

Seat
No.

**M.C.A. (Semester – I) (CBCS) Examination Oct/Nov-2019
Science**

INTRODUCTION TO COMPUTERS

Day & Date: Saturday, 09-11-2019
Time: 08:00 AM To 10:30 AM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below. 14

- 1) A byte consists of _____.
 - a) One bit
 - b) Four bit
 - c) Eight bit
 - d) Sixteen bit
- 2) What is required when more than one person uses a central computer at the same time?
 - a) Light pen
 - b) Mouse
 - c) Digitizer
 - d) Terminal
- 3) BCD is _____.
 - a) Binary Coded Decimal
 - b) Bit Coded Decimal
 - c) Binary Coded Digit
 - d) Bit Coded Digit
- 4) In order to tell Excel that we are entering a formula in cell, we must begin with an operator such as _____.
 - a) \$
 - b) @
 - c) +
 - d) =
- 5) What is another name of Personal Computer?
 - a) Micro-Computer
 - b) Private Computer
 - c) Distinctive Computer
 - d) Individual Computer
- 6) The brain of any computer system is
 - a) ALU
 - b) Memory
 - c) CPU
 - d) Control unit
- 7) PDA stands for?
 - a) Personal Digital Applications
 - b) Private Digital Applications
 - c) Personal Digital Assistants
 - d) Private Digital Assistants
- 8) Unix Operating System is an _____.
 - a) Multi User Operating System
 - b) Time Sharing Operating System
 - c) Multi Tasking Operating System
 - d) All of these
- 9) The _____ is the physical path over which a message travels.
 - a) Path
 - b) Medium
 - c) Protocol
 - d) Route
- 10) A computer translator is best described as _____.
 - a) application software
 - b) system software
 - c) hardware
 - d) window

- 11) Initial work on internet was done in operating system known as _____.
 - a) UNIX
 - b) LINUX
 - c) Mac OS
 - d) DOS
- 12) Which is not a font style?
 - a) Bold
 - b) Superscript
 - c) Italic
 - d) Regular
- 13) Background color on a document is not visible in?
 - a) Web Layout View
 - b) Print Preview
 - c) Reading View
 - d) Print Layout view
- 14) Which is the core of the operating system?
 - a) Shell
 - b) Kernel
 - c) Commands
 - d) Script

Q.2 A) Answer the following questions. (Any Four) 08

- 1) List out the various components of computer system.
- 2) EBCDIC stands for?
- 3) Define Compiler.
- 4) Define Computer network.
- 5) Write features of Microsoft Excel.

B) Write notes. (Any Two) 06

- 1) Software and types of software
- 2) VDU
- 3) Internet with its usage

Q.3 A) Answer the following questions. (Any Two) 08

- 1) Explain Decimal and Hexadecimal number system with example.
- 2) Explain Architecture of computer with suitable block diagram.
- 3) Describe Linux Operating System.

B) Answer the following questions. (Any One) 06

- 1) Explain types of network with example.
- 2) Describe generations of computers.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) Define Internal and External DOS Commands with example.
- 2) Explain Machine and Assembly language with example.
- 3) Explain 1's and 2's complement with example.

B) Answer the following questions. (Any One) 04

- 1) Explain Windows operating system.
- 2) List out various Linux commands with example.

Q.5 Answer the following questions. (Any Two) 14

- 1) Define Computer. Explain various types of Computers.
- 2) Define Operating system. What are the services provided by Operating System?
- 3) Write features of Microsoft Office.

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M.C.A. (Semester - II) (CBCS) Examination Oct/Nov-2019
Science
SOFTWARE ENGINEERING

Day & Date: Thursday, 07-11-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) Which of the following is not a user interface design process?
 - a) User, task, and environment analysis and modelling
 - b) Interface design
 - c) Knowledgeable, frequent users
 - d) Interface validation
- 2) A software might allow a user to interact via _____.
 - a) Keyboard commands
 - b) Mouse movement
 - c) Voice recognition commands
 - d) All of the mentioned
- 3) What incorporates data, architectural, interface, and procedural representations of the software?
 - a) design model
 - b) user's model
 - c) mental image
 - d) system image
- 4) What is the first step of requirement elicitation?
 - a) Identifying Stakeholder
 - b) Listing out Requirements
 - c) Requirements Gathering
 - d) All of the mentioned
- 5) Why is Requirements Elicitation a difficult task?
 - a) Problem of scope
 - b) Problem of understanding
 - c) Problem of volatility
 - d) All of the mentioned
- 6) Which of the following property does not correspond to a good Software Requirements Specification (SRS)?
 - a) Verifiable
 - b) Ambiguous
 - c) Complete
 - d) Traceable
- 7) Which of the following statements about SRS is/are true?
 - i) SRS is written by customer
 - ii) SRS is written by a developer
 - iii) SRS serves as a contract between customer and developer
 - a) Only i is true
 - b) Both ii and iii are true
 - c) All are true
 - d) None of the mentioned
- 8) Which of the following is not included in SRS?
 - a) Performance
 - b) Functionality
 - c) Design solutions
 - d) External Interfaces
- 9) Who designs and implement database structures?
 - a) Programmers
 - b) Project managers
 - c) Technical writers
 - d) Database administrators

- 10) Which of the following is/are White box technique?
 - a) Statement Testing
 - b) Decision Testing
 - c) Condition Coverage
 - d) All of the mentioned
- 11) Boundary value analysis belongs to?
 - a) White Box Testing
 - b) Black Box Testing
 - c) White Box & Black Box Testing
 - d) None of the mentioned
- 12) Alpha testing is done at
 - a) Developer's end
 - b) User's end
 - c) Developer's & User's end
 - d) None of the mentioned
- 13) The testing in which code is checked
 - a) Black box testing
 - b) White box testing
 - c) Red box testing
 - d) Green box testing
- 14) Testing done without planning and Documentation is called
 - a) Unit testing
 - b) Regression testing
 - c) Adhoc testing
 - d) None of the mentioned

Q.2 A) Answer the following questions. (Any Four) 08

- 1) Define Object.
- 2) What is Function point?
- 3) What is Beta Testing?
- 4) Define Software Metrics.
- 5) What is data dictionary.

B) Write Notes. (Any Two) 06

- 1) Prototype Model
- 2) Boundary Value Analysis
- 3) Software Requirements Specification

Q.3 A) Answer the following questions. (Any Two) 08

- 1) What is product Design? Explain in details.
- 2) Differentiate between Waterfall Model and Spiral Model.
- 3) Describe Top down Versus Bottom Up approach for Software Design.

B) Answer the following questions. (Any One) 06

- 1) Explain object oriented concepts of software engineering in detail.
- 2) Explain different communication techniques for software requirement analysis.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) Explain why there is a need for requirements analysis.
- 2) Explain architectural design with suitable example.
- 3) What are the causes for software crises? Explain.

B) Answer the following questions. (Any One) 04

- 1) Explain the term Refactoring in Software Design.
- 2) What do you mean by Abstraction? Explain with example.

Q.5 Answer the following questions. (Any Two) 14

- 1) Consider your own project and explain the SDLC phases associated with that in details.
- 2) Describe the white-box testing method and explain how it differs from black box testing method.
- 3) What is SQA? Explain different activities associated with SQA.

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M.C.A. (Semester – III) (CBCS) Examination Oct/Nov-2019
Science
SYSTEM SOFTWARE

Day & Date: Saturday, 09-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below: 14

- 1) The output of lexical analyzer is _____.
 a) A set of regular expressions b) Syntax Tree
 c) Set of Tokens d) String Character
- 2) Which concept of grammar is used in the compiler?
 a) Lexical analysis b) Parser
 c) Code generation d) Code optimization
- 3) Assembler is a machine dependent, because of _____.
 a) Argument list array b) Macro definition table
 c) Pseudo operation table d) Mnemonics operation table
- 4) The translator used by second generation languages is _____.
 a) assembler b) Interpreter
 c) Compiler d) Linker
- 5) Load address for the first word of the program is called _____.
 a) Linker address origin b) Load address origin
 c) Phase library d) Absolute library
- 6) A processor _____.
 a) Is a sequence of instructions
 b) Is the device where information is stored
 c) Is a device that performs a sequence of operations specified by instructions in memory
 d) None of these.
- 7) Pentium Pro processor is uses _____.
 a) RISC approach b) CISC approach
 c) Both a) and b) d) None of these
- 8) Input of Lex is _____.
 a) Set to regular expression b) Statement
 c) Numeric data d) ASCII data
- 9) Which device can understand the difference data and programs?
 a) ALU b) Registers
 c) Motherboard d) Microprocessor
- 10) In an absolute loading scheme, which loader function is accomplished by programmer?
 a) Linking b) Allocation
 c) Both (a) and (b) d) Reallocation

- 11) Assembler is a program that _____.
 - a) Places programs into memory and prepares them for execution
 - b) Automates the translation of assembly language into machine language
 - c) accepts a program written in a high level language and produces an object program
 - d) None of these
- 12) In operator precedence parsing, precedence relations are defined _____.
 - a) to delimit the handle
 - b) for all pair of terminals
 - c) for all pair of non-terminals
 - d) None of these
- 13) A Lex compiler generates _____.
 - a) Lex object code
 - b) Transition code
 - c) C Tokens
 - d) None of these
- 14) Which of the following software tool is parser generator?
 - a) Lex
 - b) Yaac
 - c) Both a) and b)
 - d) None of these

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) What is load time address?
 - 2) What is assembly language?
 - 3) What is Interpreter?
 - 4) What are compiler design options?
 - 5) Define assembler directive.
- B) Write short. (Any Two) 06**
- 1) RISC machines
 - 2) Absolute loader
 - 3) Linkage editor
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Differentiate CISC and RISC computers.
 - 2) What is forward reference problem?
 - 3) What is relocation? How it is performed?
- B) Answer the following questions. (Any One) 06**
- 1) Define and Explain data structure used in Assembler.
 - 2) What are the advantages and disadvantages of p-code compilers?
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Explain UltraSPARC architecture for RISC machine.
 - 2) What are macro processor design options?
 - 3) Explain different types of loader in detail.
- B) Answer the following questions. (Any One) 04**
- 1) What is program linking? Explain in detail.
 - 2) Explain MS-DOS linker.
- Q.5 Answer the following questions. (Any Two) 14**
- a) What is macro preprocessing? Design algorithm for one macro preprocessor.
 - b) Explain analysis and synthesis phases of a compiler.
 - c) What is system software? Differentiate system software with application software.

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M.C.A. (Semester – III) (CBCS) Examination Oct/Nov-2019
Science
DBMS

Day & Date: Monday, 11-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below. 14

- 1) The number of entities to which another entity can be associated via a relationship set is expressed as _____.
 - a) Entity
 - b) Cardinality
 - c) Schema
 - d) Attributes
- 2) Manager salary details are hidden from the employee table. This is _____.
 - a) Conceptual level data hiding.
 - b) External level data hiding.
 - c) Physical level data hiding.
 - d) None of these
- 3) Rollback of transactions is normally used to _____.
 - a) Recovers from transaction failure.
 - b) Updates the transaction.
 - c) Retrieves old records.
 - d) Repeats a transaction.
- 4) Which of the following constitutes a basic set of operations for manipulating relational data?
 - a) Predicate calculus
 - b) Relational calculus
 - c) Relational algebra
 - d) SQL
- 5) ALTER TABLE in SQL can be used to _____.
 - a) Add an attribute
 - b) Delete an attribute
 - c) Alter the default values of an attribute
 - d) All of the above
- 6) A table can have only one _____.
 - a) Secondary key
 - b) Alternate key
 - c) Unique key
 - d) Primary key
- 7) Relations produced from an E-R model will always be _____.
 - a) First normal form
 - b) Second normal form
 - c) Third normal form
 - d) Fourth normal form
- 8) A super key is a set of one or more attributes that taken collectively, allow us _____.
 - a) To identify uniquely an entity in the entity set.
 - b) To make the key most powerful for faster retrieval.
 - c) To increase effectiveness of database access.
 - d) None of the above.

- 9) A relation is in _____ if an attribute of a composite key is dependent on an attribute of another composite key.
 - a) 2NF
 - b) 3NF
 - c) BCNF
 - d) 1NF
- 10) In a relational database a referential integrity constraint can be specified with the help of _____.
 - a) Primary key
 - b) Foreign key
 - c) Secondary key
 - d) None of the above
- 11) CREATE, ALTER commands are _____ commands.
 - a) DDL
 - b) DML
 - c) DCL
 - d) Both (b) and (c)
- 12) _____ specifies a search condition for a group or an aggregate.
 - a) GROUP BY Clause
 - b) HAVING Clause
 - c) FROM Clause
 - d) WHERE Clause
- 13) What are the different events in Triggers?
 - a) Define, Create
 - b) Drop, Comment
 - c) Insert, Update, Delete
 - d) Select, Commit
- 14) A _____ is a standard way of organizing information into accessible parts.
 - a) Logical schema
 - b) Conceptual schema
 - c) External view
 - d) Physical schema

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) What is primary key?
 - 2) Define database.
 - 3) What is functional dependency?
 - 4) What is self-join?
 - 5) Define transaction.
- B) Write short notes. (Any Two) 06**
- 1) Multi valued dependency.
 - 2) Index.
 - 3) Views.
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Explain ORDER By clause with example.
 - 2) Explain different states of transaction.
 - 3) Explain different functions of DBMS.
- B) Answer the following questions. (Any One) 06**
- 1) Explain Between predicate with example.
 - 2) Explain IN predicate with example.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Explain ALTER and DROP command with example.
 - 2) Explain the term generalization and specialization with example.
 - 3) Explain strong and weak entities.
- B) Answer the following questions. (Any One) 04**
- 1) Why do we need database recovery?
 - 2) Explain GRANT command with example.

Q.5 Answer the following questions (Any Two)

- 1) Explain two phase commit protocol with example.
- 2) Consider following tables:
Employee (ename, city)
Emp_Company (ename, cname, salary, jdate)
Company (cname, city)
Manger (ename, mname) Emp-Shift (ename, shift)
Answer the following queries:
 - a) List name of the employees living in city 'Nagpur'.
 - b) Give name of employees living in city 'Bombay' and having company located in city 'Delhi'.
 - c) List name of employees having company 'ACC' and salary greater than 10000.
- 3) Explain different attributes of explicit cursor.

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M.C.A. (Semester – III) (CBCS) Examination Oct/Nov-2019
Science
JAVA PROGRAMMING

Day & Date: Wednesday, 13-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below. 14

- 1) A new thread can be created by extending the _____ class.
 - a) Runnable
 - b) Thread
 - c) Both a & b
 - d) None of these
- 2) The fields in an interface are implicitly specified as _____.
 - a) Static only
 - b) Protected
 - c) Private
 - d) Both static and final
- 3) Which of the following is a type of polymorphism in Java?
 - a) Compile time polymorphism
 - b) Link time polymorphism
 - c) Multiple polymorphism
 - d) Multilevel polymorphism
- 4) _____ is the return type of Constructors.
 - a) int
 - b) float
 - c) void
 - d) none of these
- 5) Which if the following can be overloaded?
 - a) Methods
 - b) Constructors
 - c) Both a and b
 - d) None of these
- 6) Abstract keyword does not allow a method to be override in the subclass.
 - a) True
 - b) False
- 7) _____ is reserved keyword in java.
 - a) Abstract
 - b) Extends
 - c) Package
 - d) All of the above
- 8) Which of following class is super class of every class in Java?
 - a) String class
 - b) Object class
 - c) Abstract class
 - d) ArrayList class
- 9) Which of following method waits for the thread of terminate?
 - a) sleep()
 - b) isAlive()
 - c) join()
 - d) stop()
- 10) A _____ is used to separate the hierarchy of the class while declaring an Import statement.
 - a) Packages
 - b) Interfaces
 - c) Namespaces
 - d) Events
- 11) Which of the following package contain all the Java's built in exceptions?
 - a) java.io
 - b) java.util
 - c) java.lang
 - d) java.net

- 12) Any user-defined exception class is a subclass of the _____ class.
 - a) Exception
 - b) SystemException
 - c) TypesException
 - d) None of these

- 13) _____ layout manager arranges the component in rows & columns.
 - a) FlowLayout
 - b) GridLayout
 - c) CardLayout
 - d) None of these

- 14) Which keyword is used by method to refer to the object that invoked it?
 - a) import
 - b) catch
 - c) abstract
 - d) this

Q.2 A) Answer the following questions. (Any Four) 08

- 1) Differentiate between array and vector.
- 2) Give the used of Synchronized block.
- 3) What is the 'finally' block?
- 4) List the methods available in the Thread class.
- 5) Compare Applets with application programs.

B) Write short notes. (Any Two) 06

- 1) Give the use of super keyword.
- 2) List Advantages of Wrapper classes
- 3) StringBuffer class

Q.3 A) Answer the following questions. (Any Two) 08

- 1) What is the need of garbage collection? How is it achieved in Java?
- 2) What is ResultSetMetaData? Explain with Example.
- 3) Explain method overriding with a suitable example program.

B) Answer the following questions. (Any One) 06

- 1) What is interface? What is use of interface?
- 2) Explain character streams in brief.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) Explain Adapter Classes with its advantages.
- 2) How to define a package? How to access, import a package? Explain with example.
- 3) Explain the term.
 - i) Checkbox
 - ii) TextField

B) Answer the following. (Any One) 04

- 1) Give the main features of Java.
- 2) Explain any two built-in exceptions.

Q.5 Answer the following questions. (Any Two) 14

- a) Explain user-defined exception handling with suitable example.
- b) Explain delegation event model.
- c) Create a window application to insert a new record using stored procedure.

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**M.C.A. (Semester - III) (CBCS) Examination Oct/Nov 2019
Science**

COMPUTER COMMUNICATION NETWORK

Day & Date: Thursday, 14-11-2019
Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) In cyclic redundancy checking, what is the CRC?
 - a) The quotient
 - b) The dividend
 - c) The divisor
 - d) The remainder
- 2) Router operates in which layer of OSI Reference Model?
 - a) Physical
 - b) Transport
 - c) Network
 - d) Application
- 3) Internet has been using a checksum of _____.
 - a) 2 bit
 - b) 4 bit
 - c) 8 bit
 - d) 16 bit
- 4) In OSI model, which of the following layer provides error free delivery of data?
 - a) Data link
 - b) Network
 - c) Transport
 - d) Session
- 5) Which of the following IP address class is Multicast _____.
 - a) B
 - b) D
 - c) A
 - d) C
- 6) _____ control refers to a set of procedures used to restrict the amount of data that the sender can send before waiting for acknowledgment.
 - a) Flow
 - b) Error
 - c) Transmission
 - d) None
- 7) An example for dynamic routing algorithm is _____.
 - a) Shortest Path
 - b) Flooding
 - c) Dijkstra
 - d) Distance Vector
- 8) _____ error detection method is used in Internet.
 - a) CRC
 - b) Simple parity check
 - c) Checksum check
 - d) None
- 9) Parameter that refers to set of rules that govern data communications are called _____.
 - a) Forum
 - b) Standard
 - c) Agency
 - d) Protocol
- 10) _____ primitive blocks waiting for an incoming message.
 - a) LISTEN
 - b) RECEIVE
 - c) CONNECT
 - d) SEND
- 11) _____ Primitives are widely used for internet programming.
 - a) LISTEN
 - b) Berkley sockets
 - c) SEND
 - d) Sockets

- 12) What is the first octet range for a class B IP address?
 - a) 128 -255
 - b) 1-127
 - c) 192-223
 - d) 128- 191
- 13) In TCP protocol header “checksum” is of _____.
 - a) 8 bits
 - b) 16 bits
 - c) 32 bits
 - d) 64 bits
- 14) The Simplest Protocol and the Stop-and-Wait Protocol are for _____ channels
 - a) noisy
 - b) noiseless
 - c) a or b
 - d) none

Q.2 A) Answer the following questions. (Any Four) 08

- 1) What is web documents?
- 2) What is WAN?
- 3) What is multicast routing?
- 4) What is hamming distance?
- 5) What is Jitter?

B) Write Notes. (Any Two) 06

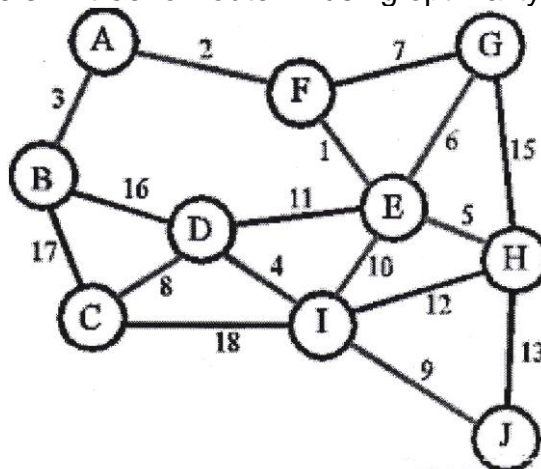
- 1) Which are the various service primitives?
- 2) Explain types of records.
- 3) Explain Stop and wait ARQ protocol.

Q.3 A) Answer the following questions. (Any Two) 08

- 1) Assuming even parity, find the parity bit for each of the following data units.
 - i) 1001011
 - ii) 0001100
 - iii) 1000000
 - iv) 1110111
- 2) Explain congestion control in datagram subnet.
- 3) Explain HTTP in short.

B) Answer the following questions. (Any One) 06

- 1) Classify the computer network according to transmission technology.
- 2) The distances between different routers are given in the following subnet. Build the sink tree for router A using optimality principle:



Q.4 A) Answer the following questions. (Any Two) 10

- 1) Explain applications of network.
- 2) Explain CRC in detail.
- 3) Explain DNS in short.

B) Answer the following questions. (Any One) 04

- 1) Compare the datagram and virtual circuit subnet in detail.
- 2) Compare connection oriented and connectionless services.

Q.5 Answer the following questions. (Any Two) 14

- 1) Explain token bucket algorithm in detail.
- 2) The following is a dump of a UDP header in hexadecimal format.

0632 000D 001C E217

- i) What is the source port number?
 - ii) What is the destination port number?
 - iii) What is the total length of the user datagram?
 - iv) What is the length of the data?
- 3) Explain Internet checksum in detail.

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M.C.A. (Semester - III) (CBCS) Examination Oct/Nov-2019
Science
PROGRAMMING WITH PHP

Day & Date: Thursday, 14-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) Which of the functions is used to sort an associative array according to value in ascending order?

a) sort()	b) arsort()
c) asort()	d) dsort()

- 2) Which one of the following method is used to retrieve the number of rows affected by an INSERT, UPDATE, or DELETE query?

a) num_rows()	b) affected_rows()
c) changed_rows()	d) new_rows()

- 3) What will be the output of the following PHP code? If say date is 22/06/2013.


```

      <?php
      print( date("t") )
      ?>
      
```

a) 30	b) 22
c) JUNE	d) 2013

- 4) Which character do the error_reporting directive use to represent the logical operator NOT?

a) /	b) !
c) ~	d) ^

- 5) When you use the \$_GET variable to collect data, the data is visible to.

a) none	b) only you
c) everyone	d) selected few

- 6) What will be the output of the following PHP code?


```

      <?php
      function calc($price, $tax='')
      {
      $total = $price + 9$price * $tax);
      echo "$total";
      }
      calc(42);
      ?>
      
```

a) Error	b) 0
c) 42	d) 84

- 7)

```
<?php  
$op2 = "blabla";  
function foo($op1)  
{  
    echo $op1;  
    echo $op2;  
}  
foo("hello");  
?>
```

 - a) helloblabla
 - b) error
 - c) hello
 - d) helloblablablabla
- 8) What will be the output of the following PHP code?

```
<?php  
$date = new DateTime();  
echo $date->format('1,F,js,Y')  
?>
```

 - a) Sunday, February 24th 2008
 - b) Sunday, 02 24 2008
 - c) Sunday, 24 02 2008
 - d) Sunday, 24th February 2008
- 9) What will be the output of the following PHP code?

```
<?php  
$age = array("Peter"=>"35", "Ben"=>"37", "Joe"=>"43");  
print_r(array_change_key_case($age, CASE_UPPER));  
?>
```

 - a) Array ([Peter] => 35 [Ben] => 37 [Joe] => 43)
 - b) Array ([peter] => 35 [ben] => 37 [joe] => 43)
 - c) Array ([PETER] => 35 [BEN] => 37 [JOE] => 43)
 - d) Array ([PeTeR] => 35 [BeN] => 37 [Joe] => 43)
- 10) The date() function returns _____ representation of the current date and/or time.
 - a) Integer
 - b) String
 - c) Boolean
 - d) Float
- 11) Which one of the following functions finds the last occurrence of a string, returning its numerical position?
 - a) strlastpos()
 - b) strpos()
 - c) strlast()
 - d) strrpos()
- 12) If there is no error, then what will the error() method return?
 - a) TRUE
 - b) FALSE
 - c) Empty String
 - d) 0
- 13) Which one of the following format parameter can be used to identify timezone?
 - a) T
 - b) N
 - c) E
 - d) I
- 14) Which method returns the error code generated from the execution of the last MySQL function?
 - a) errno()
 - b) errnumber()
 - c) errorno()
 - d) errornumber()

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) What is PHP?
 - 2) Write the difference between static and dynamic website.
 - 3) What is the difference between print and echo stamen?
 - 4) What are the ways to define a constant in PHP?
 - 5) What is mean by Server Side Scripting?
- B) Write Notes. (Any Two) 06**
- 1) Variable Scope
 - 2) Index array
 - 3) Custom error handlers
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) What are the ways to include file in PHP?
 - 2) What are the different types of errors in PHP?
 - 3) How can we retrieve the cookie value?
- B) Answer the following questions. (Any One) 06**
- 1) Write a program to print total number of elements in an array.
 - 2) Write a program to print sum of first 10 even numbers.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Write a program to sort an associative array in descending order by the keys.
 - 2) How can we connect to a MySQL database from a PHP script?
 - 3) Explain any five Time functions in PHP.
- B) Answer the following questions. (Any One) 04**
- 1) How do the single line and multiline comments in PHP?
 - 2) What does isset() function?
- Q.5 Answer the following questions. (Any Two) 14**
- 1) What is the difference between Session and Cookie? Write a program to create a session, to set a value in session, and to remove data from a session.
 - 2) What types of loops exist in PHP? Explain one with example.
 - 3) What is SQL? How to update the contents from TABLE A to TABLE B?

Seat
No.

M.C.A.(Semester - IV) (CBCS) Examination Oct/Nov-2019
Science
.NET

Day & Date: Monday, 04-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives:**14**

- 1) Which of the following statements are TRUE about the .NET CLR?
 - 1) It provides a language-neutral development & execution environment
 - 2) It ensures that an application would not be able to access memory that it is not authorized to access
 - 3) It provides services to run “managed” applications
 - 4) The resources are garbage collected
 - a) Only 1 and 2
 - b) Only 1, 2 and 4
 - c) 1, 2, 3, 4
 - d) Only 4 and 5
- 2) How many Bytes are stored by ‘Long’ Data type in C# .net?
 - a) 8
 - b) 4
 - c) 2
 - d) 1
- 3) Choose the correct statement among the following?
 - a) Indexers are location indicators
 - b) Indexers are used to access class objects
 - c) Indexer is a form of property and works in the same way as a property
 - d) All of the mentioned
- 4) Choose the statements which makes use of essential properties rather than making data member public in C#.NET?
 - a) Properties have their own access levels like private, public, protected etc. which allows it to have better control about managing read and write properties
 - b) Properties give us control about what values may be assigned to a member variables of a class they represent
 - c) Properties consist of set accessor inside which we can validate the value before assigning it to the data variable
 - d) All of the mentioned
- 5) Consider a class maths and we had a property called as sum.b which is the reference to a maths object and we want the statement Console.WriteLine(b.sum) to fail. Which among the following is the correct solution to ensure this functionality?
 - a) Declares sum property with only get accessor
 - b) Declares sum property with only set accessor
 - c) Declares sum property with both set and get accessor
 - d) Declares sum property with both set, get and normal accessor
- 6) Which among the following does not belong to the C#.NET namespace?
 - a) class
 - b) struct
 - c) enum
 - d) data

- 7) Which programming model should you implement if you want to separate your server-side code from your client-side layout code in a Web page?
 - a) Single-file model
 - b) Code-behind model
 - c) Inline model
 - d) Client-server model
- 8) You want to make a configuration setting change that will affect only the current Web application. Which file will you change?
 - a) Global.asax
 - b) Web.config in the root of the Web application
 - c) Machine.config
 - d) All of the above
- 9) Which of the following is not an ASP.NET page event?
 - a) Init
 - b) Load
 - c) Import
 - d) None of the above
- 10) In ASP.NET application DLL files are stored in which folder?
 - a) App_Code
 - b) App_Data
 - c) Bin
 - d) App_LocalResources
- 11) How do you determine the actual SQL data type of a SqlParameter (the type expected by the SQL Server)?
 - a) It is the .NET Framework data type in your application that the parameter represents
 - b) It is the type of column or data in SQL Server that the command expects
 - c) It is the type of column in DataTable that it represents
 - d) It is any type defined in the SqlDbType Data Type enumeration
- 12) How do you execute multiple SQL statements using a DataReader?
 - a) Call the ExecuteReader method of two Command objects and assign the results to the same instance of a DataReader
 - b) Call the ExecuteReader method of a single Command object twice
 - c) Set the Command.CommandText property to multiple SQL statements delimited by a semicolon
 - d) Set the Command.CommandType property to multiple result sets.
- 13) What property contains the actual error message returned by SQL Server?
 - 1) SqlException.Source
 - 2) SqlException.Message
 - 3) SqlError.Class
 - 4) SqlError.Message
 - a) 1, 2
 - b) 1, 2, 3
 - c) 1, 3
 - d) 2, 4
- 14) On what object would you set the properties to create a primary key for a DataTable?
 - a) DataSet
 - b) DataRelation
 - c) DataColumn
 - d) DataTable

Q.2 A) Answer the following questions. (Any Four)

08

- 1) What is metadata in .NET?
- 2) Difference between ASP & ASP.Net Application
- 3) Explain Global.asax
- 4) Need of Master Pages
- 5) What is Session State in .NET?

- B) Write notes(Any Two) 06**
- 1) Why boxing & unboxing? Justify with example.
 - 2) What is the use of ADO.NET connection string in .NET? Explain with example.
 - 3) What is validation? Explain custom validation with example.
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) What is namespace? How to create and use namespace in .NET?
 - 2) Explain the overview of HTTP Handler & Modules.
 - 3) Compare with example Client-Side versus Server-Side Validation.
- B) Answer the following questions. (Any One) 06**
- 1) What is .NET? Explain ASP.NET Page Life Cycle.
 - 2) Explain any two file operations with example.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Illustrate delegate with example.
 - 2) What is the use of properties in .NET? Give appropriate example.
 - 3) What are the ADO.NET components?
- B) Answer the following questions. (Any One) 04**
- 1) What are the Connection object properties and Connection class members?
 - 2) Explain the TextBox, RadioButton and Button Control with example.
- Q.5 Answer the following questions. (Any Two) 14**
- 1) Write detail description on Microsoft .NET framework.
 - 2) What is the difference between DataReader and DataSet? Explain with example.
 - 3) What is Hidden Variable in .NET? Describe with example.

Seat
No.

M.C.A. (Semester – I) (CBCS) Examination Oct/Nov-2019
Science
PROGRAMMING USING- C

Day & Date: Monday, 11-11-2019
 Time: 08:00 AM To 10:30 AM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below.**14**

- 1) Which one of the following is not a reserved keyword for C?
 - a) auto
 - b) case
 - c) main
 - d) default
- 2) Which one of the following is not a valid identifier?
 - a) _examveda
 - b) 2examveda
 - c) exam_veda
 - d) examveda 1
- 3) Which keyword is used to prevent any changes in the variable within a C program?
 - a) immutable
 - b) mutable
 - c) const
 - d) volatile
- 4) What is the output of the following program?


```

#include<stdio.h>
main() {
    int i = 1;
    while(++i <= 5)
        printf("%d ",i++);
}
      
```

 - a) 1 3 5
 - b) 2 4
 - c) 2 4 6
 - d) 2
- 5) Function fopen() with the mode "r+" tries to open the file for _____.
 - a) reading and writing
 - b) reading and adding new content
 - c) only for reading
 - d) it works only for directories
- 6) A local variable is stored in _____.
 - a) Code segment
 - b) Stack segment
 - c) Heap segment
 - d) None of the above
- 7) Which of the following are themselves a collection of different data types?
 - a) String
 - b) Structure
 - c) Char
 - d) All of the mentioned
- 8) The keyword used to transfer control from a function back to the calling function is _____.
 - a) switch
 - b) goto
 - c) go back
 - d) return
- 9) In which header file is the NULL macro defined?
 - a) stdio.h
 - b) stddef.h
 - c) stdio.h and stddef.h
 - d) math.h

- 10) If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable?
 - a) .
 - b) &
 - c) *
 - d) ->
- 11) Which of the following is not logical operator?
 - a) &
 - b) &&
 - c) ||
 - d) !
- 12) Which of the following cannot be checked in a switch-case statement?
 - a) Character
 - b) Integer
 - c) .Float
 - d) . enum
- 13) In which stage the following code


```
#include<stdio.h>
```

 gets replaced by the contents of the file stdio.h
 - a) During editing
 - b) During linking
 - c) During execution
 - d) During preprocessing
- 14) Which header file should be included to use functions like malloc() and calloc()?
 - a) memory.h
 - b) stdlib.h
 - c) string.h
 - d) dos.h

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) What are the arithmetic operators in C?
 - 2) Explain increment operator in C.
 - 3) Define union in C.
 - 4) Define constant in C.
 - 5) What are the four dynamic memory allocation functions?
- B) Write Notes. (Any Two) 06**
- 1) Definition and declaration of structure in C
 - 2) Relational Operators in C
 - 3) Explain floating data type in C
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Explain file fopen() and fclose().
 - 2) Write a programme to check Armstrong number.
 - 3) What are the storage classes in C?
- B) Answer the following question.(Any One) 06**
- 1) Write a programme to implement call by values.
 - 2) What is flowchart? Draw a flowchart to find greatest among three numbers.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Write a programme to count number of digits in integer values.
 - 2) Define Structure with examples.
 - 3) Define file and mode of opening a file.
- B) Answer the following questions. (Any One) 04**
- 1) Write a C programme to reverse given number.
 - 2) What are formal and actual arguments? Explain.
- Q.5 Answer the following questions. (Any Two) 14**
- a) Write a C program to find the position of given number in array of 10 integers.
 - b) What are decision making statements in C programming language?
 - c) Explain the functions strlen(), strcat(), strcpy() & strcmp()

Seat No.	
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M.C.A. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Science
DATA MINING AND WAREHOUSE

Day & Date: Tuesday, 05-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) A _____ is a set of views over operational databases.
 - a) Enterprise warehouse
 - b) Data Mart
 - c) Virtual warehouse
 - d) Refresh
- 2) A _____ contains a subset of corporate-wide data that is of value to a specific group of users.
 - a) Enterprise warehouse
 - b) Data Mart
 - c) Virtual warehouse
 - d) Refresh
- 3) _____, which detects errors in the data and rectifies them when possible.
 - a) Refresh Data
 - b) Data Transformation
 - c) Data Cleaning
 - d) Data Extraction
- 4) _____ include concept description, association, classification, prediction and clustering.
 - a) Task Relevant data
 - b) Kinds of Knowledge
 - c) Background Knowledge
 - d) Interestingness measure
- 5) The deeper the abstraction level, the smaller the corresponding threshold.
 - a) Reduced Support
 - b) Same support
 - c) Uniform support
 - d) Minimum support
- 6) Multidimensional association rules with no repeated predicates are called _____.
 - a) Single dimensional association rules
 - b) Interdimensional Association rules
 - c) Hybrid-dimensional Association rules
 - d) None of these
- 7) The class label of each training tuple is not known, and the number or set of classes to be learned may not to be learned may not be known in advance is known as _____.
 - a) Unsupervised learning
 - b) Self learning
 - c) Supervised learning
 - d) None of these
- 8) A divisive hierarchical clustering method employs a _____ strategy.
 - a) Top-down
 - b) Bottom-up
 - c) Random
 - d) None of these
- 9) An _____ system is market-oriented and is used for data analysis by knowledge workers.
 - a) OLAP
 - b) OLTP
 - c) OLEP
 - d) None of these

- 10) An _____ system usually adopts an entity-relationship (ER) data model.
 - a) OLAP
 - b) OLEP
 - c) OLTP
 - d) None of these
- 11) _____ is a subjects-oriented, integrated, time-variant, non-volatile collection of data in support of management's decision making process.
 - a) Data Mining
 - b) Text Mining
 - c) Document Mining
 - d) Data Warehouse
- 12) _____ in which the data warehouse contains a large central table and a set of smaller attendant tables, one for each dimension.
 - a) Snowflake schema
 - b) Star schema
 - c) Fact constellation schema
 - d) Hybrid schema
- 13) The Roll-up operation is also called _____.
 - a) Drill-up
 - b) Drill-down
 - c) Drill-rotate
 - d) Rule-up
- 14) DIANA stands for _____.
 - a) Divisive And Not Applicable
 - b) Divisive ANALysis
 - c) Distinct ANALysis
 - d) None of these

Q.2 A) Answer the following questions. (Any Four) 08

- 1) What is Unsupervised learning?
- 2) What is data Transformation? Explain in short.
- 3) Explain in short the strategies to fill missing values.
- 4) What is Data Mart? Explain in short.
- 5) Explain Agglomerative hierarchical clustering method with example.

B) Write Notes. (Any Two) 06

- 1) Prediction
- 2) FP-Tree
- 3) Reduced support

Q.3 A) Answer the following questions. (Any Two) 08

- 1) What is data mining? Explain 'Task Relevant Data' as a primitive.
- 2) What is Association Rule? Explain mining in multidimensional associations.
- 3) Explain the importance of Visual and Audio data mining.

B) Answer the following questions. (Any One) 06

- 1) Explain different types of schemas for multidimensional model.
- 2) Define Data warehouse. Explain difference between OLAP & OLTP.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) Explain Bayesian Classification algorithm with example.
- 2) Explain how data mining is useful in 'Telecommunication Industry'.
- 3) Explain the procedure of Apriori algorithm with suitable example.

B) Answer the following questions. (Any One) 04

- 1) Explain how association's rules are constructed in multi-level hierarchy.
- 2) What is classification? Explain different issues regarding with classifications.

Q.5 Answer the following questions. (Any Two) 14

- 1) Explain k-means algorithm with suitable example.
- 2) Explain the architecture of Data warehouse with well labelled diagram.
- 3) What is cluster analysis? Explain different types of data in cluster analysis.

Seat No.	
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M.C.A. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Science
UML

Day & Date: Wednesday, 06-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) What refers to the value associated with a specific attribute of an object and to any actions or side?
 - a) Object
 - b) State
 - c) Interface
 - d) None of the mentioned
- 2) Which diagram shows the configuration of run-time processing elements?
 - a) Deployment diagram
 - b) Component diagram
 - c) Node diagram
 - d) ER-diagram
- 3) Which things are dynamic parts of UML models?
 - a) Structural things
 - b) Behavioural things
 - c) Grouping things
 - d) Annotational things
- 4) Which diagram in UML emphasizes the time-ordering of messages?
 - a) Activity
 - b) Sequence
 - c) Collaboration
 - d) Class
- 5) What is a physical element that exists at runtime in UML?
 - a) A node
 - b) First page
 - c) An activity
 - d) An interface
- 6) Which of the following are the valid relationships in Use Case Diagrams?
 - a) Generalization
 - b) Include
 - c) Extend
 - d) All of the mentioned
- 7) At Conceptual level Class diagrams should include _____.
 - a) operations only
 - b) attributes only
 - c) both operations and attributes
 - d) none of the mentioned
- 8) Which of the following UML diagrams has a static view?
 - a) Collaboration
 - b) Use case
 - c) State chart
 - d) None of these
- 9) If you are working on real-time process control applications or system that involve concurrent processing, you would use a _____.
 - a) Activity diagram
 - b) Sequence diagram
 - c) Statechart diagram
 - d) Object diagram
- 10) Which of the following term is best defined by the statement: "a structural relationship that specifies that objects of one thing are connected to objects of another"?
 - a) Association
 - b) Aggregation
 - c) Realization
 - d) Generalization

- 11) Kind of diagrams which are used to show interactions between series of messages are classified as
 - a) Activity diagrams
 - b) State chart diagrams
 - c) Collaboration diagrams
 - d) Object lifeline diagrams
- 12) Which of the following is a building block of UML?
 - a) Things
 - b) Diagrams
 - c) Relationships
 - d) All of the above
- 13) Classes and interfaces are a part of _____.
 - a) Structural things
 - b) Behavioural things
 - c) Grouping things
 - d) Annotational things
- 14) What is a collection of operations that specify a service of a class or component?
 - a) Use Case
 - b) Actor
 - c) Interface
 - d) Relationship

- Q.2 A) Answer the following (Any Four) 08**
- 1) What is event?
 - 2) Define collaboration.
 - 3) What is active class?
 - 4) What do you mean by instances?
 - 5) Define relationships.
- B) Write Notes. (Any Two) 06**
- 1) Activity diagrams
 - 2) Advanced classes
 - 3) Stereotypes in UML
- Q.3 A) Answer the following questions. (Any two) 08**
- 1) What are the common modelling techniques for deployment diagram?
 - 2) What is forward engineering and reverse engineering?
 - 3) Explain various notations used in UML.
- B) Answer the following questions. (Any One) 06**
- 1) Explain collaboration diagrams and activity diagrams with suitable example.
 - 2) Explain the various terms and concepts used in sequence diagrams.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Explain the need of branching.
 - 2) Explain various modeling techniques for component diagrams.
 - 3) Explain the process and threads used in modelling techniques.
- B) Answer the following questions. (Any One) 04**
- 1) What is a package? How it is represented in UML?
 - 2) What are the objects of interaction diagram? Explain in detail.
- Q.5 Answer the following questions. (Any two) 14**
- 1) Draw and explain the activity diagram for online airline reservation system.
 - 2) UML is made simpler by using the common mechanisms. What are the four common mechanisms that apply consistently?
 - 3) Explain in detail software development life cycle.

Seat No.	
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Set P

M.C.A. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Science
FINITE AUTOMATA

Day & Date: Thursday, 07-11-2019
 Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives. **14**

- 1) The regular expression for Arden's algorithm is _____.
 a) $R_{ij}(K)$ b) $R = R + QP$
 c) $R = Q + RP$ d) None of these
- 2) Regular expression $(a+b).(a+b)$ denotes the set _____.
 a) $\{a\}$ b) $\{aa,ba,ab,bb\}$
 c) $\{abab\}$ d) $\{aabb\}$
- 3) Pumping lemma is a _____.
 a) powerful tool for providing certain languages non-regular
 b) powerful tool for providing certain languages context sensitive.
 c) both a and b
 d) none of these
- 4) In GNF grammar is required in the form of _____.
 a) $A \rightarrow BC \mid a$ b) $A \rightarrow a\alpha$
 c) both a and b d) none of these
- 5) Type 1 grammar is also called as _____ grammar.
 a) context free b) context sensitive
 c) recursive d) regular
- 6) In PDA one situation has more than one transition then it is known as _____.
 a) PDA b) DPDA
 c) NPDA d) Stack
- 7) If rightmost and leftmost production is single non-terminal then it is known as _____ production.
 a) unit b) self
 c) cross d) none of these
- 8) The transition function $\delta: Q \times (\sum \cup \{\epsilon\}) \times \Gamma \rightarrow Q \times \Gamma^*$ is of _____.
 a) PDA b) FSM
 c) Turing Machine d) Mealy Machine
- 9) All possible subset of set is known as _____.
 a) sub set b) power set
 c) super set d) none of these
- 10) Proper suffixes of the string abc are _____.
 a) $\{\epsilon, c, bc, abc\}$ b) $\{\epsilon, c, bc\}$
 c) $\{\epsilon, a, ab, abc\}$ d) $\{\epsilon, a, ab\}$
- 11) DPDA is more powerful than NPDA.
 a) True b) False

Q.4 A) Answer the following question. (Any Two)

10

- 1) Construct FA for following RE
 $(0+1)^* (0.1)^* (0+1)^*$
- 2) Construct GNF for following grammar:
 $S \rightarrow S+S \mid S^*S \mid id$
- 3) For the grammar:

$$\begin{aligned} S &\rightarrow aABB \mid aAA \\ A &\rightarrow aBB \mid a \\ B &\rightarrow bBB \mid A \\ C &\rightarrow a \end{aligned}$$

Obtain the corresponding PDA

B) Answer the following question. (Any One)

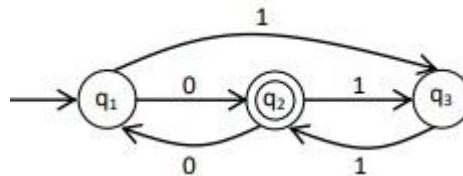
04

- 1) Construct Turing Machine for copy string over $\Sigma = \{a, b\}$
- 2) Design a DFA which accept string does not having abc as substring over $\Sigma = \{a, b, c\}$.

Q.5 Answer the following question. (Any Two)

14

- 1) Design TM for $L = \{a^n b^n \mid n > 1\}$.
- 2) Construct RE for following DFA Construct RE for following DFA by using $R_{ij}^{(K)}$.



- 3) Explain simplification of grammar in detail.

Seat No.	
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M.C.A. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Science

DISTRIBUTED OPERATING SYSTEM

Day & Date: Friday, 08-11-2019
Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) What are the characteristics of stateless server?
 - a) Easier to implement
 - b) They are not fault-tolerant upon client or server failures
 - c) They store all information file server
 - d) They are redundant to keep data safe
- 2) The stub: _____.
 - a) transmits the message to the server where the server side stub receives the message and invokes procedure on the server side
 - b) packs the parameters into a form transmittable over the network
 - c) locates the port on the server
 - d) all of the mentioned
- 3) What is coherency of replicated data?
 - a) All replicas are identical at all times
 - b) Replicas are perceived as identical only at some points in time
 - c) Users always read the most recent data in the replicas
 - d) All of the mentioned
- 4) In distributed systems, a logical clock is associated with _____.
 - a) each instruction
 - b) each process
 - c) each register
 - d) none of the mentioned
- 5) If timestamps of two events are same, then the events are _____.
 - a) concurrent
 - b) non-concurrent
 - c) monotonic
 - d) non-monotonic
- 6) In the token passing approach of distributed systems, processes are organized in a ring structure _____.
 - a) logically
 - b) physically
 - c) both logically and physically
 - d) none of the mentioned
- 7) In case of failure, a new transaction coordinator can be elected by _____.
 - a) bully algorithm
 - b) ring algorithm
 - c) both bully and ring algorithm
 - d) none of the mentioned
- 8) In distributed systems, election algorithms assumes that _____.
 - a) a unique priority number is associated with each active process in system
 - b) there is no priority number associated with any process
 - c) priority of the processes is not required
 - d) none of the mentioned

- 9) According to the ring algorithm, links between processes are _____.
 - a) bidirectional
 - b) unidirectional
 - c) both bidirectional and unidirectional
 - d) none of the mentioned
- 10) Which one of the following is not shared by threads?
 - a) program counter
 - b) stack
 - c) both program counter and stack
 - d) none of the mentioned
- 11) A process can be _____.
 - a) single threaded
 - b) multithreaded
 - c) both single threaded and multithreaded
 - d) none of the mentioned
- 12) Because of virtual memory, the memory can be shared among _____.
 - a) processes
 - b) threads
 - c) instructions
 - d) none of the mentioned
- 13) What are the different ways file accesses take place?
 - a) equential access
 - b) direct access
 - c) indexed sequential access
 - d) all of the mentioned
- 14) Which is not a major components of file system?
 - a) Directory service
 - b) Authorization service
 - c) Shadow service
 - d) System service

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) Define Distributed System.
 - 2) What is cache memory?
 - 3) Define Deadlock
 - 4) What is thread?
 - 5) What do you mean by message ordering?
- B) Write Notes. (Any Two) 06**
- 1) Processor pool Model
 - 2) Client-server model
 - 3) Workstation Model
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Explain group communication in brief.
 - 2) Explain the ACID properties of the transaction.
 - 3) Explain the concept of Happens before Relationship.
- B) Answer the following questions. (Any One) 06**
- 1) What do you mean by mutual exclusion? Discuss distributed algorithm to achieve mutual exclusion in distributed OS.
 - 2) What do you mean by processor allocation? Discuss scheduling in distributed system with suitable example.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Give the difference between a network operating system and distributed operating system.
 - 2) Why do we use election algorithm. Explain ring algorithm.
 - 3) Give comparative points of Microsoft NT and Novell Netware.

B) Answer the following questions. (Any One) 04

- 1) Give the Difference between Peer group and Hierarchical group.
- 2) Write a note on Switched multicomputer.

Q.5 Answer the following questions. (Any Two) 14

- 1) What do you mean by clock synchronization? Explain the physical and logical clock synchronization in details.
- 2) Explain in detail the mechanism of Remote Procedure call with suitable diagram.
- 3) Define the term directory. Discuss file service interface by comparing upload/download model and remote access model.

Seat
No.

M.C.A. (Semester - V) (New) (CBCS) Examination Oct/Nov 2019
Science

DIGITAL IMAGE PROCESSING

Day & Date: Saturday, 09-11-2019
Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below.

14

- 1) The dominant application in the _____ band is radar.
 - a) X-rays
 - b) Gamma rays
 - c) Infrared
 - d) Microwaves
- 2) _____ is not field of x-ray band.
 - a) industry
 - b) astronomy
 - c) radar
 - d) medical diagnoses
- 3) An image is a two dimensional function where x and y are _____.
 - a) spatial coordinates
 - b) frequency coordinates
 - c) time coordinates
 - d) real coordinates
- 4) Cornea is tough transparent tissues that covers eye's _____.
 - a) eye lid
 - b) lashes
 - c) anterior
 - d) exterior
- 5) MRI in imaging stands for _____.
 - a) magnetic resonance imaging
 - b) magnetic resistance imaging
 - c) magnetic resonance intensity
 - d) major resonance imaging
- 6) Correction of power law response is called _____.
 - a) alpha correction
 - b) gamma correction
 - c) beta correction
 - d) pixel correction
- 7) Histogram is technique processed in _____.
 - a) intensity domain
 - b) frequency domain
 - c) spatial domain
 - d) undefined domain
- 8) Sum of all components in normalized histogram is equal to _____.
 - a) 100
 - b) 2
 - c) 0
 - d) 1
- 9) Negative of image having intensity values $[0, L-1]$ is expressed by _____.
 - a) $s = L-1$
 - b) $s = 1-r$
 - c) $s = L-1-r$
 - d) $s = L-r$
- 10) For finding horizontal lines we use mask of values _____.
 - a) $[-1 \ -1 \ -1; \ 2 \ 2 \ 2; \ -1 \ -1 \ -1]$
 - b) $[2 \ -1 \ -1; \ -1 \ 2 \ -1; \ -1 \ -1 \ 2]$
 - c) $[-1 \ 2 \ -1; \ -1 \ 2 \ -1; \ -1 \ 2 \ -1]$
 - d) $[-1 \ -1 \ 2; \ -1 \ 2 \ -1; \ 2 \ -1 \ -1]$
- 11) For edge detection we use _____.
 - a) first derivative
 - b) second derivative
 - c) third derivative
 - d) Both A and B

- 12) Dilation followed by erosion is called _____.
a) opening b) closing
c) blurring d) translation
- 13) Structuring elements have origins at _____.
a) top left b) top right
c) center d) bottom left
- 14) Hit-or-miss transformation is used for shape _____.
a) removal b) detection
c) compression d) decompression

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) Define digital image.
 - 2) Define sampling and quantization.
 - 3) Specify the objective of image enhancement techniques.
 - 4) Write sobel horizontal and vertical edge detection masks.
 - 5) Define chain codes.
- B) Write Short Notes. (Any Two) 06**
- 1) Dilation operation
 - 2) Image acquisition using sensor strips
 - 3) Notch filter
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Explain Median filter?
 - 2) What is meant by Image Restoration?
 - 3) Explain zooming and shrinking of digital images.
- B) Answer the following questions. (Any One) 06**
- 1) What are the three types of discontinuity in digital image?
 - 2) Describe morphological opening and closing.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) What are the components of digital image processing system?
 - 2) What are the three types of lowpass filters? Explain Ideal lowpass filter.
 - 3) What do you mean by smoothing spatial filters? Explain.
- B) Answer the following questions. (Any One) 04**
- 1) If the center of the mask moves any closer to the border of an image, one or more rows or columns of the mask will be located outside the image plane. What are several way to handle this situation?
 - 2) State the conditions for region splitting and merging processes.
- Q.5 Answer the following questions. (Any Two) 14**
- a) Explain the types of gray level transformation used for image enhancement.
 - b) Explain image degradation model /restoration process in detail.
 - c) What are the steps involved digital image processing?

Seat
No.

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M.C.A. (Semester – V) (New) (CBCS) Examination Oct/Nov-2019
Science

WEB DESIGN TECHNIQUES

Day & Date: Monday, 11-11-2019
Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below: 14

- 1) _____ jQuery method is used to apply more than one style properties for selected elements.

a) css()	b) html()
c) style()	d) multi-style()
- 2) The value of _____ property of navigator object is the same for Netscape and IE.

a) navigator.appName	b) navigator. appCodeName
c) navigator.appVersion	d) navigator.BrowserName
- 3) The _____ tag defines the relationship between a document and an external resource.

a) <src>	b) <anchor>
c) <link>	d) <href>
- 4) Following code select _____.
\$("div.intro").

a) The first div element with class="intro"
b) The first div element with id="intro"
c) All first div element with class="intro"
d) All first div element with id="intro"
- 5) _____ jQuery method is used to perform an asynchronous HTTP request.

a) jQuery. ajaxAsync ()	b) jQuery.ajax()
c) jQuery.ajaxAsync ()	d) jQuery.HTTPAsync()
- 6) AJAX functionality is applied within jQuery by using _____ function.

a) ajax	b) jajax
c) jqueryajax	d) javascriptajax
- 7) _____ method returns an element with a specific index number of the selected elements.

a) last()	b) eq()
c) filter()	d) get()
- 8) SOAP stands for _____.

a) Same Object Access Protocol	b) Same On Access Protocol
c) Simple On Accurate Protocol	d) Simple Object Access Protocol

- 9) _____ is the correct JavaScript syntax to write "Hello World".
 a) system.out.println("Hello World")
 b) println ("Hello World")
 c) document.write("Hello World")
 d) response.write("Hello World")
- 10) _____ method is used to get the value from fields.
 a) get() b) val()
 c) text() d) attr()
- 11) jQuery animate() method has no speed parameters.
 a) True b) False
- 12) _____ technologies provides the ability to dynamically interact with Web page layout.
 a) JavaScript b) XML
 c) HTLM d) DOM
- 13) _____ is used to apply schema to XML document by using name attribute.
 a) <schema attribute="schema1">
 b) <schema nameattribute="schema1">
 c) <schema name="schema1">
 d) <name="schema1">
- 14) The _____ attribute is meant to be used as an alternative text if the image is not display.
 a) alt b) src
 c) asrc d) href

Q.2 a) Answer the following questions. (Any Four) 08

- 1) Explain any four text formatting tags with example.
- 2) Explain use of div and span tags.
- 3) Explain eval method with example.
- 4) Explain JQuery chaining with example.
- 5) Explain structure of XML file.

b) Answer the following questions. (Any Two) 06

- 1) Explain different Sliding technique used in JQuery with example.
- 2) Write JavaScript which display current date and time in new window.
- 3) What is AJAX? Explain different jquery's AJAX related methods.

Q.3 a) Answer the following questions. (Any Two) 08

- 1) Explain configuration of httpd.conf file.
- 2) Explain different lists used in HTML. Write example of nested list.
- 3) Explain navigator object in detail. Give minimum four properties with example.

b) Answer the following questions. (Any One) 06

- 1) What is Array object? How to create multi-dimensional array in JavaScript? Explain minimum 4 array object methods with example.
- 2) Explain different Dimension Methods used in JQuery. Give example.

Q.4 a) Answer the following questions. (Any Two) 10

- 1) Explain different XML element rules.
- 2) Write JavaScript for Armstrong number and reverse number.
- 3) What is JQuery callback function? Write any example with callback and without callback function.

b) Answer the following questions. (Any One) 04

- 1) What is JQuery Plugins? Explain how to add plugins in web page.
Give example.
- 2) Explain different Text formatting properties used in CSS.

Q.5 Answer the following questions. (Any Two) 14

- a) Explain different Conditional Processing elements used in XSLT with example.
- b) Explain different jQuery UI widget with example.
- c) Explain different control and looping structure used in JavaScript.

Seat No.	
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Set	P
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M.C.A. (Semester – V) (New) (CBCS) Examination Oct/Nov-2019
Science
MOBILE COMPUTING

Day & Date: Wednesday, 13-11-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below. 14

- 1) Several directed antennas can be combined on a single pole to construct a _____.
 a) Sectorized antenna b) Omni-directional antenna
 c) Directional antenna d) Marconi antenna
- 2) Which of the following is not the basis for SDMA algorithm?
 a) Space Division multiplexing b) Cells
 c) Sectorized antennas d) Space Division Duplex
- 3) In IEEE 802.11 wireless LAN, _____ sub layer handles modulation and encoding/decoding of signal.
 a) COA b) PMD
 c) MAC d) AMD
- 4) In mobile IP, a tunnel usually ends at _____.
 a) Foreign Agent b) Internet
 c) Home agent d) Router
- 5) _____ is used for cellular phone, satellite, and wireless LAN communications.
 a) Infrared waves b) Microwaves
 c) Radio Waves d) None of these
- 6) MAC is _____.
 a) Medium Access Control b) Modem Access Control
 c) Modem Advice Control d) Medium Advice Control
- 7) _____ can provide several services to the MN during its visit to the foreign network.
 a) HA b) GA
 c) FA d) TA
- 8) The Um radio interface is used to connect _____.
 a) MSC and BTS b) BTS and MS
 c) CN and MN d) BTS and BSC
- 9) IMSI number consists of _____.
 a) MSIN b) Mobile Network Code
 c) Mobile Country Code d) All of the above
- 10) Which of the following algorithm is used for authentication in GSM?
 a) A5 b) SERS
 c) A3 d) A8

- 11) _____ is used to provide the data or to access the data by other applications which is stored by itself.
- | | |
|---------------------|-----------------------|
| a) Activity | b) Broadcast Receiver |
| c) Content-provider | d) Service |
- 12) Which is not an Android layout?
- | | |
|-------------|-------------|
| a) Activity | b) Relative |
| c) Frame | d) Table |
- 13) The main purpose of _____ is to inform the home agent of the current location for correct forwarding of packets.
- | | |
|--------------------|-----------------|
| a) Agent Discovery | b) Registration |
| c) TDA | d) Service |
- 14) Forming groups of piconets called _____.
- | | |
|----------------|---------------|
| a) Wi-Fi | b) Scatternet |
| c) Radio waves | d) Hopping |

Q.2 A) Answer the following questions. (Any Four) 08

- 1) What do you mean by ad-hoc network?
- 2) Define mobile computing.
- 3) Define the term TDMA.
- 4) What is Marconi antenna?
- 5) What is handover?

B) Write notes. (Any Two) 06

- 1) Signal propagation and its ranges
- 2) Piconet
- 3) Roaming

Q.3 A) Answer the following questions. (Any Two) 08

- 1) Compare TCP with UDP
- 2) Explain GUI architecture of an Android.
- 3) Compare Infra-red and radio transmission.

B) Answer the following questions. (Any One) 06

- 1) What are the different entities and terminologies for mobile IP?
- 2) Explain the SDMA and FDMA.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) What is multiplexing? Explain any two techniques.
- 2) Explain client initialization via Dynamic Host Configuration Protocol in detail.
- 3) Explain applications of mobile computing.

B) Answer the following questions. (Any One) 04

- 1) Explain major components of an Android.
- 2) Explain the architecture of Mobile IP.

Q.5 Answer the following questions. (Any Two) 14

- a) Discuss the authentication and encryption scheme used in GSM security.
- b) Explain in detail MACA – collision avoidance with its examples.
- c) What is congestion control? Explain the mechanism slow start and fast recovery.

Seat No.	
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Set	P
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M.C.A. (Semester - V) (New) (CBCS) Examination Oct/Nov-2019
Science
ARTIFICIAL INTELLIGENCE

Day & Date: Thursday, 14-11-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) Knowledge may be _____.
 - I) Declarative
 - II) Procedural
 - III) Non-procedural
 - a) Only (I) above
 - b) Only (II) above
 - c) Only (III) above
 - d) Both (I) and (II) above
- 2) The first widely-used commercial form of Artificial Intelligence (AI) is being used in many popular products like microwave ovens, automobiles and plug in circuit boards for desktop PCs. It allows machines to handle vague information with deftness that mimics human intuition. What is the name of this AI?
 - a) Boolean logic
 - b) Human logic
 - c) Fuzzy logic
 - d) Functional logic
- 3) What is the extraction of the meaning of utterance?
 - a) Syntactic
 - b) Semantic
 - c) Pragmatic
 - d) None of the mentioned
- 4) One of the main challenge/s of NLP is _____.
 - a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 5) Treatment chosen by doctor for a patient for a disease is based on.
 - a) Only current symptoms
 - b) Current symptoms plus some knowledge from the textbooks
 - c) Current symptoms plus some knowledge form the textbooks plus experience
 - d) None of the above
- 6) Which search strategy is also called as blind search?
 - a) Uniformed search
 - b) Informed search
 - c) Simple reflex search
 - d) All of the mentioned
- 7) Which search is implemented with an empty first-in-first-out queue?
 - a) Depth-first search
 - b) Breadth-first search
 - c) Bidirectional search
 - d) None of the mentioned
- 8) Which of the following is/are Uninformed Search technique/techniques?
 - a) Breadth First Search (BFS)
 - b) Depth First Search (DFS)
 - c) Bidirectional Search
 - d) All of the mentioned

- 9) Best-First search can be implemented using the following data structure.
 - a) Queue
 - b) Stack
 - c) Priority Queue
 - d) Circular Queue
- 10) _____ Is an algorithm, a loop that continually moves in the direction of increasing value – that is uphill.
 - a) Up-Hill Search
 - b) Hill-Climbing
 - c) Hill algorithm
 - d) Reverse-Down-Hill search
- 11) Which is the true regarding BFS (Breadth First Search)?
 - a) BFS will get trapped exploring a single path
 - b) The entire tree so far been generated must be stored in BFS
 - c) BFS is not guaranteed to find a solution, if exists
 - d) BFS is nothing but Binary First Search
- 12) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
 - a) AND
 - b) OR
 - c) NOT
 - d) All of the mentioned
- 13) Semantic Networks is _____.
 - a) A way of representing knowledge
 - b) Data structure
 - c) Data Type
 - d) DBMS
- 14) Hill-Climbing approach stuck for the following reasons.
 - a) Local maxima
 - b) Ridges
 - c) Plateau
 - d) All of the mentioned

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) Define Frame.
 - 2) What is sample space?
 - 3) Define ridge.
 - 4) What is complex sentence?
 - 5) Define Fuzzy logic.
- B) Answer the following questions. (Any Two) 06**
- 1) What do you mean by Artificial Intelligence?
 - 2) Explain in short Dempster-Shafer theory.
 - 3) What is Production System?
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Explain sentence Level Processing.
 - 2) Explain the predicate logic resolution algorithm.
 - 3) Discuss about constraint satisfaction Problem.
- B) Answer the following questions. (Any One) 06**
- 1) Explain in detail steps of Syntactic Processing as the process of Natural Language Processing with suitable example.
 - 2) Explain in the detail the concept of Conceptual Dependency as strong slot and filler structure with suitable example.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Explain Semantic Nets in details.
 - 2) Write Algorithm to convert to clause form.
 - 3) Explain AI Problem Characteristics with example.

B) Answer the following questions. (Any One) 04

- 1) Differentiate between procedural versus Declarative Knowledge.
- 2) Differentiate between DFS and BFS.

Q.5 Answer the following questions. (Any Two) 14

- 1) What do you mean by predicate logic? Convert the following sentences to FOL.
 - i) *All students are smart*
 - ii) *There is a student who is smart*
 - iii) *Every gardener likes the sun*
 - iv) *Clinton is not tall*
- 2) What is the meaning of Uncertainty in reasoning? Explain different statistical techniques to handle uncertainty.
- 3) What do you mean by Best First Search? Explain Best First Search as a part of Heuristic Search technique with suitable example.

Seat
No.M.C.A. (Semester - I) (CBCS) Examination Oct/Nov 2019
Science

DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Wednesday, 13-11-2019
Time: 08:00 AM To 10:30 AM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.**Q.1 Fill in the blanks by choosing the correct alternatives given below.** **14**

- 1) A Relation R on set A is called as poset if _____.
 a) Reflexive b) Antisymmetric
 c) Transitive d) All of these
- 2) Let L be Lattice then $\forall a, b \in L$ $a \wedge b = a$ iff _____.
 a) $a \vee b = b$ b) $a \vee b = a$
 c) $a \wedge b = a$ d) $a \wedge b = b$
- 3) In set theory $(A \oplus B) =$ _____.
 a) $(A - B) \cap (B - A)$ b) $(B - A) \cap (A - B)$
 c) $(A - B) \cup (B - A)$ d) $(A - B) \cup (A - B)$
- 4) A complete graph with a vertical has _____ edges.
 a) $\frac{n(n+1)}{2}$ b) $\frac{n}{2}$
 c) $\frac{n(n-1)}{2}$ d) $\frac{n^2}{2}$
- 5) The function $f: R \rightarrow R$ such that $f(x) = 0 \forall x \in R$ is called _____.
 a) One-one function b) Identity function
 c) Zero function d) None of these
- 6) In how many ways group of 5 boys can be chosen from 12 boys _____.
 a) $P(12,5)$ b) $P(12,6)$
 c) $C(12,5)$ d) $C(12,6)$
- 7) A square matrix A is said to be nonsingular matrix if _____.
 a) $|A| = 0$ b) $|A| \neq 0$
 c) $|A| = 1$ d) $A = 0$
- 8) If there are Multiple edges and there is no loop between any pair of vertices is called _____.
 a) Multi graph b) Regular graph
 c) Simple graph d) Psuedo graph
- 9) In a group G which of Law is called commutative?
 a) $a * b = b * a$ b) $a * e = e * a = a$
 c) $a * a^{-1} = a^{-1} \times a = e$ d) None of these
- 10) In combination $n C_r =$ _____.
 a) $\frac{(n-1)!}{(n-r)!}$ b) $\frac{n!}{r!(n-r)!}$
 c) $\frac{n!}{(n-1)!}$ d) $\frac{n!}{(r-n)!}$

B) Answer the following questions. (Any One)

04

1) Find determinant of $A = \begin{bmatrix} 1 & -1 & 2 \\ 3 & 4 & -2 \\ 7 & 1 & 5 \end{bmatrix}$

2) Find value of:

i) ${}^{10}C_2$

ii) ${}^{10}C_3$

Q.5 Answer the following questions. (Any Two)

14

a) Draw Hasse diagram for $D_{20} = \{1, 2, 4, 5, 10, 20\}$
Find lub & glb elements.

b) Solve following simultaneous equation by using inversion method.

$$x - y + z = 4$$

$$2x + y - 3z = 0$$

$$x + y + z = 2$$

c) Let G be set all nonzero real number $a * b = \frac{ab}{2}$ show that $(G, *)$ is group.

Seat No.	
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M.C.A. (Semester – V) (New) (CBCS) Examination Oct/Nov-2019
Science
Network Security

Day & Date: Saturday, 16-11-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) _____ is a transport-level segment (transport mode) or IP packet (tunnel mode) that is protected by encryption.
 - a) Sequence Number
 - b) Security parameters Index
 - c) Payload Data (variable)
 - d) None of these
- 2) _____ identifies the type of data contained in the payload data field by identifying the first header in that payload.
 - a) Pad Length (8 bits)
 - b) Next Header (8 bits)
 - c) Authentication Data (variable)
 - d) None of these
- 3) _____ An individual who seizes supervisory control of the system and uses this control to evade auditing and access controls or to suppress audit collection.
 - a) Clandestine user
 - b) Misfeasor
 - c) Masquerader
 - d) None of these
- 4) The _____ prevents or inhibits the normal use or management of communications facilities.
 - a) Replay
 - b) Modifications of message
 - c) Masquerade
 - d) denial of service
- 5) The heart of the X.509 scheme is the _____ certificate associated with each user.
 - a) private-key
 - b) secret-key
 - c) public-key
 - d) duplicate key
- 6) _____ is the scrambled message produced as output.
 - a) Ciphertext
 - b) Plaintext
 - c) Continuous text
 - d) None of these
- 7) The art of breaking ciphers is known as _____.
 - a) Cryptography
 - b) Cryptanalysis
 - c) Cryptology
 - d) Crypting
- 8) _____: Specification of key management capabilities.
 - a) RFC 2401
 - b) RFC 2402
 - c) RFC 2406
 - d) RFC 2408
- 9) PGP stands for _____.
 - a) Pretty Good Protocol
 - b) Pretty Good Point
 - c) Pretty Good Privacy
 - d) Point Go Point
- 10) _____ is an authentication service developed as part of Project Athena at MIT.
 - a) Kerberos
 - b) SSL
 - c) HTTP
 - d) SMTP

- 11) _____ an entity capable of accessing objects.
 - a) Object
 - b) Subject
 - c) Access right
 - d) None of these
- 12) _____ determines the types of Internet services that can be accessed, inbound or outbound.
 - a) Service control
 - b) Direction control
 - c) User control
 - d) Behavior control
- 13) _____ A nonnegative integer that may be incremented but not decremented until it is reset by management action.
 - a) Gauge
 - b) Interval timer
 - c) Counter
 - d) Resource utilization
- 14) A _____ model is based on a judgement of what is considered abnormal, rather than an automated analysis of past audit records.
 - a) multivariate
 - b) Markov process
 - c) time series
 - d) operational

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) What is Release of Message Content?
 - 2) What do you mean by Nonrepudiation?
 - 3) What is cryptanalysis?
 - 4) Explain some policies to set strong password.
 - 5) Explain Rule-based Intrusion detection techniques.
- Q.2 B) Write Notes on. (Any Two) 06**
- 1) ACL capabilities
 - 2) Asymmetric key
 - 3) RFC publication process
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) What is Attack? Explain different types of Active attacks with example.
 - 2) Explain Chinese Wall Model with Example.
 - 3) Explain the use of IPSec documents.
- Q.3 B) Answer the following questions. (Any One) 06**
- 1) Explain the procedure of RSA algorithm with suitable example.
 - 2) What is Security Association (SA)? Explain the use of various SA parameters.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) What is PAP Packets? Explain the use of different fields used in PAP packets.
 - 2) What is Secure Socket Layer Protocol? Explain the use of Alert protocol.
 - 3) What is Biometric? Explain the different types of biometrics with example.
- Q.4 B) Answer the following questions. (Any One) 04**
- 1) What is Digital Signature? How it works? Explain with example.
 - 2) Explain Model for Network security with well labelled diagram.
- Q.5 Answer the following questions. (Any Two) 14**
- 1) What is Authentication Header (AH)? Explain the purpose of various fields in AH.
 - 2) What is intruder? Explain different Intrusion detection techniques.
 - 3) What is Firewall? Explain the characteristics of firewall.

Seat
No.

**M.C.A. (Semester - V) (Old) (CBCS) Examination Oct/Nov 2019
Science**

DIGITAL IMAGE PROCESSING

Day & Date: Saturday, 09-11-2019
Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below.

14

- 1) The dominant application in the _____ band is radar.
 - a) X-rays
 - b) Gamma rays
 - c) Infrared
 - d) Microwaves
- 2) _____ is not field of x-ray band.
 - a) industry
 - b) astronomy
 - c) radar
 - d) medical diagnoses
- 3) An image is a two dimensional function where x and y are _____.
 - a) spatial coordinates
 - b) frequency coordinates
 - c) time coordinates
 - d) real coordinates
- 4) Cornea is tough transparent tissues that covers eye's _____.
 - a) eye lid
 - b) lashes
 - c) anterior
 - d) exterior
- 5) MRI in imaging stands for _____.
 - a) magnetic resonance imaging
 - b) magnetic resistance imaging
 - c) magnetic resonance intensity
 - d) major resonance imaging
- 6) Correction of power law response is called _____.
 - a) alpha correction
 - b) gamma correction
 - c) beta correction
 - d) pixel correction
- 7) Histogram is technique processed in _____.
 - a) intensity domain
 - b) frequency domain
 - c) spatial domain
 - d) undefined domain
- 8) Sum of all components in normalized histogram is equal to _____.
 - a) 100
 - b) 2
 - c) 0
 - d) 1
- 9) Negative of image having intensity values $[0, L-1]$ is expressed by _____.
 - a) $s = L-1$
 - b) $s = 1-r$
 - c) $s = L-1-r$
 - d) $s = L-r$
- 10) For finding horizontal lines we use mask of values _____.
 - a) $[-1 \ -1 \ -1; \ 2 \ 2 \ 2; \ -1 \ -1 \ -1]$
 - b) $[2 \ -1 \ -1; \ -1 \ 2 \ -1; \ -1 \ -1 \ 2]$
 - c) $[-1 \ 2 \ -1; \ -1 \ 2 \ -1; \ -1 \ 2 \ -1]$
 - d) $[-1 \ -1 \ 2; \ -1 \ 2 \ -1; \ 2 \ -1 \ -1]$
- 11) For edge detection we use _____.
 - a) first derivative
 - b) second derivative
 - c) third derivative
 - d) Both A and B

Seat
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M.C.A. (Semester – V) (Old) (CBCS) Examination Oct/Nov-2019
Science

WEB DESIGN TECHNIQUES

Day & Date: Monday, 11-11-2019
Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below: 14

- 1) _____ jQuery method is used to apply more than one style properties for selected elements.
 - a) css()
 - b) html()
 - c) style()
 - d) multi-style()
- 2) The value of _____ property of navigator object is the same for Netscape and IE.
 - a) navigator.appName
 - b) navigator. appCodeName
 - c) navigator.appVersion
 - d) navigator.BrowserName
- 3) The _____ tag defines the relationship between a document and an external resource.
 - a) <src>
 - b) <anchor>
 - c) <link>
 - d) <href>
- 4) Following code select _____.
\$("div.intro").
 - a) The first div element with class="intro"
 - b) The first div element with id="intro"
 - c) All first div element with class="intro"
 - d) All first div element with id="intro"
- 5) _____ jQuery method is used to perform an asynchronous HTTP request.
 - a) jQuery. ajaxAsync ()
 - b) jQuery.ajax()
 - c) jQuery.ajaxAsync ()
 - d) jQuery.HTTPAsync()
- 6) AJAX functionality is applied within jQuery by using _____ function.
 - a) ajax
 - b) jajax
 - c) jqueryajax
 - d) javascriptajax
- 7) _____ method returns an element with a specific index number of the selected elements.
 - a) last()
 - b) eq()
 - c) filter()
 - d) get()
- 8) SOAP stands for _____.
 - a) Same Object Access Protocol
 - b) Same On Access Protocol
 - c) Simple On Accurate Protocol
 - d) Simple Object Access Protocol

- 9) _____ is the correct JavaScript syntax to write "Hello World".
- system.out.println("Hello World")
 - println ("Hello World")
 - document.write("Hello World")
 - response.write("Hello World")
- 10) _____ method is used to get the value from fields.
- get()
 - val()
 - text()
 - attr()
- 11) jQuery animate() method has no speed parameters.
- True
 - False
- 12) _____ technologies provides the ability to dynamically interact with Web page layout.
- JavaScript
 - XML
 - HTLM
 - DOM
- 13) _____ is used to apply schema to XML document by using name attribute.
- <schema attribute="schema1">
 - <schema nameattribute="schema1">
 - <schema name="schema1">
 - <name="schema1">
- 14) The _____ attribute is meant to be used as an alternative text if the image is not display.
- alt
 - src
 - asrc
 - href

Q.2 a) Answer the following questions. (Any Four) 08

- Explain any four text formatting tags with example.
- Explain use of div and span tags.
- Explain eval method with example.
- Explain JQuery chaining with example.
- Explain structure of XML file.

b) Answer the following questions. (Any Two) 06

- Explain different Sliding technique used in JQuery with example.
- Write JavaScript which display current date and time in new window.
- What is AJAX? Explain different jquery's AJAX related methods.

Q.3 a) Answer the following questions. (Any Two) 08

- Explain configuration of httpd.conf file.
- Explain different lists used in HTML. Write example of nested list.
- Explain navigator object in detail. Give minimum four properties with example.

b) Answer the following questions. (Any One) 06

- What is Array object? How to create multi-dimensional array in JavaScript? Explain minimum 4 array object methods with example.
- Explain different Dimension Methods used in JQuery. Give example.

Q.4 a) Answer the following questions. (Any Two) 10

- Explain different XML element rules.
- Write JavaScript for Armstrong number and reverse number.
- What is JQuery callback function? Write any example with callback and without callback function.

b) Answer the following questions. (Any One) 04

- 1) What is JQuery Plugins? Explain how to add plugins in web page.
Give example.
- 2) Explain different Text formatting properties used in CSS.

Q.5 Answer the following questions. (Any Two) 14

- a) Explain different Conditional Processing elements used in XSLT with example.
- b) Explain different jQuery UI widget with example.
- c) Explain different control and looping structure used in JavaScript.

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M.C.A. (Semester – V) (Old) (CBCS) Examination Oct/Nov-2019
Science
MOBILE COMPUTING

Day & Date: Wednesday, 13-11-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below. 14

- 1) Several directed antennas can be combined on a single pole to construct a _____.
 a) Sectorized antenna b) Omni-directional antenna
 c) Directional antenna d) Marconi antenna
- 2) Which of the following is not the basis for SDMA algorithm?
 a) Space Division multiplexing b) Cells
 c) Sectorized antennas d) Space Division Duplex
- 3) In IEEE 802.11 wireless LAN, _____ sub layer handles modulation and encoding/decoding of signal.
 a) COA b) PMD
 c) MAC d) AMD
- 4) In mobile IP, a tunnel usually ends at _____.
 a) Foreign Agent b) Internet
 c) Home agent d) Router
- 5) _____ is used for cellular phone, satellite, and wireless LAN communications.
 a) Infrared waves b) Microwaves
 c) Radio Waves d) None of these
- 6) MAC is _____.
 a) Medium Access Control b) Modem Access Control
 c) Modem Advice Control d) Medium Advice Control
- 7) _____ can provide several services to the MN during its visit to the foreign network.
 a) HA b) GA
 c) FA d) TA
- 8) The Um radio interface is used to connect _____.
 a) MSC and BTS b) BTS and MS
 c) CN and MN d) BTS and BSC
- 9) IMSI number consists of _____.
 a) MSIN b) Mobile Network Code
 c) Mobile Country Code d) All of the above
- 10) Which of the following algorithm is used for authentication in GSM?
 a) A5 b) SERS
 c) A3 d) A8

- 11) _____ is used to provide the data or to access the data by other applications which is stored by itself.
- | | |
|---------------------|-----------------------|
| a) Activity | b) Broadcast Receiver |
| c) Content-provider | d) Service |
- 12) Which is not an Android layout?
- | | |
|-------------|-------------|
| a) Activity | b) Relative |
| c) Frame | d) Table |
- 13) The main purpose of _____ is to inform the home agent of the current location for correct forwarding of packets.
- | | |
|--------------------|-----------------|
| a) Agent Discovery | b) Registration |
| c) TDA | d) Service |
- 14) Forming groups of piconets called _____.
- | | |
|----------------|---------------|
| a) Wi-Fi | b) Scatternet |
| c) Radio waves | d) Hopping |

Q.2 A) Answer the following questions. (Any Four) 08

- 1) What do you mean by ad-hoc network?
- 2) Define mobile computing.
- 3) Define the term TDMA.
- 4) What is Marconi antenna?
- 5) What is handover?

B) Write notes. (Any Two) 06

- 1) Signal propagation and its ranges
- 2) Piconet
- 3) Roaming

Q.3 A) Answer the following questions. (Any Two) 08

- 1) Compare TCP with UDP
- 2) Explain GUI architecture of an Android.
- 3) Compare Infra-red and radio transmission.

B) Answer the following questions. (Any One) 06

- 1) What are the different entities and terminologies for mobile IP?
- 2) Explain the SDMA and FDMA.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) What is multiplexing? Explain any two techniques.
- 2) Explain client initialization via Dynamic Host Configuration Protocol in detail.
- 3) Explain applications of mobile computing.

B) Answer the following questions. (Any One) 04

- 1) Explain major components of an Android.
- 2) Explain the architecture of Mobile IP.

Q.5 Answer the following questions. (Any Two) 14

- a) Discuss the authentication and encryption scheme used in GSM security.
- b) Explain in detail MACA – collision avoidance with its examples.
- c) What is congestion control? Explain the mechanism slow start and fast recovery.

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**M.C.A. (Semester - V) (Old) (CBCS) Examination Oct/Nov-2019
Science**

ARTIFICIAL INTELLIGENCE

Day & Date: Thursday, 14-11-2019
Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) Knowledge may be _____.
 - I) Declarative
 - II) Procedural
 - III) Non-procedural
 - a) Only (I) above
 - b) Only (II) above
 - c) Only (III) above
 - d) Both (I) and (II) above
- 2) The first widely-used commercial form of Artificial Intelligence (AI) is being used in many popular products like microwave ovens, automobiles and plug in circuit boards for desktop PCs. It allows machines to handle vague information with deftness that mimics human intuition. What is the name of this AI?
 - a) Boolean logic
 - b) Human logic
 - c) Fuzzy logic
 - d) Functional logic
- 3) What is the extraction of the meaning of utterance?
 - a) Syntactic
 - b) Semantic
 - c) Pragmatic
 - d) None of the mentioned
- 4) One of the main challenge/s of NLP is _____.
 - a) Handling Ambiguity of Sentences
 - b) Handling Tokenization
 - c) Handling POS-Tagging
 - d) All of the mentioned
- 5) Treatment chosen by doctor for a patient for a disease is based on.
 - a) Only current symptoms
 - b) Current symptoms plus some knowledge from the textbooks
 - c) Current symptoms plus some knowledge form the textbooks plus experience
 - d) None of the above
- 6) Which search strategy is also called as blind search?
 - a) Uniformed search
 - b) Informed search
 - c) Simple reflex search
 - d) All of the mentioned
- 7) Which search is implemented with an empty first-in-first-out queue?
 - a) Depth-first search
 - b) Breadth-first search
 - c) Bidirectional search
 - d) None of the mentioned
- 8) Which of the following is/are Uninformed Search technique/techniques?
 - a) Breadth First Search (BFS)
 - b) Depth First Search (DFS)
 - c) Bidirectional Search
 - d) All of the mentioned

- 9) Best-First search can be implemented using the following data structure.
 - a) Queue
 - b) Stack
 - c) Priority Queue
 - d) Circular Queue
- 10) _____ Is an algorithm, a loop that continually moves in the direction of increasing value – that is uphill.
 - a) Up-Hill Search
 - b) Hill-Climbing
 - c) Hill algorithm
 - d) Reverse-Down-Hill search
- 11) Which is the true regarding BFS (Breadth First Search)?
 - a) BFS will get trapped exploring a single path
 - b) The entire tree so far been generated must be stored in BFS
 - c) BFS is not guaranteed to find a solution, if exists
 - d) BFS is nothing but Binary First Search
- 12) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
 - a) AND
 - b) OR
 - c) NOT
 - d) All of the mentioned
- 13) Semantic Networks is _____.
 - a) A way of representing knowledge
 - b) Data structure
 - c) Data Type
 - d) DBMS
- 14) Hill-Climbing approach stuck for the following reasons.
 - a) Local maxima
 - b) Ridges
 - c) Plateau
 - d) All of the mentioned

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) Define Frame.
 - 2) What is sample space?
 - 3) Define ridge.
 - 4) What is complex sentence?
 - 5) Define Fuzzy logic.
- B) Answer the following questions. (Any Two) 06**
- 1) What do you mean by Artificial Intelligence?
 - 2) Explain in short Dempster-Shafer theory.
 - 3) What is Production System?
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Explain sentence Level Processing.
 - 2) Explain the predicate logic resolution algorithm.
 - 3) Discuss about constraint satisfaction Problem.
- B) Answer the following questions. (Any One) 06**
- 1) Explain in detail steps of Syntactic Processing as the process of Natural Language Processing with suitable example.
 - 2) Explain in the detail the concept of Conceptual Dependency as strong slot and filler structure with suitable example.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) Explain Semantic Nets in details.
 - 2) Write Algorithm to convert to clause form.
 - 3) Explain AI Problem Characteristics with example.

B) Answer the following questions. (Any One) 04

- 1) Differentiate between procedural versus Declarative Knowledge.
- 2) Differentiate between DFS and BFS.

Q.5 Answer the following questions. (Any Two) 14

- 1) What do you mean by predicate logic? Convert the following sentences to FOL.
 - i) *All students are smart*
 - ii) *There is a student who is smart*
 - iii) *Every gardener likes the sun*
 - iv) *Clinton is not tall*
- 2) What is the meaning of Uncertainty in reasoning? Explain different statistical techniques to handle uncertainty.
- 3) What do you mean by Best First Search? Explain Best First Search as a part of Heuristic Search technique with suitable example.

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M.C.A. (Semester – V) (Old) (CBCS) Examination Oct/Nov-2019
Science
Network Security

Day & Date: Saturday, 16-11-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) _____ is a transport-level segment (transport mode) or IP packet (tunnel mode) that is protected by encryption.
 - a) Sequence Number
 - b) Security parameters Index
 - c) Payload Data (variable)
 - d) None of these
- 2) _____ identifies the type of data contained in the payload data field by identifying the first header in that payload.
 - a) Pad Length (8 bits)
 - b) Next Header (8 bits)
 - c) Authentication Data (variable)
 - d) None of these
- 3) _____ An individual who seizes supervisory control of the system and uses this control to evade auditing and access controls or to suppress audit collection.
 - a) Clandestine user
 - b) Misfeasor
 - c) Masquerader
 - d) None of these
- 4) The _____ prevents or inhibits the normal use or management of communications facilities.
 - a) Replay
 - b) Modifications of message
 - c) Masquerade
 - d) denial of service
- 5) The heart of the X.509 scheme is the _____ certificate associated with each user.
 - a) private-key
 - b) secret-key
 - c) public-key
 - d) duplicate key
- 6) _____ is the scrambled message produced as output.
 - a) Ciphertext
 - b) Plaintext
 - c) Continuous text
 - d) None of these
- 7) The art of breaking ciphers is known as _____.
 - a) Cryptography
 - b) Cryptanalysis
 - c) Cryptology
 - d) Crypting
- 8) _____: Specification of key management capabilities.
 - a) RFC 2401
 - b) RFC 2402
 - c) RFC 2406
 - d) RFC 2408
- 9) PGP stands for _____.
 - a) Pretty Good Protocol
 - b) Pretty Good Point
 - c) Pretty Good Privacy
 - d) Point Go Point
- 10) _____ is an authentication service developed as part of Project Athena at MIT.
 - a) Kerberos
 - b) SSL
 - c) HTTP
 - d) SMTP

- 11) _____ an entity capable of accessing objects.
 - a) Object
 - b) Subject
 - c) Access right
 - d) None of these
- 12) _____ determines the types of Internet services that can be accessed, inbound or outbound.
 - a) Service control
 - b) Direction control
 - c) User control
 - d) Behavior control
- 13) _____ A nonnegative integer that may be incremented but not decremented until it is reset by management action.
 - a) Gauge
 - b) Interval timer
 - c) Counter
 - d) Resource utilization
- 14) A _____ model is based on a judgement of what is considered abnormal, rather than an automated analysis of past audit records.
 - a) multivariate
 - b) Markov process
 - c) time series
 - d) operational

- Q.2 A) Answer the following questions. (Any Four) 08**
- 1) What is Release of Message Content?
 - 2) What do you mean by Nonrepudiation?
 - 3) What is cryptanalysis?
 - 4) Explain some policies to set strong password.
 - 5) Explain Rule-based Intrusion detection techniques.
- Q.2 B) Write Notes on. (Any Two) 06**
- 1) ACL capabilities
 - 2) Asymmetric key
 - 3) RFC publication process
- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) What is Attack? Explain different types of Active attacks with example.
 - 2) Explain Chinese Wall Model with Example.
 - 3) Explain the use of IPSec documents.
- Q.3 B) Answer the following questions. (Any One) 06**
- 1) Explain the procedure of RSA algorithm with suitable example.
 - 2) What is Security Association (SA)? Explain the use of various SA parameters.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) What is PAP Packets? Explain the use of different fields used in PAP packets.
 - 2) What is Secure Socket Layer Protocol? Explain the use of Alert protocol.
 - 3) What is Biometric? Explain the different types of biometrics with example.
- Q.4 B) Answer the following questions. (Any One) 04**
- 1) What is Digital Signature? How it works? Explain with example.
 - 2) Explain Model for Network security with well labelled diagram.
- Q.5 Answer the following questions. (Any Two) 14**
- 1) What is Authentication Header (AH)? Explain the purpose of various fields in AH.
 - 2) What is intruder? Explain different Intrusion detection techniques.
 - 3) What is Firewall? Explain the characteristics of firewall.

Seat
No.

M.C.A. (Semester – III) (Old) (CBCS) Examination Oct/Nov-2019
Science

COMPUTER ORIENTED STATISTIC

Day & Date: Monday, 18-11-2019
Time: 03:00 PM To 05:30 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing the correct alternatives given below: 14

- 1) Which of the following is not a measure of central tendency?
 - a) Mean
 - b) Range
 - c) Median
 - d) Mode
- 2) Which of the following is not a measure of dispersion?
 - a) Variance
 - b) Mean
 - c) Range
 - d) StdDev
- 3) What is the relation between A. M., G. M. and H. M.?
 - a) $A. M. \leq G. M. \leq H. M.$
 - b) $A. M. \leq G. M. \geq H. M.$
 - c) $A. M. \geq H. M. \geq G. M.$
 - d) None of these
- 4) The Karl Pearson's coefficient of correlation (r) lies between _____.
 - a) $-1 \leq r \leq 1$
 - b) $0 \leq r \leq 1$
 - c) $1 \leq r \leq 2$
 - d) None of these
- 5) The relation between correlation coefficient r , b_{yx} and b_{xy} is _____.
 - a) $r = b_{yx} * b_{xy}$
 - b) $r = b_{yx} / b_{xy}$
 - c) $r = \sqrt{b_{yx} * b_{xy}}$
 - d) None of these
- 6) If intersection of two sets is empty then two sets are called _____.
 - a) Exhaustive
 - b) Exclusive
 - c) Simple
 - d) Complex
- 7) If a random variable is symmetric about 0, then the median of X is _____.
 - a) 0
 - b) 0.5
 - c) 1
 - d) None of these
- 8) If $P(X = x) = P_i$ is a probability mass function, then _____.
 - a) $P_i \geq 0$
 - b) $\sum_i P_i = 1$
 - c) Both a and b
 - d) None of these
- 9) Variance of Binomial (n, p) distribution is _____.
 - a) np
 - b) $np(1 - p)$
 - c) np^2
 - d) None of these
- 10) Let X be a random variable follows Poisson distribution with parameter λ , then _____.
 - a) $E(X) = V(X)$
 - b) $E(X) > V(X)$
 - c) $E(X) < V(X)$
 - d) None of these
- 11) Let X -Binomial (n, p), then relation between mean and variance is _____.
 - a) Mean > Variance
 - b) Mean < Variance
 - c) Mean = Variance
 - d) None of these

Q.5 Answer the following questions. (Any Two)

a) Obtain Quartile deviation for following data.

X_i	:	10	12	13	14	15	17
f_i	:	4	3	2	5	7	1

b) Define any two measure of dispersion.

c) Explain technique of obtaining random numbers from $U(0,1)$.

Seat No.	
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M.C.A. (Semester - I) (CBCS) Examination Oct/Nov 2019
Science

DIGITAL CIRCUITS AND MICROPROCESSORS

Day & Date: Thursday, 14-11-2019
Time: 08:00 AM To 10:30 AM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) Which of the following gates would output 1 when one input is 1 and other input is 0?

a) OR gate	b) AND gate
c) NAND gate	d) Both (a) and (c)
- 2) Which table shows the electrical state of a digital circuit's output for every possible combination of electrical states in the inputs?

a) Function table	b) Truth table
c) Routing table	d) ASCII table
- 3) A combinational circuit is one in which the output depends on the _____.

a) input combination at the time
b) input combination and the previous output
c) input combination at that time and the previous input combination
d) present output and the previous output
- 4) Which is the correct order of sequence for representing the input values in K- map?

a) (00,01,10,11)	b) (00,10,01,11)
c) (00,01,11,10)	d) (00,10,11,01)
- 5) What does the below stated Boolean Law imply, while performing below stated operation of an input with '1'?
Expression of Law: $A + 1 = 1$

a) Output will always be equal to input
b) Output will always be high
c) Output will always be low
d) Output will always be same
- 6) How many inputs are required for a 1-of-10 BCD decoder?

a) 10	b) 4
c) 1	d) 8
- 7) A digital multiplexer is also known as _____.

a) Combinational circuit	b) Sequential circuit
c) Memory device	d) None of these
- 8) What logic function is produced by adding an inverter to the output of an AND gate?

a) NAND	b) NOR
c) XOR	d) OR

- 9) Decimal number 10 is equal to binary number _____.
 - a) 1110
 - b) 1010
 - c) 1001
 - d) 1000
- 10) 1's complement of 11100110 is _____.
 - a) 00011001
 - b) 10000001
 - c) 00011010
 - d) 00000000
- 11) In 8085 microprocessor, \overline{RD} pin this is used for read operation. It is an output signal. It is active when _____.
 - a) high
 - b) low
 - c) medium
 - d) none of these
- 12) INTA stands for _____.
 - a) Interrupt Act
 - b) Interrupt Acknowledge
 - c) Interrupt Accept
 - d) Interrupt Adverse
- 13) The ALE signal, when the pulse goes high, it indicates _____. When the pulse goes down it indicates data.
 - a) Address
 - b) Read
 - c) Write
 - d) Fetch
- 14) The MOV instruction copies the contents of the _____ register into the destination register without any alteration.
 - a) Data
 - b) Segment
 - c) Source
 - d) Offset

Q.2 A) Answer the following questions. (Any Four) 08

- 1) Define the meaning of inverter.
- 2) What is mean by bus?
- 3) State the meaning of Universal gate.
- 4) What do you mean by digital computer?
- 5) How to measure the rate of data transfer?

B) Write Notes. (Any Two) 06

- 1) AND Invert
- 2) Control Unit
- 3) D-Flip Flop

Q.3 A) Answer the following questions. (Any Two) 08

- 1) Define Flip-Flop. Explain in detail S-R flip flop with neat logic diagram.
- 2) State the meaning of Integrated Circuits.
- 3) Explain EU and BIU components of 8086 microprocessor.

B) Answer the following questions. (Any One) 06

- 1) What is decoder? Discuss decoder as digital components.
- 2) Define Adder. Discuss half and full adder in detail.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) Explain De Morgan's theorem with suitable example.
- 2) Explain in detail instruction set of 8085.
- 3) Explain NOR and Ex-NOR gate with neat diagram and its truth table.

B) Answer the following questions. (Any One) 04

- 1) What are the three basic characteristics of any microprocessor?
- 2) State the meaning of multiplexer.

Q.5 Answer the following questions. (Any Two)

- a) What do you mean by K-map? Simplify the Boolean function:
$$F(A, B, C) = \sum (0, 2, 4, 5, 6)$$
- b) Sketch and state the pin diagram of 8085 Microprocessor.
- c) What do you mean by Register? Explain in detail shift registers.

Seat No.	
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M.C.A. (Semester - I) (CBCS) Examination Oct/Nov-2019
Science
MANAGEMENT

Day & Date: Saturday, 16-11-2019
 Time: 08:00 AM To 10:30 AM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) Which of the following is real A/c.?
 - a) Salary A/c
 - b) Building A/c
 - c) Bank A/c
 - d) Goodwill A/c
- 2) Goodwill A/c is a / an _____.
 - a) Normal A/c
 - b) Tangible Asset
 - c) Intangible Asset
 - d) Liability
- 3) Cash Book records _____.
 - a) only cash sales
 - b) all types of cash receipts & payments
 - c) only revenue receipts
 - d) only capital receipts
- 4) Passbook is issued by _____.
 - a) Creditor
 - b) Lender
 - c) Customer
 - d) Bank
- 5) Cost unit for telemarketing is _____.
 - a) Cost per customer call
 - b) Cost per hour
 - c) Cost per contract
 - d) Cost per day
- 6) Selection of Employee means _____.
 - a) To interview the employee
 - b) To choose the employee according to the job specification
 - c) To verify the record of the employee
 - d) To contract the employee
- 7) In SWOT analysis T stand for _____.
 - a) Trait
 - b) Threat
 - c) Tariff
 - d) Tubb
- 8) The word 'Communication' stands for the _____.
 - a) sharing of ideas in common
 - b) sharing of ideas in private
 - c) sharing of views in public
 - d) sharing of views in private
- 9) In case of banking transactions, CA stands for _____.
 - a) Chartered Accountant
 - b) Cost Accountant
 - c) Current Account
 - d) Credit Account
- 10) Budget stands for planning of _____.
 - a) Future Course of Action
 - b) Past Course of Action
 - c) Past View of Action
 - d) Past record of Activity

- 11) Computer Account is a _____.
 - a) Real A/c
 - b) Personal A/c
 - c) Nominal A/c
 - d) None of these
- 12) Closing balance of a Cash Book is a / an _____.
 - a) Fixed Asset
 - b) Term Liability
 - c) Current Liability
 - d) Current Asset
- 13) Key success variable for Sugar Industry is _____.
 - a) Recovery Rate Per ton
 - b) Recovery Rate Per size
 - c) Length of the Sugar cane
 - d) None of the above
- 14) Training improves the _____ of the workers.
 - a) tension
 - b) laziness
 - c) skills
 - d) weakness

Q.2 A) Answer the following (Any Four) 08

- 1) Explain the types of verbal communication.
- 2) Explain the types of Non verbal communication.
- 3) Budget Manual
- 4) Budget Committee
- 5) Organization of Budget

Q.2 B) Write Notes on (Any Two) 06

- 1) KYC documents in Banking transaction.
- 2) Crossing of a cheque
- 3) Current Ratio

Q.3 A) Answer the following 08

- 1) Following data is available.

Particulars	Opening Stock (kg)	Expected Closing Stock (kg)
Material A	200	280
Material B	160	600
Finished Product M	140	180

Estimated sales of a product M is 1000 Kgs & this product is a combination of Material A & B in the proportion of 75% & 25%
 Purchase price of Material A is Rs. 600 per kg.
 Purchase price of Material B is Rs. 500 per kg.

– Prepare (Any Two)

- 1) Production Budget
- 2) Material consumption budget.
- 3) Purchase budget

Q.3 B) Following cost data is available 06

	Rs.
Direct Material	50,000
Indirect Material	40,000
Direct Labour	20,000
Indirect Labour	15,000
Direct Expenses	10,000
Indirect Expenses	8,000
Fixed Cost P.A.	1,00,000

– Compute (any one)

- 1) Prime Cost
- 2) Factory Cost

Q.4 A) Answer the following question. 10

Following information is available
2018 Aug

1. Opening Stock 500 units @ 20 each.
3. Purchased 400 units @ 22 each.
5. Issued 600 units to the job z.
7. Purchased 800 units @ 24 each.
9. Issued 500 units to job y.
12. Return from job z 100 units @ 22 per unit.
20. Purchased 400 units @ 25 each.

– Prepare the stores ledger using the above data (Any Two)

- 1) Using FIFO Method
- 2) Using LIFO Method
- 3) Using Weighted Average Method

Q.4 B) Following information is extracted from the records of ABC Ltd on 31.3.2017 04

	Rs.
Opening Stock	2,00,000
Sales	5,65,000
Purchases	3,41,750
Wages	1,00,000
Carriage	5,000
Factory lighting & heating	29,000
Closing Stock	3,00,000
Purchases Return	9,250
Selling & Administration Expenses	1,42,000

– Answer (Any One)

- 1) Prepare Trading A/c for the year ending & ascertain the amount of gross profit.
- 2) Calculate i) G.P. Ratio ii) N.P. Ratio

Q.5 Answer the following questions. (Any Two) 14

- 1) Define training. Discuss the various types of training.
- 2) Medias available for Advertising in India
- 3) Selection process of Employees

Seat
No.

M.C.A. (Semester - II) (CBCS) Examination Oct/Nov-2019
Science

OBJECT ORIENTED PROGRAMMING USING C++

Day & Date: Monday, 04-11-2019
Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) Which is also called as abstract class?
 - a) virtual function
 - b) pure virtual function
 - c) derived class
 - d) None of the mentioned

- 2) Which of the following statement is correct?
 - a) C++ allows static type checking
 - b) C++ allows dynamic type checking
 - c) C++ allows static member function be of type const.
 - d) Both A and B

- 3) What is the output of this program?


```
#include <iostream>
using namespace std;
void func(int a, bool flag = true)
{
    if (flag == true )
    {
        cout << "Flag is true. a = " << a;
    }
    else
    {
        cout << "Flag is false. a = " << a;
    }
}
int main()
{
    func(200, false);
    return 0;
}
```

 - a) Flag is true. a = 200
 - b) Flag is false. a = 100
 - c) Flag is false. a = 200
 - d) Flag is true. a = 100

- 4) How the constants are declared?
 - a) const keyword
 - b) #define preprocessor
 - c) both a and b
 - d) None of the mentioned

- 5) When properties of one class are inherited by more than one class as _____ inheritance.
 - a) Hierarchical
 - b) Hybrid
 - c) Multiple
 - d) Multilevel

- 6) Binding of data and functions together is called _____.
 - a) Abstraction
 - b) Data hiding
 - c) Encapsulation
 - d) None

- 7) What is meant by template parameter?
 a) It can be used to pass a type as argument
 b) It can be used to evaluate a type
 c) It can of no return type
 d) None of the mentioned
- 8) How many types of polymorphisms are supported by C++?
 a) 1
 b) 2
 c) 3
 d) 4
- 9) Which of the following denotes feature of OOPS? :
 a) Inheritance
 b) Encapsulation
 c) Polymorphism
 d) All the above
- 10) The operator that cannot be overloaded is _____.
 a) ++
 b) ::
 c) ()
 d) ~
- 11) Which of the following problem causes an exception?
 a) Missing semicolon in statement in main ()
 b) A problem in calling function
 c) A syntax error
 d) A run-time error
- 12) RunTime polymorphism is achieved by _____.
 a) friend function
 b) virtual function
 c) operator overloading
 d) function overloading
- 13) What will be the output of following program?

```
#include<iostream.h>
void main()
{
float x;
x=(float)9/2;
cout<<x;
}

```

 a) 4.5
 b) 4.0
 c) 4
 d) 5
- 14) A class defined within another class is _____.
 a) Nested class
 b) Inheritance
 c) Containership
 d) Encapsulation

Q.2 A) Answer the following questions. (Any Four)**08**

- 1) What is stream?
- 2) Write use of scope resolution operation.
- 3) What is manipulator?
- 4) What is Class?
- 5) What is operator overloading?

B) Write Short Notes. (Any Two)**06**

- 1) Enumerated type
- 2) Explain the rules for virtual functions
- 3) Function overloading

- Q.3 A) Answer the following questions. (Any Two) 08**
- 1) Explain file stream classes in C++.
 - 2) Write a C++ program print the Diagonal of matrix of order 3×3 .
 - 3) What are the copy constructors and explain their need?
- B) Answer the following questions. (Any One) 06**
- 1) Write a C++ program to implement function overloading.
 - 2) Explain `put()` and `get()` function with suitable example.
- Q.4 A) Answer the following questions. (Any Two) 10**
- 1) What is inheritance? Discuss different types of inheritance.
 - 2) Discuss the different types of data types used in C++.
 - 3) Write a program to demonstrate unary operator.
- B) Answer the following questions. (Any One) 04**
- 1) Explain reference variable.
 - 2) What is dynamic initialization of objects?
- Q.5 Answer the following questions. (Any Two) 14**
- a) Explain call by reference and return by reference.
 - b) What are exceptions? How they are handled in C++? Give advantages.
 - c) Write a program in C++ to generate Fibonacci series by overloading prefix operator.

Seat No.	
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M.C.A. (Semester - II) (CBCS) Examination Oct/Nov-2019
Science
DATA STRUCTURES

Day & Date: Tuesday, 05-11-2019
Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) The data structure required to evaluate a postfix expression is _____.
 - a) Stack
 - b) Array
 - c) Queue
 - d) Linked List
- 2) The term “push” and “pop” is related to the _____.
 - a) Stack
 - b) Array
 - c) Queue
 - d) All the above
- 3) Linked List can be _____.
 - a) Single
 - b) Double
 - c) Circular
 - d) All of these
- 4) The process of arranging data in alphabetical or numerical order is called _____.
 - a) Sorting
 - b) Searching
 - c) Traversal
 - d) Merging
- 5) What Member function places a new node at the end of the linked list?
 - a) addNode
 - b) append Node
 - c) DisplayNode
 - d) StructNode
- 6) The worst case time complexity of AVL tree is better in comparison to binary search tree for _____.
 - a) Search and Insert Operations
 - b) Search and Delete Operations
 - c) Search, Insert and Delete Operations
 - d) Insert and Delete Operations
- 7) Consider a linked list of n elements. What is the time taken to insert an element after an element Pointed by some pointer?
 - a) $O(1)$
 - b) $O(\log_2 n)$
 - c) $O(n)$
 - d) $O(n \log_2 n)$
- 8) A binary tree in which if all its levels except possibly the last, have the maximum number of nodes and all the nodes at the last level appear as far left as possible, is known as _____.
 - a) AVL tree
 - b) Full binary tree
 - c) Threaded tree
 - d) Complete binary tree
- 9) In a circular linked list _____.
 - a) There is no beginning and no end
 - b) Components are arranged hierarchically
 - c) Forward and backward traversal within the list is permitted
 - d) Components are all linked together in some sequential manner

- 10) A mathematical-model with a collection of operations defined on that model is called _____.
 - a) Data Structure
 - b) Abstract Data Type
 - c) Primitive Data Type
 - d) Algorithm
- 11) An adjacency matrix representation of a graph cannot contain information of:
 - a) Nodes
 - b) Edges
 - c) Direction of edges
 - d) Parallel edges
- 12) In Breadth First Search of Graph, which of the following data structure is used?
 - a) Stack
 - b) Queue
 - c) Linked List
 - d) None of these
- 13) Convert the infix to postfix for $A-(B+C)*(D/E)$.
 - a) $ABC+DE/*-$
 - b) $ABC-DE/*-$
 - c) $ABC-DE*/*-$
 - d) None of the above
- 14) Which of the following algorithmic paradigm is used in the merge sort?
 - a) Dynamic Programming
 - b) Back Tracking
 - c) Greedy method
 - d) Divide and Conquer

Q.2 A) Answer the following. (Any Four) 08

- 1) What do you mean by Primitive Data Type?
- 2) Define Algorithm
- 3) What is array?
- 4) What do you mean by data structures?
- 5) Define dynamic programming.

B) Write Notes. (Any Two) 06

- 1) Circular Queue
- 2) Sparse Matrix
- 3) Analysis of algorithm

Q.3 A) Answer the following. (Any Two) 08

- 1) What do you mean by Queue? State its different types.
- 2) Describe properties of list structures.
- 3) Define adjacency matrix and path matrix.

B) Answer the following. (Any One) 06

- 1) Write a C/C++ program to reverse a string using stack.
- 2) Define binary tree. Explain threaded binary tree.

Q.4 A) Answer the following. (Any Two) 10

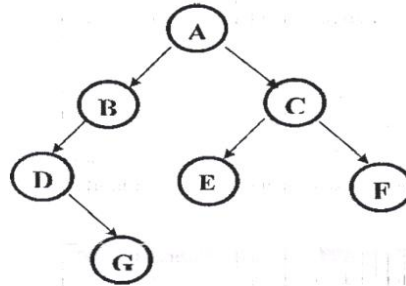
- 1) Describe height balanced (AVL) trees with example.
- 2) Write an algorithm for simple merge sort technique.
- 3) What are the differences between linear search and binary search?

B) Answer the following (Any One) 04

- 1) Differentiate stack and queue.
- 2) Differentiate single and multidimensional arrays.

Q.5 Answer the following. (Any Two)

- 1) Define the term Backtracking. Discuss in detail mechanism of Backtracking with suitable example.
- 2) What do you mean by sorting? Perform Bubble sort on following series.
Series: 44,55,12, 42, 94, 18, 06, 67, 35, 89 and 15.
- 3) What do you mean traversing? From the following binary tree, state the result of post-order and pre-order traversal.



Seat
No.

M.C.A. (Semester - II) (CBCS) Examination Oct/Nov-2019
Science
OPERATING SYSTEM

Day & Date: Wednesday, 06-11-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) A major problem with _____ algorithms is indefinite blocking or starvation.
 - a) Disk Storage
 - b) Page replacement
 - c) Priority
 - d) First Come First Serve
- 2) The _____ behaves like writer lock; only one process at a time can acquire such lock.
 - a) Hardware Lock
 - b) Exclusive Lock
 - c) Shared Lock
 - d) System Lock
- 3) A _____ defines a path from the current directory.
 - a) Absolute path
 - b) Directory path
 - c) Relative path
 - d) File-Directory path
- 4) In Round Robin algorithm, a small unit of _____ is defined.
 - a) Virtual memory
 - b) Time quantum
 - c) Shortest Job First
 - d) Wait time
- 5) The value of _____ semaphore can range only between 0 and 1.
 - a) Counting
 - b) Monitor
 - c) Decimal
 - d) Binary
- 6) A _____ should be as fast as possible, since it is invoked during every process switch.
 - a) I/O Event Wait
 - b) Dispatcher
 - c) Memory Scheduler
 - d) Control system
- 7) The _____ buffer has finite length 'n', thus; at most 'n' messages can reside in it.
 - a) Bounded capacity
 - b) Zero capacity
 - c) Single capacity
 - d) Unbounded capacity
- 8) The processes that are residing in main memory and waiting to execute are kept on list called _____.
 - a) Running queue
 - b) System queue
 - c) Ready queue
 - d) Waiting queue
- 9) A _____ interface, in which commands and directives to control those commands are entered into files, those files are executed.
 - a) Graphical user
 - b) Fundamental
 - c) Directory
 - d) Batch

- 10) _____ provides a convenient interface between computer user and hardware.
 - a) Linked list
 - b) Operating system
 - c) Microprocessor
 - d) Program Stack
- 11) A domain is a collection of _____, each of which is an ordered pair <object-name rights-set>
 - a) private rights
 - b) operation rights
 - c) access rights
 - d) object rights
- 12) A _____ memory divided into same sized blocks is called as page.
 - a) physical
 - b) logical
 - c) frame
 - d) page
- 13) A _____ kernel allows a process to be preempted while it is running in kernel mode.
 - a) Preemptive
 - b) Non preemptive
 - c) Active
 - d) Non active
- 14) _____ is CPU scheduling criteria, which means number of processes completing their execution per unit time.
 - a) Wait time
 - b) Arrival time
 - c) Throughput
 - d) Response time

Q.2 A) Answer the following questions. (Any Four) 08

- 1) What do you mean by process control block?
- 2) What is system call?
- 3) What is mean by Turnaround time?
- 4) What do you mean by file?
- 5) What do you mean by Swapping?

B) Write Notes. (Any Two) 06

- 1) Parallel Computing System
- 2) Memory Management
- 3) Critical Section Problem

Q.3 A) Answer the following questions. (Any Two) 08

- 1) Discuss in detail directory structure in file system organization?
- 2) What do you mean by inter process communication?
- 3) Define Fragmentation. Discuss in detail contiguous allocation in memory management.

B) Answer the following questions. (Any One) 06

- 1) What do you mean by Deadlock? Discuss deadlock characterization in detail.
- 2) What is Thread? Discuss in detail different process state?

Q.4 A) Answer the following questions. (Any Two) 10

- 1) What is CPU Scheduling? Discuss working of Shortest Job First algorithm using following data-

P_NAME	P_Burst Time
ABC	22
XYZ	14
PQR	5
LMN	21
STU	18

- 2) Calculate the total number of page fault using Least Recently Used (LRU) Page replacement on following reference string having maximum 03 frames -

7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

- 3) What do you mean by file structure? Explain various allocation methods of file system management?

B) Answer the following questions. (Any One) 04

- 1) Enlist various File operations. Discuss First Come First Serve Disk scheduling method with suitable example.
- 2) Define the term Multi-programmed System? Explain in detail various types of scheduler in detail.

Q.5 Answer the following questions. (Any Two) 14

- 1) What do you mean by Operating System? Discuss in detail vital role of Operating System as being resource allocator.
- 2) Define the term Process Synchronization. Explain in detail Producer-Consumer problem?
- 3) What do you mean by Demand paging? Explain in detail steps in involved in handling page fault?