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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

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

- Answer the following questions (Any Four)**

 - 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 Widows 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)

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

08

B) Write Notes. (Any Two)

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

06

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

- 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.

08

B) Answer the following questions. (Any One)

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

06

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

- 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.

10

B) Answer the following questions. (Any One)

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

04

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

- 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

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)

14

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

SLR-DS-15

- 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

- Answer the following questions (Any Two)

 - 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) Dijkistra
 - 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

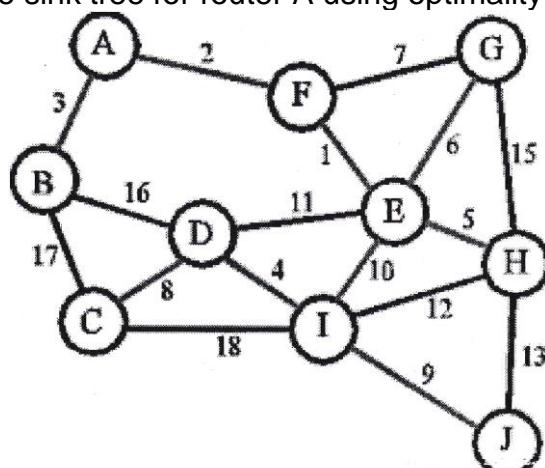
- Answer the following questions (Any Two)**

 - 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.

- Answer the following questions. (Any One)**

 - 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

- Answer the following questions:**

 - 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?	

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

Day & Date: Monday, 04-11-2019

Max. Marks: 70

Time: 03:00 PM To 05:30 PM

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 ExecuteReadermethod of two Command objects and assign the results to the same instance of a DataReader
b) Call the ExecuteReadermethod of a single Command object twice
c) Set the Command.CommandTextproperty to multiple SQL statements delimited by a semicolon
d) Set the Command.CommandTypeproperty 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.**

Set P

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.

SLR-DS-2

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

08

- Answer the following questions (Any Four)

 - 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

- Answer the following questions (Any Two)

 - 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

- Answer the following questions (Any One)

 - 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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Set P

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

SLR-DS-20

- 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) Dlvisive ANALysis
 - c) Distinct ANALysis
 - d) None of these

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

08

- Answer the following questions (Any Four)

 - 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

- ANSWER THE FOLLOWING QUESTIONS (ANY TWO):**

 - 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

- Answer the following questions (Any One)**

 - 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

- ANSWER THE FOLLOWING QUESTIONS (ANY FIVE)**

 - 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.**

Set P

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

SLR-DS-21

- 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

- ANSWER THE FOLLOWING QUESTIONS (ANY TWO)**

 - 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

- ANSWER THE FOLLOWING QUESTIONS (ANY ONE)**

 - 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

- Answer the following questions (Any Two):**

 - 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

- ANSWER THE FOLLOWING QUESTIONS (ANY TWO):**

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

Day & Date: Thursday, 07-11-2019

Max. Marks: 70

Time: 03:00 PM To 05:30 PM

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) $Rij(K)$ 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 $\delta: Q \times (\Sigma \cup \{\epsilon\}) \times \Gamma \rightarrow Q \times \Gamma^*$ 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

- 12) In PDA one situation has only one transition then it is known as _____.
 a) TM b) DPDA
 c) NPDA d) Stack
- 13) In CNF 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
- 14) If $L(r)=\{\epsilon, X, XX, XXX, XXXX, XXXXX\}$ then $r = \underline{\quad}$.
 a) $(\epsilon+X)$ b) $(\epsilon+X)^5$
 c) $(\epsilon+X)^n$ d) None of these

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

- 1) Let $R = \{(a,b), (b,c), (c,a)\}$ then find R^* .
- 2) Define: a) regular Expression b) Language
- 3) Find language for the following regular expression
 - a) $ab^* + ab^*$
 - b) $(0+1)^* 00 (0+1)^*$
- 4) Give application of R.E. and F.A.
- 5) Define CFG and CFL.

B) Write Notes. (Any Two) 06

- 1) Give pictorial representation of PDA.
- 2) Give the instantaneous description of Turing Machine?
- 3) Design a DFA which accept number is even or odd.

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

- 1) Find a deterministic acceptor equivalent to $M = (\{q_0, q_1, q_2\}, \{a, b\}, q_0, \{q_2\})$

Δ	A	B
q_0	q_0, q_1	q_2
q_1	q_0	q_1
q_2	-	q_0, q_1

- 2) Convert the following right linear grammar to equivalent left linear grammar

$$\begin{aligned} S &\rightarrow 0A \mid 1B \\ A &\rightarrow 0C \mid 1A \mid 0 \\ B &\rightarrow 1B \mid 1A \mid 0 \mid 1A \mid 1 \\ C &\rightarrow a \end{aligned}$$

- 3) Design a PDA to check whether a given string over $\{a, b\}$ ends in abb.

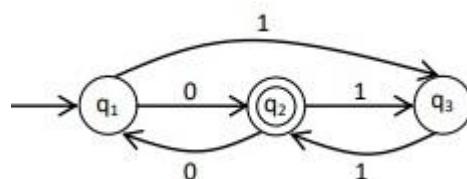
B) Write note. (Any One) 06

- 1) What is pumping lemma? Using pumping lemma check $\{a^n b^{n+1} \mid n \geq 1\}$ is regular or not.

- 2) Check whether the following grammar is ambiguous or not; if ambiguity found remove the ambiguity and rewrite an equivalent grammar.

$$E \rightarrow E+E \mid E^*E \mid id.$$

- 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: $S \rightarrow aABB \mid aAA$
 $A \rightarrow aBB \mid a$
 $B \rightarrow bBB \mid A$
 $C \rightarrow a$
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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Set	P
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M.C.A. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Science
DISTRIBUTED OPERATING SYSTEM

Day & Date: Friday, 08-11-2019

Max. Marks: 70

Time: 03:00 PM To 05:30 PM

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

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

- Answer the following questions (Any Five)**

 - 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

- Answer the following questions (Any One):**

 - 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

- Answer the following questions (Any Two):

 - 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.**

Set P

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

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

08

- ANSWER THE FOLLOWING QUESTIONS (ANY FOUR)**

 - 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

- ANSWER THE FOLLOWING QUESTIONS (ANY FIVE)**

 - 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

- ANSWER THE FOLLOWING QUESTIONS (Any TWO)**

 - 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

- Answer the following questions (Any One)**

 - 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

- ANSWER THE FOLLOWING QUESTIONS (Any Two)**

 - 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.**

Set P

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

- 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

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

Day & Date: Wednesday, 13-11-2019

Max. Marks: 70

Time: 11:30 AM To 02:00 PM

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

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

- ANSWER the following questions (Any Two)**

 - 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

- Answer the following questions (Any Two)**

 - 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.**

Set P

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.

SLR-DS-28

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)

- 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.**

Set P

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

- 11) If $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 0 & 1 \\ 1 & 2 & 3 \end{bmatrix}$ then $|A| = \underline{\hspace{2cm}}$.
- a) $|A| = -1$ b) $|A| = 0$
 c) $|A| = 1$ d) $|A| = 2$
- 12) In set $A \cap U = \underline{\hspace{2cm}}$.
- a) A b) U
 c) \emptyset d) None of these
- 13) If p is False, q is True, then $p \rightarrow q = \underline{\hspace{2cm}}$.
- a) True b) False
 c) 1 d) Both a and c
- 14) Let L be lattice then $\forall a, b, c \in L$ an associative law is given by $\underline{\hspace{2cm}}$.
- a) $a \wedge (b \wedge c) = (a \wedge b) \wedge c$ b) $a \wedge (b \vee c) = (a \wedge b) \vee c$
 c) $a \vee (b \vee c) = a \vee (b \vee c)$ d) Both a and c

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

- 1) Define function.
- 2) Define symmetric matrix with example.
- 3) Define normal Form.
- 4) Find $P(7,2)$.
- 5) Define connected graph.

B) Write Notes. (Any Two) 06

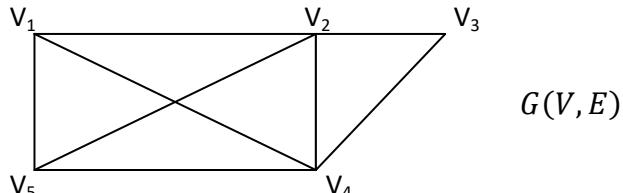
- 1) Hamiltonian graph
- 2) Lattice
- 3) Relation

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

- 1) Show that $P(n, n) = 2P(n, n - 2)$.
- 2) Directed & Undirected graph.
- 3) Find Cayley table for $G = \{\pm 1, \pm i\}$ under multiplication.

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

- 1) Define:
 - i) Simple graph.
 - ii) Psuedo graph.
 - iii) Multi graph
- 2) Find degree of all vertices in $G(V, E)$.



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

1) If $A = \begin{bmatrix} 3 & -4 & 5 \\ 1 & 6 & -7 \\ 1 & 2 & 0 \end{bmatrix}$ $B = \begin{bmatrix} 0 & 2 & 3 \\ -1 & -2 & 3 \\ 5 & 1 & 6 \end{bmatrix}$

Find $A + B, A - B$

- 2) Show that,
 - i) $a \leq b \Rightarrow a \vee c \leq b \vee c$
 - ii) $a \leq b \Rightarrow a \wedge c \leq b \wedge c$
- 3) Prove that $Z_5 = \{0, 1, 2, 3, 4\}$ under addition modulo 5 is group.

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

Max. Marks: 70

Time: 11:30 AM To 02:00 PM

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.	
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Set P

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

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

08

- Answer the following questions (Any Four).

 - 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

- Answer the following questions (Any Five)**

 - 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

- ANSWER THE FOLLOWING QUESTIONS (ANY ONE).**

 - 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 ways to handle this situation?
 - 2) State the conditions for region splitting and merging processes.

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

14

- ANSWER THE FOLLOWING QUESTIONS (ANY TWO)**

 - 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.**

Set P

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:

- 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) <ancher>
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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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

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.**

Set P

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.

SLR-DS-37

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)

- 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

Max. Marks: 70

Time: 11:30 AM To 02:00 PM

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

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.	
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Set P

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

- 12) Let σ be standard deviation of a given data set, then _____.
a) $\sigma = -1$ b) $\sigma > 0$
c) $\sigma < 0$ d) None of these
- 13) Let A, B and C are mutually exclusive events defined on a sample space S, then which of the following is true?
a) $P(A \cap B \cap C) = P(A) * P(B) * P(C)$
b) $P(A \cap B \cap C) = P(A) + P(B) + P(C) - P(A \cap B) - P(A \cap C) - P(B \cap C)$
c) $P(A \cap B \cap C) = P(A) + P(B) + P(C)$
d) None of these
- 14) What is mean and variance of random variable $X = 2?$
a) 0 and 1 b) 2 and 0
c) 2 and 2 d) 1 and 1

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

- 1) Define Arithmetic mean for individual observations.
- 2) Define Median for frequency distribution.
- 3) Define addition theorem of probability.
- 4) Define conditional probability.
- 5) Write down relation between A. M., G. M., and H. M.

B) Write Notes. (Any Two) 06

- 1) Define Binomial distribution hence write its mean and variance.
- 2) Define probability density function (pdf), also give pdf of normal random variable.
- 3) Define skewness and its type.

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

- 1) Obtain arithmetic mean and variance of the following data.
10, 11, 12, 7, 9, 13, 5, 14, 19, 21, 15, 17
- 2) Define discrete probability distributions and hence its mean and variance.
- 3) Find mean and variance of exponential distribution.

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

- 1) Obtain correlation coefficient between Height and Weight of students.

Height:	165	150	178	168	180	156
Weight:	78	56	65	76	72	60
- 2) Describe the fitting of exponential curve to the given data.

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

- 1) Write a short note on Linear regression.
- 2) Let E be an experiment of tossing a coin two times, find the probability of
 - i) Getting at least two heads.
 - ii) Getting only one head.
 - iii) Getting no head.
- 3) Define Poisson distribution and hence obtain its mean.

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

- 1) Write short note on scatter diagram.
- 2) What is mean by sample space? Give an illustration.

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

14

- 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.**

Set P

M.C.A. (Semester - I) (CBCS) Examination Oct/Nov 2019
Science
DIGITAL CIRCUITS AND MICROPROCESSORS

Day & Date: Thursday 14-11-2019

Max Marks: 70

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

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

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

- Answer the following questions (Any Two)**

 - 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

- ANSWER the following questions (Any TWO)**

 - 1) Explain De Morgan's theorem with suitable example.
 - 2) Explain in detail instruction set of 8085.
 - 3) Explain NOR, LTL, NOR gate with suitable example.

B) Answer the following questions. (Any One)

- Answer the following questions. (Any One)**

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

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

14

- 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.**

Set P

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

Time: 08:00 AM to 10:00 AM

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

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

08

- Answer the following (Any Four)

 - 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 A is Rs. 300 per kg.
Purchase price of Material B is Rs. 500 per kg.

= Prepare (Any Two)

1) Production Budget

- 1) Production Budget
- 2) Material consumption

- 3) Purchase budget

3) I purchase budget
wing cost data is availa

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

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

OBJECT ORIENTED PROGRAMMING USING C++

Day & Date: Monday, 04-11-2019

Max. Marks: 70

Time: 11:30 AM To 02:00 PM

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

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.**

Set P

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

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

08

- Answer the following (Any Four)

 - What do you mean by Primitive Data Type?
 - Define Algorithm
 - What is array?
 - What do you mean by data structures?
 - 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

- ANSWER THE FOLLOWING (Any TWO)**

 - 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

- ANSWER THE FOLLOWING (Any TWO)**

 - 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?

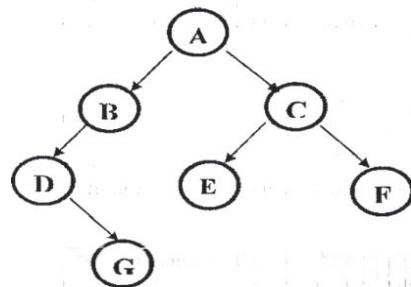
B) Answer the following (Any One)

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.**

Set

P

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.

- 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

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

- Answer the following questions (any three):

 - 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 involved in handling page fault?