title: Artificial Intelligence and Expert System

Course Code: SBS CS 01 03 19 C 4004

Session: 2021-22

Max. Time: 1 Hours

Max. Marks: 20

Instructions: Students are required to answer any four questions.

1. Define the BAYE's Theorem. What is the probability that person has disease dengue with neck pain?

Given: 80 % of time dengue causes neck pain.

$P(\text{dengue}) = 1/30,000.$

$P(\text{neck pain}) = .02.$

2. What is Fuzzy logic? Explain with example.

3. State and explain theorem of Genetics Algorithm.

4. Explain the expert system architecture. And what are the components of Expert Systems.

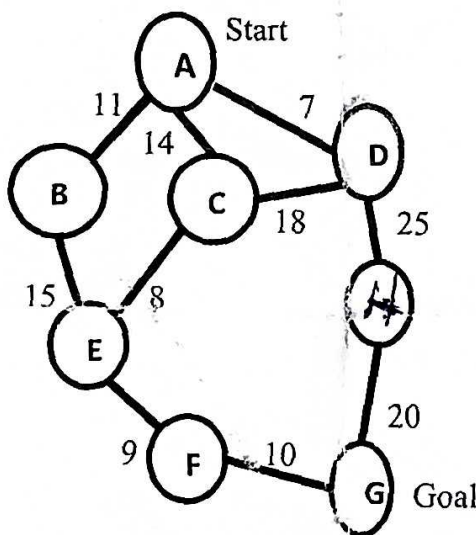
5. What are the stages of ES Development, and explain the ES Systems applications.

Programme: Master of Computer Application (MCA)
 Semester: 3rd
 Course Title: Artificial Intelligence and Expert System
 Course Code: SBS CS 01 03 19 C 4004

Session: 2021-22
 Max. Time: 1 Hours
 Max. Marks: 20

Instructions: Students are required to answer any four. Each part carries four Marks.

1. Explain in the detail Branch and Bound Algorithm with suitable example.
2. Explain in detail about Breadth First Search algorithm with suitable example.
3. Translate the Following into First Order Logic.
 - (i) Everyone who saves money earns interest.
 - (ii) If there is no interest, then nobody saves money.
4. Describe in detail the following (any two)
 - (i) Problem reduction representation
 - (ii) Resolution principle
 - (iii) Informed search and uninformed search
5. Explain the Best First Search. Find the search stepest Best First Search for following graph.



A < B < D
 C < D < B

Straight Line Distance

A	B	C	D	E	F	G	H
40	32	25	35	19	17	0	10

6. What is Artificial Intelligence? What are the various applications of Artificial Intelligence.
7. What is least privilege? Advantages of least privileges.

DFS with example.

CENTRAL UNIVERSITY OF HARYANA, MAHENDERGARH (HR)
Sessional Test : II

Programme: Master of Computer Application(MCA)
Semester: 3rd Semester
Course Title: Internet and Java Programming
Course Code: SBS CS 01 03 21 C 4004

Session: 2022-23
Max. Time: 1 Hrs
Max. Marks: 20

Note: Attempt any two by selecting one from each unit.

Unit: IV

Question no 1:

- a) Explain exception how to define a custom exception by writing a program. (5 Marks)
- b) Discuss the output of following: (5 Marks)
- i. Event class is defined in which of these libraries?
a) ~~java.io~~
b) java.lang
c) java.net
d) java.util
 - ii. Which of these methods are used to register a keyboard event listener?
a) KeyListener()
b) addKistener()
c) ~~addKeyListener()~~
d) eventKeyboardListener()
 - iii. What is the valid syntax for synchronized blocks to get the lock of the current object?
a) ~~synchronized(this)~~
b) synchronized(super)
c) synchronized(Test.java)
d) None of these
 - iv. What will be the output of the following Java program?

```
class exception_handling
{
    public static void main(String args[])
    {
        try
        {
            System.out.print("Hello" + " " + 1 / 0);
        }
        catch(ArithmeticException e)
        {
            System.out.print("World");
        }
    }
}
```

- a) Hello
b) World

Question no 2:

- a) Explain different types of variables along with their initial values with the help of an example. (5 Marks)
- b) Elaborate how constructor overloading is done with the help of a proper example. (5 Marks)

Unit: III

Question no 3:

- a) Discuss data hiding concept by giving a suitable example.
- b) Explain interface implementation by creating interface references?

Question no 4:

- a) Differentiate between `this()` and `super()` along with an example.
- b) Explain how abstract methods are declared by writing a program.

CENTRAL UNIVERSITY OF HARYANA
Sessional Test : IInd Jan 2023

Programme: Master of Computer Application(MCA)
Semester: 3rd
Course Title: Data Warehousing and Data Mining
Course Code: SBS CS 01 03 13 E 3003

Session: 2023
Max. Time: 1 Hrs
Max. Marks: 20

Attempt any two by selecting one from each unit.

Unit: IIIrd

Question no 1: Find out the correlation between height of mothers and height of daughters 10

Height of mother (in cm)	160	162	163	164	165	167	168
Height of daughter (in cm)	150	152	148	149	154	160	165

OR

Question no 2: Find the "Support" and "Confidence" between Milk and Bread, Milk and Coffee, Bread and Coffee , Milk, Cookies 10

Transaction Id	Transaction Time	Item Bought
201	6:00 am	Milk, Cookies , Bread
202	7:00am	Milk , Juice , Coffee
203	8:56pm	Bread, Eggs , Milk
204	9:47pm	Bread, Coffee

215
21
175
1/5

Unit: IVth

Question no 3: Write the techniques to improve Classification Accuracy 10

OR

Question no 4: Discuss the difference between clustering and classification also write the example of rule based classification. 10

CENTRAL UNIVERSITY OF HARYANA, MAHENDERGARH (HR)

Sessional Test : I

Programme: Master of Computer Application(MCA)

Semester: 3rd Semester

Course Title: Internet and Java Programming

Course Code: SBS CS 01 03 21 C 4004

Session: 2022-23

Max. Time: 1 Hrs

Max. Marks: 20

Note: Attempt any two by selecting one from each unit.

Unit: II

Question no 1:

- a) Discuss the output of the following programs: (5x1=5 marks)
- Which of the below is invalid identifier with the main method?
 - public
 - static
 - private
 - final
 - Identify the modifier which cannot be used for constructor.
 - public
 - protected
 - private
 - static
 - Which of the following is an incorrect statement about interfaces?
 - Interfaces specifies what class must do but not how it does
 - Interfaces are specified public if they are to be accessed by any code in the program
 - All variables in interface are implicitly final and static
 - All variables are static and methods are public if interface is defined public
 - Identify the correct way of declaring constructor.
Public class Solution {}
 - Solution () {}
 - public Solution () {}
 - Solution (void) {}
 - Both a and b
 - Which component is responsible for converting byte code into machine specific code?
 - JVM
 - JDK
 - JIT
 - JRE
- b) Explain static blocks by giving a suitable example. (5 marks)

Question no 2:

- a) Explain different types of variables along with their initial values with the help of an example. (5 Marks)
- b) Elaborate how constructor overloading is done with the help of a proper example. (5 Marks)

Unit: III

Question no 3:

- a) Discuss data hiding concept by giving a suitable example.
- b) Explain interface implementation by creating interface references?

Question no 4:

- a) Differentiate between this() and super() along with an example.
- b) Explain how abstract methods are declared by writing a program.

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CENTRAL UNIVERSITY OF HARYANA

End Semester Examinations January 2023

Programme: MCA

Max. Time: 3 Hours

Semester: Third

Session: 2022-23

Course Title: Data Warehousing and Data Mining

Max. Marks: 70

Course Code: SBS CS 01 03 13 E 3003

Instructions:

1. Question no. 1 has seven parts and students need to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student need to answer any two parts of each question. Each part carries seven marks.

Q 1.

(4X3.5=14)

- a) What are the various data warehousing components?
- b) Discuss the Knowledge Discovery Process.
- c) What is "Data Dissimilarity" (M)
- d) Define "Data Objects"
- e) Discuss the various type of correlation.
- f) Differentiate between Associate and correlations.
- g) What is confusion matrix? How it is related with accuracy?

Unit: I

Q 2.

(2X7=14)

- a) Describe the various steps of data warehouse building.
- b) Write the difference between online analytical processing (OLAP) and online transaction processing (OLTP) in detail.
- c) Explain the multidimensional data model by using the suitable example.

Unit: II

Q3.

(2X7=14)

- a) What is data Visualization? Discuss the tools used for data visualization.
- b) Write the short note on following:
 - Data Preprocessing
 - Cleaning
 - Integration
 - Reduction & Transformation
- c) Describe following:
 - Statistical description of Data
 - Data Mining Techniques

Unit: III

Q 4.

(2X7=14)

- a) Calculate the co-efficient of correlation (r) between age of cars and annual maintenance cost by using Karl Pearson's method and comment.

Age of cars in years	2	4	6	7	8	10	12
Annual Maintenance cost in Rs.	1600	1500	1800	1900	1700	2100	2000

- b) Find the "Support" and "Confidence" between Bread and Cookies, Milk and Juice, Cookies and Coffee, Milk and Eggs with the help of following example.

Transaction Id	Transaction Time	Item Bought
101	6:10 am	Milk, Bread, Cookies, Juice
102	7:38am	Milk, Juice
103	8:00pm	Milk, Eggs
104	8:47pm	Bread, Cookies, Coffee

- c) Explain the following:
- Pattern Evaluation Methods
 - Classification using Frequent Patterns

Unit: IV

Q 5.

(2X7=14)

- a) What is Cluster analysis? Explain Partitioning, Hierarchical and Density Based Methods.
- b) Explain the term "Classification" by taking the example of "Rule Based Classification"
- c) Discuss the following:
- Techniques to improve Classification Accuracy.
 - Back Propagation.

CENTRAL UNIVERSITY OF HARYANA

First Semester Term End Examinations Nov 2022

Programme: MASTER OF COMPUTER APPLICATIONS

Session: 2022-23

Semester: III

Max. Time: 1 Hours

Course Title: Compiler Design

Max. Marks: 20

Course Code: SBS CS 01 03 18 C 4004

Q 1.

(2x5=10)

1. Task of the lexical analysis

- (A) To parse the source program into the basic elements or tokens of the language
(B) To build a literal table and an identifier table
(C) To build a uniform symbol table
(D) All of these

2. Output file of the Lex is is the input file is Myfile ?

(A) Myfile.e

(B) Myfile.yy.c

(C) Myfile.lex

(D) Myfile.obj

3. The grammar $S \rightarrow a S a | b S | c$ is

(A) LL(1) but not LR(1)

(C) Both LL(1) and LR(1)

(B) LR(1) but not LR(1)

(D) Neither LL(1) nor LR(1)

4. In operator precedence parsing, precedence relations are defined

(A) For all pair of non terminals

(B) For all pair of terminals

(C) To delimit the handle

(D) only for a certain pair of terminals

5. The grammar 'G1'

$S \rightarrow 0S0 | 1S1 | 0 | 1 | \epsilon$ and the grammar 'G2' is

$S \rightarrow aS | aSb | X$ and $X \rightarrow Xa | a$

Which is the correct statement?

(A) G1 is ambiguous, G2 is unambiguous

(B) G1 is unambiguous, G2 is ambiguous

(C) Both G1 and G2 are ambiguous

(D) Both G1 and G2 are unambiguous

Q 2.

(10X1=10)

Explain various phases of compiler with the help of suitable example.

OR

Construct LL (1) parsing table for the grammar-

$S \rightarrow L = R$

$S \rightarrow R$

$L \rightarrow * R$

$L \rightarrow id$

$R \rightarrow L$

Programme: Master of Computer Application (MCA)

Semester: 3rd

Course Title: Information and Network Security

Course Code:

Session: 2021-22

Max. Time: 1 Hours

Max. Marks: 20

Instructions: Students are required to answer any four. Each part carries Two and half Marks.

Attempt Any Four Questions.

- ~~1.A.~~ Define the Caesar Cipher Encryption and Decryption with suitable example.
- ~~1.B.~~ What is NIST Cyber Security Framework.
- ~~2.A.~~ Distinguish between Active attacks and Passive attacks on computer networks.
- ~~2.B.~~ Describe the Network Security Model.
- ~~3.A.~~ Explain Stream Cipher with Example and Block Cipher.
- ~~3.B.~~ Show how symmetric encryption systems differ from asymmetric encryption system.
- ~~4.A.~~ What is an information system? Discuss. How does the use of internet by organizations support their business processes and activities?
- ~~4.B.~~ What is access Control ? Define the types of Access Control. Also explain the Access Control Policies or Models.
- ~~5.A.~~ Discuss various types of intrusions possible in a network systems. What are the approaches used for detection of the intrusions?
- ~~5.B.~~ Explain the Algorithms for public key encryption – RSA with suitable example.

Programme: Master of Computer Applications(MCA)
Semester: III
Course Title: Internet and Java Programming
Course Code: SBS CS 01 03 21 C 4004

Instructions:

1. Question no. 1 has seven parts and students are required to answer any four. Each part carries three and half Marks.
2. Question no. 2 to 5 have three parts and student are required to answer any two parts of each question. Each part carries seven marks.

(4X3.5=14)

Q1.

- a) Define URL class and its methods with the help of an example.
- b) Discuss the concept of Sockets at transport layer of TCP/IP Model.
- c) Discuss in detail the output of the following program:

```
public class Addtion Byte
{
    public static void main(String[] args)
    {
        byte a = 30;
        byte b = 40;
        byte c = a + b;
        System.out.println("The c variable Value after Addition is : " + c);
    }
}
```

- d) Discuss in detail the output of the following program:

In the following code, choose 3 valid data-type attributes/qualifiers among final, static, native, public, private, abstract, and protected

```
public interface Status
```

```
{
```

```
/* insert qualifier here */ int MY_VALUE = 10;
```

- e) Explain how interface references can be created by writing a program.
- f) Differentiate between throw and throws keywords with appropriate example.
- g) Discuss the differences between Java AWT and Java Swing.

Q 2.

(2X7=14)

- a) Explain Client-Server communication by writing a suitable program in JAVA.
- b) Explain RARP protocol with the help of suitable example.
- c) Discuss using program how reliable communication is done by using TCP/IP protocol.

Q3.

(2X7=14)

- a) Discuss architecture of Java in Virtual Machine.
- b) Demonstrate Multi-dimensional array with the help of suitable example.
- c) We have to calculate the area of a rectangle, a square and a circle. Create an abstract class 'Shape' with three abstract methods namely 'RectangleArea' taking two parameters, 'SquareArea' and 'CircleArea' taking one parameter each. The parameters of 'RectangleArea' are its length and breadth, that of 'SquareArea' is its side and that of 'CircleArea' is its radius. Now create another class 'Area' containing all the three methods 'RectangleArea', 'SquareArea' and 'CircleArea' for printing the area of rectangle, square and circle respectively. Create an object of class 'Area' and call all the three methods.

Q 4.

(2X7=14)

- a) What is method overriding? Discuss any two rules from the following for method overriding with example
 - i. If the super-class overridden method does not throw an exception, subclass overriding method can only throws the unchecked exception
 - ii. The overriding method must have same return type
 - iii. Overriding abstract methods
- b) How constructor chaining is done using this keyword? Explain with suitable example.
- c) Discuss Dynamic Method Lookup with a suitable program in JAVA.

Q 5.

(2X7=14)

- a) Discuss checked and unchecked exceptions in detail.
- b) Explain with example the concept of multithreading.
- c) Write a Java Swing program having following functions:
 - i. Create a frame using association inside constructor
 - ii. A button with label "Click Me".
 - iii. A Textfield in which the text "Java Swing" appears as we click on button.