Master of Computer Application – I (Computer Science)
Examination: Oct / Nov 2016 Semester – I (Old CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 01	Wednesday 16/11/2016	10.30 AM to 01.00 PM	Introduction to Computers	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) Magnetic tape is a _____ device
   a) Input b) output
   c) storage d) none of these

2) Which of the following is not an operating system
   a) DOS b) Unix
   c) windows d) Doors

3) _____ unit control the operation of CPU
   a) Memory b) ALU
   c) CU d) RAM

4) Which is not a Data transmission mode
   a) Simplex b) Duplex-T
   c) Half Duplex d) Full Duplex

5) Which one is not a file operation
   a) Read b) Write
   c) Seek d) Mount

6) Number system are of types
   a) Non-positional b) Positional
   c) a) & b) d) None of these

7) Which of the following is not a Pseudocode Simple Logic (Control) Structure?
   a) Sequence logic b) Selection logic
   c) Iteration logic d) Random logic

8) Types of controlling I/O devices transfers are
   a) DMA Interface b) RMA Interface
   c) Non-DMA Interface d) Both a) & c)

9) Which of the following are not Input devices
   a) Speech recognition devices b) Digitizer
   c) Data scanning devices d) Screen image projector

10) Which of the followings is not a Basic logic gate
   a) NAND b) NOR
   c) OR d) XNOR

B) State whether following statements are true or false **04**

1) Linux is multiuser operating system
2) Binary number system is based on 2 values
3) These are arranged in sequential order
   CD-ROM, CD-RW, DVD & WORM (CD-R)
4) A softcopy output does not appeal on paper

Q.2 A) write a short note on followings **08**

1) Output devices
2) High level language

B) 1) What is Interpreter? Explain **06**
2) What is control unit in a Computer

Q.3 Answer the following

1) Construct logic circuit diagram for Exclusive-OR function by using **07**
   a) NAND Gates only b) Not gates only

2) What is a Random-access storage device? write examples of a few application for which such storage devices is suitable **07**

Q.4 Answer the followings

1) What is an OMR device? Explain the technique used by it for recognition of marks. **07**

2) What is structured programming? What are its advantages? **07**

Q.5 Answer the followings

1) What are the advantages & disadvantages of virtual memory **07**

2) Define Topology. Explain its types. **07**

Q.6 Answer the following

1) What is a WWW browser? What types of navigations facilities do browser supports? **06**

2) What is system software? What are its function. **08**

Q.7 Answer the following

1) Describe the features of Excel **07**

2) Explain the Financial & Statistical Function in Excel **07**

Master of Computer Application – I (Science) Examination: Oct/Nov 2016 Semester – I (Old CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U 02	Friday 18/11/2016	10:30 AM to 01:00 PM	Programming using C	–	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) Which of the following functions support dynamic memory allocation?
   a) malloc
   b) realloc
   c) calloc
   d) All the tree a, b and c

2) 'C' is a _____
   a) machine language
   b) low level language
   c) middle level language
   d) high level language

3) Where do we use a 'continue' statement?
   a) In 'if' statement
   b) In 'switch' statement
   c) In 'if-else' statement
   d) None of these

4) Which is the output of the following code?

```
void main()
{
        int  i=10, j=2;
        int *ip=&i, *jp=&j;
        int k= *ip/(--*jp);
        printf ("%d", j);
}
```

   a) 5
   b) 10
   c) 1
   d) 2

5) What is the output of the following code?

```
void main()
{
        int  a=2, *fI, *f2;
        f1=f2=&a;
        *f2 + = *f2;
        *f1 *= *f1;
        printf ("%d", a);
}
```

   a) 2
   b) 16
   c) 4
   d) none of these

6) What is the output of the following code?

```
void main()
{
        int  i=4, j=7;
        j=j || I && print f("YOU CAN")
        printf ("%d%d", i, j);
}
```

a) 4 1
b) 4 7
c) YOU CAN 4 1
d) YOU CAN 4 7

7) What is the output of the following code?

```
void main()
{
        char a[4] = "HELLO";
        printf ("%s", a);
}
```

a) HELL
b) HELLO
c) Compiler error : too many initializers
d) HEL

8) The statement *char ch = 'Z'*; would store in ch _____
   a) the character Z
   b) the ASCII value of Z
   c) A along with the single inverted commas
   d) both a and b

9) A do-while loop is useful when we want that the statements within the loop must be executed:
   a) Only once
   b) a least once
   c) More than once
   d) None of the above

10) To receive the string "We have got the guts, you get the glory!!" in an array char str[100] which of the following functions would you use?
   a) scanf ("%s, str);
   b) gets(str);
   c) getche(str);
   d) fgetchar(str);

B) State whether following statements are true or false **04**

1) A character variable can never store more than 8 characters.
2) If a file opened for writing already exists its contents would be overwritten.
3) We can send arguments at command line even if we define main() function without parameters.
4) All structure elements are stored in contiguous memory locations.

Q.2 A) Write a short notes on the following

1) Pseudo code **08**
2) Flow chart

B) Answer the following

1) Write steps to exchange the contents of two integer variables x and y without using third temporary variable. **06**
2) Draw a flow chart to calculate sum of 1-10 numbers

Q.3 Answer the following

1) What is the purpose of malloc () function? Give an example. **06**

2) What is function? Write the general format of function definition. Write a C program with a function. **08**

Q.4 Answer the followings

1) What is Recursion? Write a program to calculate factorial of a given number using recursive function. **07**

2) Write a program to find and print the given number is odd or even. Using only one printf (output) statement, no conditional statement and no logical, relational and arithmetic operators. **07**

Q.5 Answer the followings

1) Write a C program to arrange the given list of numbers in descending order. **08**

2) What is the use of 'break' and 'continue' statements? **06**

Q.6 Answer the following

1) Write a program using pointer to print a string in reverse. **08**

2) Differentiate structure and union with example **06**

Q.7 Answer the following

1) Twenty-five numbers are entered from the keyboard into an array. The number to be searched is entered through the keyboard by the user. Write a program to find if the number to be searched is present in the array and if it is present, display the number of times it appears in the array. **07**

2) What is preprocessor? How are they categorized and explain each with suitable example? **07**

Master of Computer Application – I (Science) Examination: Oct / Nov 2016 Semester – I (Old CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 03	Monday 21/11/2016	10.30 AM to 01.00 PM	Discrete Mathematical Structures	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Select most correct alternative **10**

1) The negation of $(p \vee q)$ is _____

a) $p \wedge q$ b) $\sim p \wedge \sim q$
c) $\sim p \wedge q$ d) $\sim p \vee \sim q$

2) Let $(A, \leq)$ be any poset, two elements a & b of A are _____ if either $a \leq b$ or $b \leq a$

a) Comparable b) Not comparable
c) Equality d) None of these

3) The formula of c(n, r) = _____

a) $\frac{n!}{r!(n-r)!}$ b) $\frac{n!}{(n-r)!}$
c) $\frac{n!}{(n+r)!}$ d) $\frac{n!}{r!(n+r)!}$

4) A complete graph with 'n' vertices have _____ edges

a) $n(n-1)$ b) $\frac{n(n+1)}{2}$
c) $\frac{n(n-1)}{2}$ d) $\frac{(n-1)}{2}$

5) The number of circular permutation of n different things taken out all at a time is _____

a) n^2 b) $(n-1)!$
c) $\frac{(n-1)}{2!}$ d) none of these

6) A single vertex with single loop is cycle of length is _____

a) one b) zero
c) two d) three

7) The problem of selecting 'r' objects for 'n' distinct objects allowing repetitions then there are _____ ways of selection.

a) $c(n-1,\ r)$ b) $c(n+r,\ r)$
c) $c(n+r-1,\ r)$ d) none of these

8) A group G is called a belian if _____ $\forall a,b \in G$

a) $a * b = b * a$ b) $a * e = a = e * a$
c) $a * a^{-1} = a^{-1} * a = e$ d) none of these

9) The inverse of any matrix A is _____
   a) one b) unique
   c) different d) equal

10) A group is monoid in which every elements has an _____
   a) Unique b) Inverse
   c) equal d) none of these

B) State whether following statements are true or false **04**

1) A bounded poset is a lattice
2) Every Relations is function
3) A set having single element is called Null set.
4) If A & B are two square matrices of the same order then

$$|AB| = |A|.|B|$$

Q.2 **A) Write a short notes on the following** **08**

1) Define permutation & combination
2) Explain Boolean matrix with example.

B) Answer the following **06**

1) Define Relation & give an example of Relation is Reflexive neither symmetric nor transitive
2) Define complete graph with example

Q.3 **A)** solve the following equation by reduction method **07**

$$x + 3y + 3z = 12$$
$$x + 4y + 4z = 15$$
$$x + 3y + 4z = 13$$

B) show that $(n+1).{}^{n}P_r = (n-r+1).{}^{n+1}P_r$ **07**

Q.4 **A)** Using Warshall's algorithm find the transitive closure of the given relation **07**

$A = \{1,2,3,4\}$ & $R = \{(1,1),(1,4),(2,2),(2,3),(3,2),(3,3),(4,1),(4,4)\}$ **07**

B) Explain Hasse – diagram. Draw Hass – diagram D_{20}

Q.5 A) Show that $(t \wedge s)$ can be derived from the premises $p \to q,\ q \to \backsim t,\ r,\ p \vee (t \wedge s)$ **07**

B) Obtain the Disjunctive Normal form & conjunctive Normal form $(\sim P \vee \sim Q \to (P \Leftrightarrow \sim Q)$ **07**

Q.6 A) Give the residue representation of all integers of all integers in Z_{15} with $m_1 = 3$ & $m_2 = 5$ **07**

B) Define (G, *) be a group show that Each element in G has only one inverse in G. **07**

Q.7 1) Explain Regular & planner graph with example **07**

2) Prove that following equivalence **07**

$$\sim (P \wedge Q) \to (\sim P \vee (\sim P \vee Q)) \equiv \sim P \vee Q$$

Master of Computer Application – I (Science) Examination: Oct / Nov 2016 Semester – I (Old CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 4	Wednesday 23/11/2016	10.30 AM to 01.00 PM	Digital Circuits & Microprocessors	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

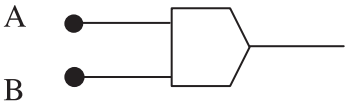
Q.1 A) Choose correct alternatives **10**

1)  indicate

a) AND logic gate
b) OR logic gate
c) NOT logic gate
d) None

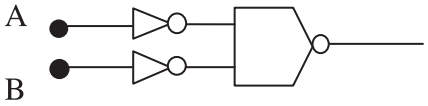
2) OR logic gate can have
a) One output
b) Only one output
c) Two output
d) None

3) NAND is a
a) basic logic gate
b) universal logic gate
c) two output
d) none

4) 

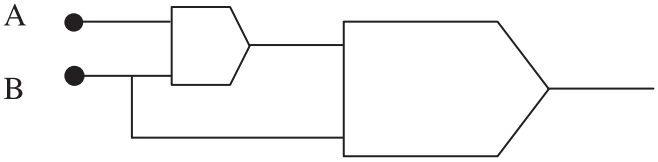
gives

a) $Y = A + B$
b) $Y = A.B$
c) $Y = A.B$
d) none

5) 

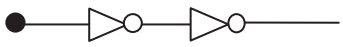
gives

a) $Y = \overline{\bar{A} + \bar{B}}$
b) $Y = \overline{\bar{A}.\bar{B}}$
c) $Y = A.B$
d) both a) and c)

6) 

y gives

a) $Y = (A + B).B$
b) $Y = AB + B$
c) both a) and b)
d) only a)

7)  gives

e) $Y = A$ f) $Y = \bar{\bar{A}}$

g) both a) b) h) only b)

8) To communicate with a peripheral, the MPU needs to perform

a) Identify the peripheral b) Transfer date

c) provide timing or sync signal d) all the above

9) Which of the following statements is incorrect?

a) The MPU performs primarily four operations b) most 8 bit microprocessors have sixteen address lines

c) the address bar is unidirectional d) none of these

10) Which of the following does not describe a stack pointer (SP) ?

a) It is a 8 – bit registers b) It is a 16 – bit register

c) It is used as memory pointer d) It points to a memory location in R/W memory, called the stack

B) State whether following statements are true or false **04**

1) State 8085 has an accumulator to store 8 – bit date
2) The ALU includes four flip flops (in case of 8085) that are set or reset according to data conditions in the accumulator and other registers
3) Microprocessor uses program counter to sequence the execution of instruction
4) 8085 has a 8 – bit register an stack pointer.

Q.2 A) Write a short notes on the following **08**

1) Peripheral or externally initiated operations
2) Memory organization in 8085

B) Answer the following **06**

1) Explain memory READ cycle in case of 8085
2) Draw the bus structure of 8085

Q.3 Answer the following

A) Describe adder circuit. Mention the types **05**

B) Explain working of a full adder circuit **09**

Q.4 A) Describe a decoder circuit with a schematic diagram **07**

B) Using 3 to 8 decoder, design a logic circuit to realize the following Boolean function **07**

$F(A, B, C,) = \sum m\,(2,3,5,6,7)$

Q.5 A) How does an 8085 based single board micro computer work? **06**

B) Compare 8085 and 8086 microprocessor **08**

Q.6 A) Write a note on instruction format used in 8085 **08**

B) i) Define :1) Instruction cycle 2) machine cycle 3) T – state **03**

ii) Calculate the time required to execute following instruction if the system clock frequency in 750 kHz: mov C, B 5 T – States **03**

Q.7 1) Write a note on instruction set of 8086 **07**

2) Write a note on addressing modes of 8086 **07**

Master of Computer Application – I (Science)
Examination: Oct / Nov 2016 Semester – I (Old CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 05	Friday 25/11/2016	10.30 AM to 01.00 PM	Management	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) Credit purchase to machinery is recorded in the _____
   a) Purchase book
   b) Cash book
   c) Journal proper
   d) Return outward book

2) The person who draws the cheque and sign on it, is the _____
   a) Drawer
   b) Drawee
   c) Payee
   d) All of the above

3) A fixed amount is deposited for a fixed period in _____ deposit account
   a) Current
   b) Savings
   c) Fixed
   d) Recurring

4) A purchase of horse in cash should be debited to _____
   a) Goods A/c
   b) Cash A/c
   c) Bank A/c
   d) Live stock A/c

5) Direct material is a _____
   a) Manufacturing Cost
   b) Administration Cost
   c) Selling Cost
   d) Distribution Cost

6) Wages sheet is prepared by _____
   a) Time keeping department
   b) Payroll department
   c) Personnel department
   d) Cost accounting department

7) One level distribution channel contains _____ intermediaries
   a) Two
   b) One
   c) NIL
   d) Any number

8) The concept of Supply Chain Management refers to _____
   a) Notional distribution of goods
   b) Physical distribution of goods
   c) Online distribution of goods
   d) Complementary distribution of goods

9) The cost unit for Cement Industry is _____
   a) Meter
   b) Kilometer
   c) Tones
   d) Litres

10) Strategic planning occurs at _____ management.

a) Middle level
b) Lower level
c) Top level
d) Intermediate level

B) State true or false **04**

1) Live stock is a nominal account
2) Drawings made by the proprietor increases his capitals.
3) The objective of selection is to choose the most suitable person to person the job.
4) Flexible budget is prepared for various levels of capacities

Q.2 A) Write a short notes on the following **08**

A) Advantages of budget
B) Types of budget

B) Answer the following **06**

A) Explain Debit note.
B) Explain credit note.

Q.3 Attempt the following questions :

A) Classify the following items into Real A/c, Personal A/c & Nominal A/c **07**

Free sample Distribution A/c	Bank charged A/c
Legal Expenses A/c	A's Capital A/c
Bank of India A/c	Computer A/c
Import duty A/c	

B) State the examples & meaning of intangible Assets A/c **07**

Q.4 Attempt the following questions :

A) What is Training? Explain the advantages of training. **07**
B) What is performance appraisal? Explain the advantages of performance appraisal. **07**

Q.5 Attempt the following questions :

A) Describe the process involved in management of advertising function. **07**
B) Describe different types of advertising India available in the country **07**

Q.6 Attempt the following questions :

A) Draw up a flexible budget for overload expenses on the basis of the following data and determine the overload rates at 70% plant capacity. **07**

	At 80% capacity
a) Variable overloads	Rs
Indirect labour	24,000
Stores including spares	8,000
b) Fixed overloads	
Salaries	20,000
Depreciation	22,000
Insurance	6,000
c) Semi – variable overloads	
Repairs & Maintenance (60% fixed)	4,000
Power (30% fixed)	40,000
Total	124,000

Estimated direct labour hours 2,48,000

B) Following information is available **07**

Cash in hand	Rs. 48,000	Gross profit	Rs. 4,00,000
Stock	54,000	Net profit	1,28,000
Debtors	68,000	Capital	2,10,000
Sales	16,00,000	Creditors	40,000
Furniture	1,50,000	Bills payable	25,000
		Bank overloads	20,000

Calculate

1. G. P. Ratio
2. N. P. Ratio
3. Quick Ratio

Current Ratio

Q.7 Attempt the following questions :

A) Prepare Trial Balance from the following as on 31.03.2015 **07**

Capital A/c	Rs. 50,000	Sales A/c	Rs. 40,000
Debtors A/c	2,500	Postages A/c	850
Ways & salaries	8,000	Creditors A/c	4,000
Depreciation A/c	4,400	Bank Loan A/c	2,000
Furniture A/c	57,500	Cash in hand A/c	1,250
Advertising A/c	5,000	Drawing A/c	1,500
Purchases A/c	15,000		

B) Following information is available, prepare Balance – sheet as on 31.03.2015 and ascertain the amount of capital of Mr. Naresh **07**

Furniture A/c	8,500
Machinery A/c	30,000
Creditors A/c	15,000
Cash in hand	1,200
Bills Payable	5,000
Debtors	7,500
Drawing	800
Bills Receivable	2,500
Closing Stock	32,000
Net Profit	21,000

Master of Computer Application (Science) – I Examination: Oct / Nov 2016 Semester – II (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 06	Thursday 17/11/2016	10.30 AM to 01.00 PM	Object Oriented Programming using C++	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) _____ class contains the extraction operator
   a) istream b) ostream
   c) filebuf d) streambuf

2) Memory once allocated is released using _____
   a) release b) free
   c) delete d) realloc

3) We must add default argument from _____
   a) right to left b) left to right
   c) any direction d) none

4) _____ describes the type and scope of its member.
   a) class function definition b) class declaration
   c) class template d) none

5) The header file iomanip provides set of functions called _____ used to set output format.
   a) operators b) functions
   c) expression d) manipulator

6) _____ operator can not be overloaded using friend function
   a) + b) ++
   c) () d) All of above

7) _____ allow us to assign additional meaning to C++ operators
   a) inheritance b) operator overloading
   c) function overloading d) none

8) C++ supports mechanism known as _____ to implement concept of generic programming
   a) exception b) files
   c) macros d) templates

9) _____ allow us to use same function call to execute member functions of different classes.
   a) function overloading b) message passing
   c) virtual function d) none

10) _____ must be defined outside the class

a) member function
b) virtual
c) static member
d) none

B) State true or false **04**

1) Destructor can take any number of arguments.
2) Program using inline function take up more memory
3) ios member function returns the previous format
4) A pointer to base class can point to an object of a derived class of that base class

Q.2 A) write a short notes on the following

A) This pointer **08**

B) List of operators that can't be overloaded.

B) Answer the following **06**

A) Explain reference variable

B) Explain manipulators

Q.3 Answer the following **14**

A) What is a friend function? what are merits and demerits of using friend function

B) Write a program to overload binary + to concatenate two strings.

Q.4 Answer the followings **14**

A) Encapsulation is the mechanism by which data and function are bound together within object comment.

B) Explain early binding v/s late binding specify examples.

Q.5 Answer the followings **14**

A) What is dynamic initialization of objects? Explain with examples.

B) What is template? Why to use template explain with examples.

Q.6 Answer the following **14**

A) What is constructor? Is it mandatory to use constructors in a class?

B) Explain virtual base class with examples.

Q.7 Answer the following **14**

A) When to make a function inline and why explain?

B) What are exceptions? How they are handled in C++? Give advantages.

Master of Computer Application – I (Science)
Examination: Oct / Nov 2016 Semester – II (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 07	Saturday 19/11/2016	10:30 A.M to 01:00 P.M	Data Structures	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the most correct alternatives. **10**

1) In case of complete binary tree with N nodes has depth =_____
   a) N
   b) Floor $(\log_2 N + 1)$
   c) Floor $(\log_2 n)$
   d) Floor $(2^n + 1)$

2) Consider linked list of n elements which is pointed by an external pointer. What is time taken to insert the element which is successor of the element pointed by a given pointer?
   a) O (1)
   b) 0 (log n)
   c) 0(n)
   d) 0 (nlog n)

3) In case of binary searchif target value is less than middle then we change _____
   a) End=middle-1
   b) Start=start+1
   c) Start=middle+1
   d) End=start+1

4) Running out of memory may occur due to _____
   a) Non-recursive function call
   b) Recursive function call
   c) Use of global variable
   d) None of these

5) A Non linear collection of data element in hierarchical manner is _____
   a) Tree
   b) Linked list
   c) Primitive list
   d) Stack

6) A connected graph T with cycles may be called as _____
   a) A tree
   b) Free tree
   c) Graph
   d) All of above

7) Which of the following abstract data type can be used to represent a one-to-many relations?
   a) Tree only
   b) Graph only
   c) Both a & b
   d) None of these

8) Which of the following statement is False?
   a) Every free is bipartite graph
   b) A tree contain cycle
   c) A tree with n nodes can contain n-1 edges
   d) A tree is connected graph

9) If every node u in G adjacent to every other node v in G, A graph is said to be
   a) Isolated
   b) Complete
   c) Finite
   d) Strongly connected

10) Which of the following sorting technique is slowest?
   a) Quick sort
   b) Heap sort
   c) Shell sort
   d) Bubble sort

B) State true or false **04**

1) Complexity of linear search is 0 ($\log_2 n$).
2) Binary may be applying on unsorted data.
3) Greedy algorithm works by taking a decision that appears best at the moment.
4) Height & depth of tree may be different.

Q.2 **A)** What is binary tree? Explain linked representation with example. **06**

B) Sort following data using bubble sort : 23,12,20,42,88,92,8,56. Give analysis. **08**

Q.3 **A)** What is data structure? Explain linear & Non-linear data structure. **06**

B) Explain tree traversal with appropriate example. **08**

Q.4 **A)** What is stack? Explain basic operation on static stack using appropriate function. **06**

B) Explain concept of polynomial arithmetic with linked list. **08**

Q.5 **A)** Write is circular Queue? Explain process of inserting & deleting node from circular queue. **06**

B) What is linear search? Write an algorithm for linear search in linked list? Give one example. **08**

Q.6 **A)** What is Hashing? Explain different hashing functions with example. **06**

B) What is traversing? Explain traversing technique in graph. **08**

Q.7 **A)** What is an AVL tree? Explain AVL rotations with example. **06**

B) What is an abstract data type? Explain List ADT, Stack ADT & Queue ADT **08**

Master of computer application – I (Science) Examination: Oct/Nov 2016 Semester – II (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 08	Tuesday 22/11/2016	10.30 AM To 01.00 PM	Numerical Analysis	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**
4) **Use of calculator is allowed**

Total Marks: 70

Q.1 A) Fill in the blanks [one mark each] **07**

1) First divided difference of f(x) relative to x_0 and x_1 is _____
2) In false position method, we choose two points x_0 & x_1 such that $f(x_0)$ & $f(x_1)$ are of _____
3) The central difference operator δyr is defined by the relation _____
4) The effect of the error _____ with the order of the differences.
5) The algebraic sum of the error in any difference column is _____
6) The Newton – Raphson method fails when $f^1(x)$ is _____
7) Error in trapezoidal rule is _____

B) State whether true or false [one mark each] **07**

1) Δ = δ^2
2) Newton – Raphson method is also called method of tangent
3) The second phase of Gauss elimination method is forward substitution phase.
4) If there is two or more independent variables, then the differential equation is called partial differential equation.
5) In Gauss – elimination method the coefficient matrix is reduced to an upper triangular matrix.
6) Newton's backward difference Interpolation formula is used for interpolation near the beginning of the tabular values
7) Δ = Δ -

Q.2 A) 1) What is an degree of Differential equation? **03**
2) If $y_0 = 1$, $y_1 = 2$ & $y_2 = 4$ then $\Delta^2 y_0$ = ? **03**

B) 1) with usual notations prove that $E = 1 + \Delta$ **04**
2) Evaluate the sum $\sqrt{3} + \sqrt{5} + \sqrt{7}$ to significant digits & find its absolute & relative error **04**

Q.3 A) Derive Newton forward difference Interpolation formula. **07**
B) Find root the equation $x^3 - 2x - 5 = 0$ using Newton – Raphson method **07**

Q.4 A) Write a note on absolute, relative and percentage error. **06**
B) Find the cubic polynomial for the values y(1) = 24, y(3) = 120, y(5) = 336 & y(7) = 720 also find the values of y(8) = ? **08**

Q.5 A) Show that by using method of separation of symbols **08**

1. $\Delta^n u_{x-n} = u_x - nu_{x-1} + \frac{n(n-1)}{2} u_{x-2} + \cdots + (-1)^n u_{x-n}$

2. $e^x(u_0 + x\Delta u_0 + \frac{x^2}{2!}\Delta^2 u_0 + \cdots) = u_0 + u_1 x + u_2 \frac{x^2}{2!} + \cdots$

B) Using Lagranges interpolation find the value of $\log_{10} 301$ The corresponding values of x & $\log_{10} x$ are (300, 2.4771) (304, 2.4829) (305, 2.4843) & (307, 2.4871)

Q.6 **07**

A) Use simsons $\frac{1^{rd}}{3}$ Rule to find $\int_0^{0.6} e^{-x^2}$ by taking 6 subintervals

B) Solve the following system **07**

$3x_1 + 6x_2 + x_3 = 16$

$2x_1 + 4x_2 + 3x_3 = 13$

$x_1 + 3x_2 + 2x_3 = 09$

using Gauss elimination method

Q.7 A) Values of x (in degrees) & sin x are given in the following table **07**

x	15	20	25	30	35	40
sin x	0.2588190	0.3420201	0.4226183	0.5	0.5735764	0.6427876

Find the value of $\sin 38^0$ **07**

B) Find the area bounded by the curve and the x –axis from x = 7.47 to x = 7.52 using following table.

x	7.47	7.48	7.49	7.50	7.51	7.52
f(x)	1.93	1.95	1.98	2.01	2.03	2.06

Master of Computer Application – I (Science)
Examination: Oct / Nov 2016 Semester – II (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 09	Thursday 24/11/2016	10.30 AM to 01.00 PM	Operating System		

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) A state is safe if the system can allocate resources to each process in some order and still avoid a _____.
   a) Access Right b) Virus
   c) Deadlock d) Inter Process Communication

2) A _____ is the smallest allotment of logical secondary storage; that is, data cannot be written to secondary storage unless they are within it.
   a) Linked allocation b) File
   c) Fragmentation d) None of these

3) The _____ page replacement algorithm is based on the argument that the page with smallest count was probably just brought and has yet to be used.
   a) Least Recently used b) Least frequency used
   c) Most frequently used d) FIFO

4) A process includes the process _____ which contains global variables.
   a) Data selection b) Queue
   c) Program counter d) Pointer

5) Multithreading on multi-CPU machines _____ concurrency.
   a) Decrease b) Increase
   c) Violates d) Diminish

6) For simplicity of implementation _____ are numbered and referred to by a _____ number, rather than by a_____name
   a) Segment b) Swapping
   c) Memory Support System d) None of these

7) A _____ oriented system provides a means to distinguish between authorized and unauthorized usage.
   a) User detection b) Security
   c) Resource d) Protection

8) The operating system sets _____ bit for each page to allow or disallow access to the page.
   a) Invalid b) 14 bit
   c) Valid d) Both (a) and (c)

9) Time sharing systems requires _____ computer system, which provides direct communication between the user and the system.

a) Well configured
b) Interactive
c) Virtual
d) Automatic

10) The seek time is the time for disk arm to move the heads to the cylinder containing the _____.

a) Disk head
b) Desired vector
c) Desired sector
d) I/O request

B) State true or false **04**

1) The Round Robin is a special case of the general priority scheduling algorithm.
2) Multiprogramming systems provide an environment in which various systems resources.
3) The advantages of the virtual memory scheme is that it enables users to run programs that are smaller than actual physical memory.
4) Kernel threads are supported and managed directly by the operating system.

Q.2 A) Answer the following **06**

1) State different type of queues in Process Management
2) What do you mean by Swapping?

B) Write a short note on the following **08**

1) Contiguous Memory Allocation
2) Process Control Block

Q.3 Answer the following

A) What do you mean by Directory? State and describe in detail the most common schemes for defining the logical structure of a directory. **07**

B) Define Process. Discuss in detail fundamental model of Inter Process Communication. **07**

Q.4 Answer the followings

A) Define the term Operating System. Discuss in details various types of Operating System. **07**

B) State the principles of Least Recently used (LRU) page replacement algorithm. Perform LRU page replacement algorithm and calculate the page fault rate on following string-number of frames-**03** **07**
Reference string **– 4, 1,4,3,2,3,1,2,9,1,2,9,1,2,3,1,4,1,5,3**

Q.5 Answer the followings

A) State the Deadlock characterization. Explain in detail deadlock prevention with appropriate prevention mechanism? **07**

B) State and describes the principle of Shortest Seek Time First (SSTF) disk scheduling algorithm. Perform SSTF with a disk queue request for I/O to blocks on cylinder are as follows – **07**
Queue = 118, 63, 112, 13, 65, 38, 88, 175, 53, 122, 28
Head starts at 48

Q.6 Answer the following

A) State the meaning of preemptive and non-preemptive scheduling. Discuss in detail working of multilevel feedback queue scheduling with suitable example. **07**

B) Define demand paging technique? Discuss in detail various steps in handling a page fault with respect to demand paging? **07**

Q.7 Answer the following

A) Define the term Security. Enlist and discuss in detail forms of accidental and malicious security violations **07**

B) What do you mean by Multiprocessor Time Sharing Systems and also elaborate it as CASE study and related analysis. **07**

Master of Computer Application – I (Science)
Examination: Oct/Nov 2016 Semester – II (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 10	Saturday 26/11/2016	10.30 AM to 01.00 PM	Software Engineering	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) The process defines framework for set of _____
   a) Key process Areas
   b) Umbrella Activities
   c) CASE Tools
   d) All of these

2) _____ is an incremental software development process model that emphasizes an extremely short development cycle.
   a) WINWIN Spiral Model
   b) Spiral Model
   c) RAD Model
   d) Classical Waterfall Model

3) _____ is a software engineering task that bridges the gap between system level requirement engineering and software design.
   a) Requirement analysis
   b) Risk analysis
   c) Project planning
   d) System design

4) Additional information about control aspects of software contained in _____
   a) Project Specification
   b) Control Specification
   c) Process Specification
   d) Product Specification

5) _____ is a representation of the logical relationship among individual elements of data.
   a) Entity Relationship Diagram
   b) Data structure
   c) State Transition Diagram
   d) Control structure

6) _____ testing is a case design method that exercises logical conditions contained in program module.
   a) Data flow
   b) Condition
   c) Loop
   d) Graph-based

7) The internal implementation details of data and procedures are hidden from outside world is called _____
   a) Visibility
   b) Encapsulation
   c) Data hiding
   d) None of these

8) Which of the following is not part of software engineering layered technology?
   a) Process
   b) Methods
   c) Tools
   d) Project

9) _____ is representation of almost any composite information that must be understood by software.

a) Relationship
b) Data object
c) Cardinality
d) Attribute

10) Software is divided into separately named and addressable components often called as _____, that are integrated to satisfy problem requirements

a) Fragments
b) Partitions
c) Modules
d) Decompositions

B) State True or False **04**

1) Software is developed or engineered; it is not manufactured in classical sense.
2) At the core of analysis model, lies the state transition diagram
3) Refinement represents the organization of program components and implies hierarchy of control.
4) Loop testing is white box testing technique.

Q.2 A) Write a short notes on the following **08**

1) White box testing
2) Extended function point metrics

B) Answer the following **06**

1) Explain the concept of incremental model.
2) What is software prototyping? Explain the types of prototyping.

Q.3 Answer the following

A) Explain linear sequential model and prototyping model in detail. **07**
B) What do you mean by myths? Explain myths of customer, management and practitioner, with reality. **07**

Q.4 Answer the followings

A) What is metric? Explain size oriented metrics. Function oriented metrics and extended function metrics in brief. **07**
B) Explain the process of identifying elements of an object model. **07**

Q.5 Answer the followings

A) What is data modeling? Explain entity relationships diagram with example. **07**
B) Explain different communication techniques for software requirement analysis **07**

Q.6 Answer the following

A) Describes the elements of design model. **07**
B) Explain the principles of software design. **07**

Q.7 Answer the following

A) Explain the control structure testing in detail. **07**
B) Discuss different object oriented concepts in brief. **07**

Master of Computer Application – I (Computer Science)
Examination: Oct / Nov 2016 Semester – II (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 11	Thursday 17/11/2016	10:30 A.M to 01:00 P.M	Object Oriented Programming using C++	--	

Instructions:
1) **Question No. 1 & 2 are compulsory.**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7.**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives: **10**

1) _____ is insulting data from direct access by unauthorized functions.
   a) Data handling b) Message passing
   c) Abstraction d) All of above
2) Which of the following implements the function overloading feature in C++.
   a) Polymorphism b) Inheritance
   c) Message passing d) None
3) _____ describes the function interface to compiler supplying number and type of argument.
   a) Functions overloading b) Prototype
   c) Default argument d) None
4) Inline functions may not work if it has _____
   a) Loop b) Contains a static variable
   c) If it is recursive d) All
5) We must add default argument from _____
   a) Left to right b) Right to left
   c) Middle d) None
6) Which of the operator can be overloaded.
   a) **.** b) **::**
   c) new d) ?:
7) Templates are also called as _____
   a) Parameterized classes b) Parameterized function
   c) a and b both d) None
8) Whenever an object is destroyed _____ is called.
   a) Destructor b) Constructor
   c) Default d) None
9) Pointers are not modifiable
   a) That b) This
   c) Indirection d) Address
10) The sequence of bytes following into a program is called _____
   a) Input stream b) Output stream
   c) Both a & b d) None

B) State True or False **04**

1) Destructor can be overloaded.
2) We can change the meaning of the operator in operator overloading.
3) Object modelling depicts real world entities more closely that functions do.
4) An abstract class can never be used as base class.

Q.2 A) Write short notes on the following: **08**

A) Reference variable.
B) Dynamic allocation operators.

B) Answer the following: **06**

A) Explain manipulators.
B) List rules for operator overloading.

Q.3 Answer the following: **14**

A) Explain static data member and static member function with examples?
B) How C++ achieves runtime polymorphism? Explain with example.

Q.4 Answer the following: **14**

A) Write a program where a function sum takes object of time class as an argument and add two object of the class and return result object?
B) Explain multilevel inheritance with example.

Q.5 Answer the followings: **14**

A) Write a program to overload unary – using friend function.
B) What is generic programming? How it is implemented in C++? Explain with suitable example.

Q.6 Answer the following: **14**

A) What is constructor? Explain copy constructor and constructor with default argument with example.
B) What are exceptions? How exceptions are handled in C++?.

Q.7 Answer the following: **14**

A) Discuss parameter passing technique in C++ giving examples.
B) What is a friend function? How it is useful? Explain.

Master of Computer Application – I (Science)
Examination: Oct / Nov 2016 Semester – II (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 12	Saturday 19/11/2016	10:30 A.M to 01:00 P.M	Data Structures	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks**

Total Marks: 70

Q.1 A) Choose the most correct alternatives **10**

1) A full binary tree with n leaves contains
   a) n nodes
   b) $\log_2$ n nodes
   c) 2n-1 nodes
   d) 2^n nodes

2) Consider linked list of n elements which is pointed by an external pointer. What is time taken to delete the element which is successor of the element pointed by a given pointer?
   a) O (1)
   b) O (log n)
   c) O (n)
   d) O (nlogn)

3) In linear search algorithm the worst case occurs when
   a) The time is somewhere in the middle of the array
   b) The time is not in the array at all
   c) The item is the last element in the array
   d) The item is the last element in the array or is not there at all

4) Running out of memory may occur due to _____
   a) Non-recursive function call
   b) Recursive function call
   c) Use of global variable
   d) None of these

5) A linear collection of data element the linear node is given by mean of pointer is called _____
   a) Linked list
   b) node list
   c) primitive list
   d) none of the above

6) A connected graph T without any cycles is called _____
   a) A tree graph
   b) free tree
   c) A tree
   d) All of above

7) Which of the following abstract data type can be used to represent a many to many relation?
   a) Tree only
   b) graph only
   c) both a & b
   d) none of these

8) Which of the following statement is False?
   a) Every tree is bipartite graph
   b) A tree contain cycle
   c) A tree with n nodes can contain n-1 edges.
   d) A tree is connected graph

9) If every node u in G adjacent to every other node v in G, A graph is said to be
   a) Isolated
   b) Complete
   c) finite
   d) Strongly connected

10) Which of the following sorting technique is slowest?
   a) Quick sort
   b) Heap sort
   c) Shell sort
   d) Bubble sort

B) State true or false **04**

1) Complexity of binary tree is 0 ($\log_2 n$)
2) Binary Search is always better than linear search.
3) To store & retrieve data we may be use different hash function.
4) Complete binary tree is also known a 2- Tree.

Q.2 **A)** What is traversal in graph? Explain DFS with example. **06**

B) Sort following data using selection sort : 13, 32, 20, 62, 68, 52, 38, 46. Give analysis. **08**

Q.3 **A)** Explain some common approaches for designing algorithm. **06**

B) Explain tree traversals with approach example. **08**

Q.4 **A)** What is Queue? Explain basic operation on it using appropriate function. **06**

B) Explain process of creating binary tree from following preorder & inorder traversal **08**
Preorder : ABDHECFG
Inorder : DHBEAFCG

Q.5 **A)** Define binary tree. Explain how to represent algebraic expression using binary tree with appropriate example. **06**

B) What is a binary search? Write an algorithm for binary search? Give one example. **08**

Q.6 **A)** What is Hashing? Explain different hashing methods/functions. **06**

B) Explain process of deleting node and edge from adjacency matrix & adjacency List. **08**

Q.7 **A)** Explain with function to insert new value/node at all possible position in singly linked list. **06**

B) Create B – tree from following Data: **08**
10, 70 ,60, 20, 110, 40, 80, 130, 100, 50, 190, 90, 180, 240, 30, 120,140,160.

Master of computer application – I (Science) Examination: Oct/Nov 2016 Semester – II (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 13	Tuesday 22/11/2016	10.30 AM To 01.00 PM	Numerical Analysis	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**
4) **Use of calculator is allowed**

Total Marks: 70

Q.1 **A) Fill in the blanks** **10**

1) The no. of different polynomials that can go through two fixed data points (x_1, y_1) & (x_2, y_2) is _____
2) Power method used to find _____
3) The process of computing the values of _____ the given range called extrapolation.
4) The value E ? = _____
5) Error in Simpson's 3/8 rd Rule is _____
6)

B) State true or false **04**

1) The effect of the error decreases with the order of the difference.
2) The algebric sum of the error in any difference column is zero.
3) The Gauss Seidal method is iterative method.
4) They convergence in bisection method is very slow.

Q.2

A) Prove that $\frac{\Delta}{\nabla} - \frac{\nabla}{\Delta} = \Delta + \nabla$ **04**

B) Define rate of convergence **03**

C) If the no. x=0.51 is correct to two decimal unit then find Absolute error & Relative error. **04**

D) State Taylor's series expansion for a function of several variables **03**

Q.3

A) Explain Bisection method. **07**

B) If $f(x) = \frac{1}{x}$ then prove that $[x_0, x_1, \ldots x_r] = \frac{(-1)^r}{x_0 x_1 \ldots x_r}$ **07**

Q.4

A) Apply Lagrange's method to find a cubic polynomial which approximate the following data **07**

x	-2	-1	2	3
f(x)	-12	-8	3	5

B) Derive Newton's divided difference interpolation formula. **07**

Q.5 A) Use Gauss elimination to solve **07**

$10x + y + z = 12$
$2x + 10y + z = 13$
$x + y + 3z = 5$

B) Find the largest eigen value & corresponding eigen vector of the matrix **07**

$$A = \begin{bmatrix} 1 & 3 & -1 \\ 3 & 2 & 4 \\ -1 & 4 & 10 \end{bmatrix}$$

Q.6 **07**

A) Explain simpson's $\frac{3^{th}}{8}$ Rule

B) Use secant method to determine the root of equation $x^3 - 2x - 5 = 0$ **07**

Q.7 A) Derive Newton's backward difference interpolation formula. **07**

B) Evaluate $I = \int_0^{\pi/2} \sqrt{\sin x}\, dx$ using Simpson's $\frac{1^{rd}}{3}$ with $h = \frac{\pi}{2}$ **07**

Master of Computer Application – I (Science)
Examination: Oct/Nov 2016 Semester – II (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 14	Thursday 24/11/2016	10.30 AM to 01.00 PM	Operating System	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) In _____ algorithm, a small unit of time quantum or time slice is defined
   a) Long term scheduler
   b) Round robin
   c) Shortest Job First
   d) Priority

2) The _____ name begins at root and follows a path down to a specified file, giving the directory names on path.
   a) Relative path
   b) Directory path
   c) Absolute path
   d) File-Directory path

3) The value of _____ semaphore can range over an unrestricted domain.
   a) Binary
   b) Decimal
   c) Monitor
   d) Counting

4) The _____ is akin to reader lock in that several processes can acquires the lock concurrently.
   a) Shared lock
   b) Exclusive lock
   c) System lock
   d) Hardware lock

5) A major problem with priority algorithms is _____
   a) Disk storage
   b) Page replacement
   c) Starvation
   d) None of these

6) The _____ is responsible for resource allocation and de-allocation in a computer system.
   a) Resource supervisor
   b) Operating system
   c) Allocation algorithm
   d) Compiler

7) The _____ is the module that gives control of the CPU to the process selected by the scheduler and it should be as fast as possible, since it is invoked during every process switch
   a) Control system
   b) Dispatcher
   c) I/O event wait
   d) Memory scheduler

8) A _____ interface is a window system with a pointing device to direct I/O, choose from menus, and make selections and a keyboard to enter the text
   a) Batch
   b) Fundamental
   c) Window server
   d) Graphical user

9) The _____ buffer length is potentially infinite; thus, any number of messages can wait in it.
   a) Unbounded capacity
   b) Single capacity
   c) Bounded capacity
   d) Zero capacity

10) As process enter the system, they are input into a _____, which consists of all processes in the system.
   a) Device queue
   b) System queue
   c) Job queue
   d) Ready queue

B) State True or False **04**

1) A domain is a collection of access rights, each of which is an ordered pair <object-name, rights-set>
2) A preemptive kernel allows a process to be preempted while it is running in kernel mode.
3) A logical memory divide into same sized blocks is called as frame.
4) A treats is an attempt to break security and attack is potential for a security violation.

Q.2 A) Write a short note **08**

1) Threads
2) Critical section problem

B) Answer the following **06**

1) What do you mean by process suspend and resume?
2) What do you mean by non-preemptive algorithm?

Q.3 Answer the following

A) Define the term process synchronization. Explain in detail Readers-writers problem? **07**

B) What are the various file operations? Explain in detail shortest seek time First method with suitable example? **07**

Q.4 Answer the followings

A) Discuss in detail various type of scheduler for process scheduling. **07**

B) Calculate the total number of page fault using first come first serve (FCFS) page replacement on following reference string having maximum 03 frames **07**
3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1, 7, 4, 2, 0, 1, 2, 0, 3, 0

Q.5 Answer the followings

A) What do you mean by Deadlock? Discuss in detail necessary conditions to result system caught in deadlock **07**

B) What do you mean by Independent and Cooperative Process? Explain in detail how inter-process communication is made between processes? **07**

Q.6 Answer the following

A) Discuss in detail vital role of Operating System as being resource allocator. **07**

B) What do you mean by Demand paging? Discuss the steps to be taken to handle the page fault. **07**

Q.7 Answer the following

A) Describe CPU scheduling criteria. Discuss working of shortest job first algorithm with suitable example. **07**

B) Explain in detail concepts of system call with suitable example. **07**

Master of Computer Application – I (Science)
Examination: Oct/Nov 2016 Semester – II (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 15	Saturday 26/11/2016	10.30 AM to 01.00 PM	Software Engineering	----	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) _____ is the application of engineering to the design and development.
   a) System design
   b) System analysis
   c) Requirement Analyses
   d) System engineering

2) Software mistakes during coding are known as _____
   a) Errors
   b) Bugs
   c) Defects
   d) Failures

3) "Are we building the right product?" is _____ testing
   a) Verification
   b) Validation
   c) Black Box
   d) Unit

4) If a program in its functioning has not met user requirements is some way, then it is _____
   a) An error
   b) Failure
   c) A fault
   d) A defect

5) A prototype is _____
   a) Mini-model of existing system
   b) Mini-model of the proposed system
   c) Working model of the existing system
   d) None of the above

6) Information hiding is to hide from user details _____
   a) That re relevant to him
   b) That are not relevant to him
   c) That may be maliciously handled by him
   d) That are confidential

7) During validation _____
   a) Product is checked
   b) Customer checks the product
   c) Process is checked
   d) Code is checked

8) Alpha testing is done by _____
   a) Customer
   b) Tester
   c) Developer
   d) All of these

9) _____ types of models are created during software requirements analysis.
   a) Functional and behavioral
   b) Algorithmic and data structure
   c) Architectural and structural
   d) Usability and reliability

10) White – box testing is also called as _____ testing.
   a) Behavioral testing
   b) Sensitivity testing
   c) Glass – box testing
   d) Configuration testing

B) State True or False **04**

1) Data structure represents logical relationship among data elements.
2) Testing forms the first step in determining error in the programming.
3) Bottom up integration begins with the main program.
4) A program module cannot be a software component.

Q.2 A) Write a short notes on the following **08**

1) Data dictionary
2) Design principles

B) Answer the following **06**

1) Explain Management myths.
2) Explain Transaction mappings

Q.3 Answer the following

A) Explain RAD model with advantages and disadvantages detail. **07**
B) Explain data modeling concept in detail. **07**

Q.4 Answer the followings

A) Explain Control structure testing. **07**
B) What is analysis modeling? Explain elements of analysis model. **07**

Q.5 Answer the followings

A) Explain task of architectural design in detail. **07**
B) What is software quality assurance? Explain McCall's quality factors. **07**

Q.6 Answer the following

A) Draw context and first level DFD for hospital management system **07**
B) Discuss the role of metrics in the process and project domain. **07**

Q.7 Answer the following

A) Define Software Engineering. Explain characteristics of software. **07**
B) What is white box testing? Explain any three white box testing methods with example. **07**

Master of Computer Application – II (Computer Science)
Examination: Oct/Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U-16	16/11/2016 Wednesday	02:30 PM To 05:00 PM	Computer Communication Network	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives: **10**

1) Document size is 500Kb then how much time taken over 1 Mbps modem channel?

   a) 0.2 s
   b) 2 s
   c) 2 M
   d) 0.002 s

2) Given two codewords s10001001 and 10110001, how many corresponding bits differ.

   a) 00111000
   b) 10001001
   c) 0110001
   d) 11110010

3) Polynomial expression of given codeword 1011011 is.

   a) $X^4 + X + 1$
   b) $X^7 + X^5 + X^5 + X^4 + X^2 + 1$
   c) $X^7 + X^5 + X^5 + X^4 + X + 1$
   d) $X^7 + X^5 + X^4 + X^2 + 1$

4) In OSPF, when the link between two routers is broken, the administration may create a _____ Link between them using a longer path that probably goes through several routers.

   a) Point-to-point
   b) Transient
   c) Stub
   d) Multipoint

5) Which one of the following computer network is built on the top of another network.

   a) Prior network
   b) Chief network
   c) Prime network
   d) Overly network

6) Effective bandwidth is bandwidth that network needs to allocate for the.

   a) Flow of Data
   b) Flow of protocol
   c) Flow of Traffic
   d) Flow of Amount

7) Which one of the following is a version of UDP with congestion control?

   a) Datagram congestion control protocol
   b) Stream control transmission protocol
   c) Structured stream transport
   d) None of the mentioned

8) Transport layer protocol deals with
   a) Application to application communication
   b) Process to process communication
   c) Node to node communication
   d) None of the mentioned

9) The network layer concerns with
   a) Bits
   b) Frames
   c) Packets
   d) None of the mentioned

10) Applications layer protocol defines
   a) Type of message exchanged
   b) Message format, syntax and semantics
   c) Rules for when and how processes send and respond to messages
   d) All of the mentioned

B) State True or False: **04**

1) The 64 byte IP address consists of network address and host address
2) Transmission data rate is decided by transport layer
3) First network is ARPANET
4) The domain name system translate Internet domain and host name to IP address

Q.2 A) write a short note on the following: **08**

1) Flow control
2) Jitters control

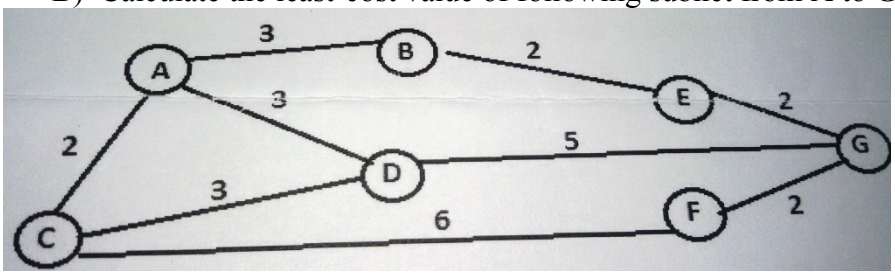
B) answer the following: **06**

1) Piggybanking
2) Calculate Hamming codeword of 1 0 1 1 0 1 1 using 4 parity bits.

Q.3 Answer the following:

A) Describe the general principle of congestion control. **07**

B) Calculate the least-cost value of following subnet from A to G. **07**



Q.4 Answer the followings:

A) Describe the wireless TCP and UDP in details. **07**

B) Write note on Berkeley sockets and element of transport protocols. **07**

Q.5 Answer the followings:

A) Describe in details Domain Name System and Resource records. **07**

B) Explain Dynamic web documents and HTTP. **07**

Q.6 Answer the following:

A) Explain the remote procedure call and Real time transport protocol. **07**

B) Write a note on protocol hierarchies and design issues for the layers. **07**

Q.7 Answer the following:

A) Describe the OSI reference model. **07**

B) Explain the Exterior Gateway routing protocol. **07**

Master Of Computer Application – II (Science)
Examination: Oct / Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U –17	Friday 18/11/2016	02.30 PM To 05.00 PM	Java Programming		

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) _____ keyword used to create a constant variable
   a) const b) static
   c) final d) sealed
2) Defining methods with same name with different signature are called _____
   a) method overriding b) method overloading
   c) dynamic method dispatch d) method hiding
3) Which of the following package stores all the standard java classes?
   a) java.lang b) java
   c) java.util d) java.packages
4) Which of the following exception is raised when a number is divided by zero?
   a) NumberFormatException b) ArithmaticException
   c) NullPointerException d) IllegalArgumentException
5) _____ AWT component used for taking input from user.
   a) A TextBox b) A FieldText
   c) A TextButton d) A TextField
6) Which of the method used for setting the priority of thread?
   a) setPriority() b) priority()
   c) prioritySet() d) prioritySet(10)
7) _____ method is used to call the constructors of the superclass from the subclass.
   a) super(argument list)
   b) super.ClassName (argument list)
   c) BaseClassName(argument list)
   d) Base (argument list)
8) Which of the following is not a wrapper class?
   a) String b) Integer
   c) Boolean d) character
9) Applet's _____ method can be used to get parameter values.
   a) getParameter() b) readParameter()
   c) parameterRead() d) parameterGet()
10) The _____ layout manager used to align components at north, south, east, west directions
   a) BorderLayout b) GridLayout
   c) FlowLayout d) GridBagLayout

B) State whether true or false **04**

1) The final keyword is used to support method overriding.
2) Abstract class constructors cannot be created.
3) Variables declared in interface are implicitly public, static, and final.
4) Runnable is a class used to create new thread.

Q.2 A) write short notes on the following **08**

A) Features of packages.
B) ActionEvent class.

B) Answer the following **06**

A) Give the difference between String and StrinBuffer class.
B) Define a Stream? Differentiate between a byte oriented and a character oriented stream.

Q.3 Answer the following **14**

A) Create a windows applications to insert and display the book information.
B) What is polymorphism? Explain run-time polymorphism with example.

Q.4 Answer the followings **14**

A) Write a program to demonstrate any five string operations using string class.
B) What is multithreading? Explain the concept of thread priority.

Q.5 Answer the followings **14**

A) Describe the methods used to establish used to establish inter-thread communication in Java.
B) State the difference between interface and abstract class with example.

Q.6 Answer the following **14**

A) List and explain interface that support for AWT event handling.
B) What is constructor? Explain constructor overloading with example.

Q.7 Answer the following **14**

A) Differentiate between the statement and PreparedStatement with suitable example.
B) Write a program to demonstrate the passing of parameters to an Applet.

Master of Computer Application – II (Science)
Examination: Oct / Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U 18	Monday 21/11/2016	02:30 PM to 05:00 PM	System Software	–	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives. **10**

1) Input of Lex is?
   a) Set to regular expression
   b) Statement
   c) Numeric data
   d) ASCII data

2) A Lex compiler generates?
   a) Lex object code
   b) Transition code
   c) C Tokens
   d) None of above

3) Which of the following system software resides in the main memory always?
   a) Text editor
   b) Assembler
   c) Linker
   d) Loader

4) In a two pass assembler the pseudo code EQU is to be evaluated during?
   a) Pass 1
   b) Pass 2
   c) Not evaluated by the assembler
   d) None of above

5) Which of the following system program foregoes the production of object code to generate absolute machine code and load it into the physical main storage location from whit it will be executed immediately upon completion of the assembly?
   a) Macro processor
   b) Load and go assembler
   c) Compiler
   d) None of above

6) Functions of lexical analyzer are?
   a) Removing white space
   b) Removing constants, identifiers and keywords
   c) Removing comments
   d) All of above

7) In a two assembler the object code generation is done during the?
   a) Second pass
   b) First pass
   c) Third pass
   d) Not done by assembler

8) A programming language is to be designed to run on a machine that does not have a big memory. The language should?
   a) Prefer a 2 pass compiler to a 1 pass compiler
   b) Prefer an interpreter to a compiler
   c) Not support recursion
   d) All of above

9) A system program that combines the separately compiled modules of a program into a form suitable for execution?
   a) Assembler
   b) Linking loader
   c) Cross compiler
   d) Load and Go

10) Which of the following is not a type of assembler?
   a) One pass
   b) Two pass
   c) Three pass
   d) Load and go

B) State whether true or false: **04**

1) Systems software consists of programs that help users solve particular computing problems.
2) Documentation are sequence of instructions for the computer.
3) The most important software on your computer is the compiler.
4) Folders and directories are logically the same thing.

Q.2 A) Write a short notes on the following: **08**

1) Shift / reduce parsing
2) Pass 2 assembler

B) Answer the following: **06**

1) Explain YACC compiler.
2) Explain features of machine – dependent compiler

Q.3 Answer the following:

A) Explain with an example, a simple input and output on SIC/XE machine architecture. **07**

B) What are the fundamental functions of any assembler? With an example, explain any three assembler directives **07**

Q.4 Answer the followings:

A) With a diagram explain how object program can be processed using linkage editor. **07**

B) Explain the advantages and disadvantages of general purpose microprocessors. **07**

Q.5 Answer the followings:

A) Explain design of macro processor in detail. **07**

B) Explain three basic sections of LEX program. **07**

Q.6 Answer the following:

A) Explain linkage editors, relocation and bootstrap in detail. **07**

B) Explain basic compiler functions in details. **07**

Q.7 Answer the following:

A) What are literals? Differentiate literals from immediate operands. **07**

B) What is system software? Differentiate it from application software. **07**

Master Of Computer Application – II (Science)
Examination: Oct / Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 19	Wednesday 23/11/2016	02:30 P.M To 05:00 P.M	DBMS	--	

Instructions:
1) **Question no. 1 & 2 are compulsory.**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7.**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) In E-R diagram relationship is represented by
   a) Ellipse
   b) Dashed ellipse
   c) Rectangle
   d) Demand

2) A table joined with itself is called
   a) Join
   b) Equi join
   c) Outer join
   d) Self join

3) _____ states that only valid data will be written to the database.
   a) Atomicity
   b) Consistency
   c) Isolation
   d) Durability

4) If the database modification occurs when the transaction is active, then the transaction is said to use the _____ technique
   a) Deferred modification
   b) Late modification
   c) Immediate modification
   d) Undo

5) Which of the following is not true about PL/SQL cursors?
   a) A cursor is a view on a table
   b) A cursor holds the rows (one or more) returned by sol statement
   c) The set of rows cursor holds is referred as active data set.
   d) None of the above

6) The method COUNT ()
   a) Returns the last (largest) number in the collection that uses integer subscript.
   b) Return the number of element that a collection currently contains
   c) Checks the maximum size of the collection
   d) None of the above

7) The _____ scheme uses the page table containing pointers to all the pages. The page tables itself and all the updated pages are copied to a new location.
   a) Shadow copy
   b) Shadow paging
   c) Update Log Records
   d) None of the above

8) In SQL _____operator is used for pattern searching where patterns consist of characters to be matched.
   a) BETWEEN
   b) IN
   c) GROUP
   d) LIKE

9) The relational data models are based on the collection of _____
   a) Rows
   b) Columns
   c) Tables
   d) None of the above

10) TCL stands for
   a) Transaction control language
   b) Transaction commit language
   c) Transaction confirm language
   d) None of the above

B) State whether following statements are true or false. **04**

1) SQL is a case sensitive language.
2) A candidate key is minimal super key.
3) DML statements are not allowed in functions.
4) A foreign key is not necessary to be a primary key in parent table.

Q.2 A) Write a short note on following **08**

1) Limitations of traditional file system.
2) Two phase locking protocol.

B) Answer the following **06**

1) Explain client/server architecture.
2) Describe checkpoint.

Q.3 Answer the following:

A) Explain deferred database update and immediate database update in detail. **08**

B) Explain life cycle of database development system. **06**

Q.4 Answer the followings:

A) Explain steps in query processing in detail and advantages of optimization. **08**

B) What is transaction? Explain ACID properties. **06**

Q.5 Answer the followings

1) Explain 2NF and 4NF with example. **08**
2) Explain generalization, specialization and aggregation in detail. **06**

Q.6 Answer the following

A) What is conflict and view serializability? Explain in detail. **08**

B) Explain fragmentation and replication technique in distributed database. **06**

Q.7 Answer the following

A) Explain function dependency and its types with examples. **08**

B) What is entity? Explain any 5 notations in entity relationship diagram with example. **06**

Master of Computer Application – II (Science) Examination: Oct/Nov 2016 Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 20	Friday 25/11/2016	02.30 PM to 05.00 PM	Computer Oriented Statistics		

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**
4) **Use of simple or scientific calculator is allowed**

Total Marks: 70

Q.1 A) Select most correct alternatives **10**

1) The measure of dispersion that based on extreme observation only is _____
   a) Range b) Q.D.
   c) M.D. d) S.D.

2) For unimodel asymmetric frequency distribution, the relation between mean, median and mode is _____
   a) mean – median = 3 (mean –mode) b) mode – median = (mean – mode)
   c) mean – mode =3 (mean – median) d) None of these

3) _____ distribution has maximum peaked frequency curve
   a) mesokurtic b) platykurtic
   c) leptokurtic d) none of these

4) If $P(A \cup B) = 1$ then events A and B are
   a) exhaustive b) certain
   c) mutually exclusive d) equally likely

5) If A and B are mutually exclusive events then P(A/B) = _____
   a) 1 b) zero
   c) any +ve real number that lies between 0 and 1 d) none of these

6) If $X \rightarrow B(10, 0.6)$, then E(x) = _____
   a) 10 b) 6
   c) 2.4 d) None of these

7) If P(X) is p.m.f. of a discrete r.v. X, then _____ for all x
   e) $P(X) \geq 0$ f) $P(X) > 0$
   g) $P(X) \leq 0$ h) None of these

8) If $X \rightarrow N(\mu = 25, \sigma^2 = 100)$, the mode of X is _____
   a) 25 b) 100
   c) 10 d) 5

9) To estimate value of variable X for known value of variable Y, the line of regression _____ is used.
   a) X on Y b) Y on X
   c) Both (a) and (b) d) None of these

10) _____ is not a part of good statistical table

a) Table number
b) Foot note
c) Head note
d) None of these

B) State whether following statements are true or false **04**

1) Symmetric nature of frequency distribution is known as kurtosis.
2) Event is sub-set of sample space.
3) Correlation between X and Y is same as that of correlation between Y and X always.
4) Deterministically generated random numbers are known as pseudorandom numbers.

Q.2 **A)** 1) State multiplication law of probability, hence obtain $P(A \sqcap B)$ if P(A) = 0.3, P(B) = 0.41, P(A/B) = 0.5 **04**

2) For a group of 20 observation mean, mod and s.d. are 50.5, 44.75 and 15.44 respectively. Find coefficient of skewness and comment on result. **04**

B) 1) Define Binomial distribution and state its additive property. **03**

2) Compute G.M. for the values 12, 18, 21, 27, 15 **03**

Q.3 A) A computer system consists of 3 sub-systems. Each sub-system might fail independently with probability 0.2. The failure of any sub-system will leads to a failure of a whole system. Given that a computer system has failed, what is probability that first sub-system failed? **07**

B) The daily wages of workers in a certain factory are as follows. Find coefficient of variation **07**

Wages (in 100 Rs.)	5-10	10-15	15-20	20-25	25-30
No. of workers	7	13	21	15	9

Q.4 A) Define normal distribution and state its important properties. **07**

B) A sample of 25 pairs of observation on (X, Y) gives the following information **07**

$\sum X = 328 \quad \sum Y = 242 \quad \sum X^2 = 35144 \quad \sum Y^2 = 32351 \quad \sum XY = 29445$

Obtain the equation of line of regression Y on X and hence estimate Y for X =25

Q.5 A) A random variable X has Poisson distribution with parameter 1.5 find $p(X \leq 3)$ **07**

B) What is skewness? Explain types of skewness. **07**

Q.6 A) Define correlation, explain types of correlation. **07**

B) The p.m.f. of distance r.v. X is **07**

$$P(X) = K\frac{x+2}{5}, X = 0,1,2,3$$

Find i) value of k ii) $P(|2-x| \geq 1)$ iii) $P(x^2 + 5 > 10)$

Q.7 A) Give procedure of generating random observation from exponential distribution with mean **07**

B) Fit exponential curve of the form $Y = a.b^x$ to the following data. **07**

X	1	2	3	4	5
Y	20	40	80	160	320

Estimate Y for X = 6.5

Master of Computer Application – II (Computer Science)
Examination: Oct / Nov 2016 Semester – III (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 21	16/11/2016 Wednesday	02:30 PM To 05:00 PM	Computer Communication Network		

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) _____ protocol uses to windows.

a) Simplex
b) Stop and wait ARQ
c) Go back-n ARQ
d) Selective repeat ARQ

2) The IP address 01100010011110001110000100001001 belongs to
a) Class A
b) Class B
c) Class C
d) Class D

3) An example for dynamic routing algorithm is _____.
a) Shortest path
b) Flooding
c) Dijisktra
d) Distance vector

4) The number of bit positions in which the code words differ is called _____.
a) Code distance
b) Hamming distance
c) Flow control
d) Error pulse

5) _____ is a program that accepts a variety of commands for composing receiving, and replying to message in E-mail.
a) Mail transfer agent
b) User agent
c) Mail receiver agent
d) None of the mentioned

6) _____ service is used to implement communication in the client – server model.
a) Connection oriented
b) Request – Reply
c) Connectionless
d) None of the mentioned

7) _____ error detection method is used in Internet.
e) Checksum
f) CRC
g) Simple parity check
h) None of the mentioned

8) At _____ layer, packet discard policy affects the congestion.
a) Data link
b) Transport
c) Network
d) None of the mentioned

9) _____ provides a connection oriented reliable sources for sending message.
a) TCP
b) UDP
c) IP
d) All of the mentioned

10) Which of the following of IP address class is multicast?

a) A b) B

c) C d) D

B) Fill in the blanks. **04**

1) MIME stands for _____.
2) IPv4 uses _____ Addresses.
3) Point-to-point transmission with one sender and one receiver is called as _____.
4) _____ primitive is used to accept incoming connections.

Q.2 A) write a short notes on : **08**

1) Design issues for layer.
2) Congestion prevention policies.

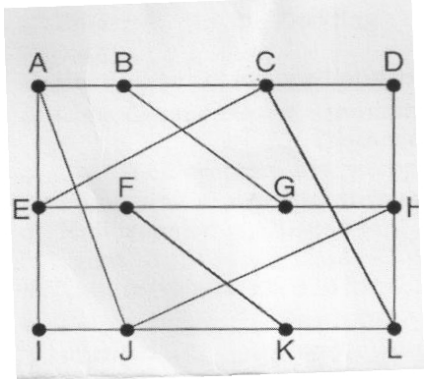
B) Find the class of each address: **06**

1. 00000001 00001011 00001011 11101111
2. 11000001 10000011 00011011 11111111
3. 14.23.120.8
4. 252.5.15.111
5. 01101111 00111000 00101101 01001110
6. 11011101 00100010 00000111 01010010

Q.3 A) Why real time transport protocol is used in transport layer? Discuss in detail RTP header format. **08**

B) Convert 1110101 by using even parity hamming code. **06**

Q.4 A) For the following subnet delay vectors of the neighbors of router J are given in the table. The new delays form J to its neighbors are also given. Compute the new routing table for the router J containing the new estimated delay from J to every other router using distance vector routing algorithm. **08**



To	A	I	H	K
A	0	24	20	21
B	12	36	31	28
C	25	18	19	36
D	40	27	8	24
E	14	7	30	22
F	23	20	19	40
G	18	31	6	31
H	17	20	0	19
I	21	0	14	22
J	9	11	7	10
K	24	22	22	0
L	29	33	9	9
	JA delay is	JI delay is	JH delay is	JK delay is
	5	9	11	13

Vectors received from J's four neighbors

06

B) Explain connection oriented and connectionless services in detail.

Q.5 A) Explain HDLC in detail **08**

B) The following is a dump of a UDP header in hexadecimal format. **06**

0632 000D 001C E217

1. What is the source port number1?
2. What is the destination port number?
3. What is the total length of the user datagram?
4. What is the length of the data?

Q.6 A) Explain the phases of connection oriented transmission of TCP. **08**

B) Compare the datagram and virtual circuit subnet in detail. **06**

Q.7 A) Explain Domain Name System. **08**

B) Receiver has received the following pattern from sender. Find the error by using Internet checksum : **06**

1. 10101001 00111001 00011101
2. 10101111 11111001 00011101

Master of Computer Application – III (Computer Science)
Examination: Oct / Nov 2016 Semester – III (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U –22	Friday 18/11/2016	02.30 PM To 05.00 PM	Java Programming	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) Event class is defined in which of these libraries?
   a) java.io b) java.lang
   c) java.net d) java.util
2) Java source code is compiled into _____
   a) .Exe b) .Obj
   c) Byte code d) .D11
3) Which of the following package stores all the standard java classes?
   a) lang b) java
   c) util d) java.packages
4) Which of the keyword is used to refer to member of base class from a sub class?
   a) upper b) super
   c) this d) none of the mentioned
5) Which of these access specifies can be used for an interface?
   a) Public b) Protected
   c) Private d) all of the mentioned
6) Thread priority in Java is _____
   a) Integer b) Float
   c) double d) long
7) Which of these method waits for the thread to terminate?
   a) sleep() b) isAlive()
   c) join() d) stop()
8) The _____ method executed a simple query and returns a single Result Set object.
   a) executeUpdate() b) executeQuery()
   c) execute() d) noexecute()
9) Inner classes are _____
   a) anonymous classes b) nested classe
   c) sub classes d) derived classes
10) Which of these class is not a member class of java.io package?
   a) String b) StringReader
   c) Writer d) File

B) State true or false **04**

1) StringBuffer class is used to create an object whose character sequence is mutable.
2) Applets do not require a main() method.
3) Static keyword does not allow a method to be override in the subclass
4) Final class defines only abstract methods and final fields.

Q.2 A) Write a short notes on **08**

1) Character Stream
2) Applet.

B) Answer the following: **06**

1) Give the importance of java.
2) Explain execute() method.

Q.3 A) Explain predefined exception with an example. **07**
B) Write a program to implement Multithreading. **07**

Q.4 A) Differentiate between abstract classes and interface with suitable example. **07**
B) Create a windows application to insert a new record using stored procedure. **07**

Q.5 A) What is custom exception? Explain with example. **07**
B) Write an applet to accept a number and check the given number is palindrome or not. **07**

Q.6 A) What are wrapper classes? Explain with its importance. **07**
B) What is constructor overloading? Give one example. **07**

Q.7 A) Explain the term. **07**
1) Checkbox 2) Label 3) TextField
B) Explain different Treads class methods. **07**

Master of Computer Application – II (Science)
Examination: Oct / Nov 2016 Semester – III (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U 23	Monday 21/11/2016	02:30 PM to 05:00 PM	System Software	–	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives. **10**

1) Which of these is most frequently accessed table
   a) OPTAB
   b) SYMTAB
   c) LITTAB
   d) None of these

2) An object module is an example of
   a) Non- relocatable program
   b) Relocatable program
   c) Self-relocating program
   d) None of these

3) Scanner is the part of the compiler that performs following tasks except
   a) Scanning the source statement
   b) Recognizing and classifying the various tokens
   c) Both a and b
   d) None of these

4) Loads address of the first word of the program is called
   a) Linker address origin
   b) Load address origin
   c) Phase library
   d) Absolute library

5) The translator which perform macro expansion is called a
   a) Macro pre-processor
   b) Macro processor
   c) Assembler
   d) Micro pre-processor

6) Macro definitions are typically located at the start of a program. It consists of all but does not
   a) A macro prototype statement
   b) One model statement
   c) Multiple model statement
   d) Expansion of macro

7) Synthesis phase of the compiler does
   a) Intermediate Code Generation
   b) Code Optimization
   c) Code Generation
   d) All of these

8) Which of the following is not a type of assembler
   a) One pass
   b) Two pass
   c) Three pass
   d) Load and go

9) Which of the following software tool is parser generator
   a) Lex
   b) YACC
   c) Both a and b
   d) None of these

10) The output of the lexical analyzer is
   a) Set of tokens
   b) String of character
   c) Set of regular expression
   d) Syntax tree

B) State whether true or false: **04**

1) Bootstrap loader is executed when system is turned on or restarted.
2) Resolution of externally defined symbols is performed by assembler.
3) Text editor in system software resides always in main memory.
4) Assembler accepts only high Level Language inputs.

Q.2 A) Write a short notes on: **08**

1) Linkage editor
2) MASM assembler
3) RISC machines

B) Differentiate between system software and application software **06**

Q.3 Answer the following : **14**

A) Design a flowchart for two pass assembler.
B) What is forward reference problem? How it is resolved.

Q.4 Answer the followings: **14**

A) What are linker and loader? Explain different types of loaders.
B) What is relocation? How it is performed.

Q.5 Answer the followings: **14**

A) Design a algorithm for macro processor and explain data structure used for it.
B) What is macro processor? Explain ANSI C macro preprocessor.

Q.6 Answer the following: **14**

A) What is compiler? Explain various phases of compilation process.
B) Explain various compiler design options.

Q.7 Answer the following: **14**

A) What is macro assembler? Find out its advantages and disadvantages.
B) Design algorithm for one pass assembler.

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 24	Wednesday 23/11/2016	02:30 P.M To 05:00 P.M	DBMS	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) % and _(underscore) are _____ operators:
   a) Relational b) Arithmetic
   c) Like d) None of these

2) Which of the following is correct?
   a) Data + DBMS = Database
   b) Data + Database = DBMS
   c) Database + DBMS = Database system
   d) None of these

3) Number of tuples in a relation, known as _____.
   a) Cardinality b) Degree
   c) Tuple set d) Modality

4) Relational calculus describes about _____.
   a) 'how' to evaluate a query b) 'what' is to be retrieved
   c) 'when' to evaluate a query d) 'why' to evaluate a query

5) Initial state of transaction is _____.
   a) Active state b) Partially committed state
   c) Failed state d) Aborted state

6) Two actions on the same data object conflict if at least one of them is _____.
   a) Read b) Write
   c) Read/Write d) None of these

7) Shadowing may result in _____
   a) Page loss b) Page swap
   c) Data scattering d) a) & b) both

8) LOB stands for _____
   a) Large Object Base b) List Object
   c) List Object Base d) Large Object

9) A repository of information about database is known as _____
   a) Data dictionary b) Distributed Database
   c) Data table d) Data repository

10) How many tables can be joined to create a view?
   a) 1 b) 2
   c) Depends on DBMS d) None of these

B) State whether true or false **04**

1) GRANT and REVOKE are DML commands.
2) Every conflict serializable schedule is view serializable too.
3) SQL supports procedural statements.
4) 2nd normal form removes partial dependency.

Q.2 A) Write a short note on followings: **08**

1) Limitations of traditional file processing system.

2) Naming conventions for objects

B) Answer the following: **06**

1) What are the advantages of optimization in query processing?

2) What is distributed database? Describe its types in brief.

Q.3 Answer the following:

A) Explain all components of DBMS in detail. **07**

B) Construct an ER-diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient of log of various tests and examination conducted. **07**

Q.4 Answer the followings:

A) Discuss about the 4th normal form and 5th normal form with example. **07**

B) What is relational algebra? Explain following operations of relational algebra with example: select, project, cross product, union and division. **07**

Q.5 Answer the followings:

A) What is query processing? Explain the steps involved in in it. **07**

B) Explain the concept of nested table. Describe how to insert data in nested tables and how to retrieve from it. **07**

Q.6 Answer the following

A) What is lock? What are its types? Explain two phase locking protocol. **07**

B) Discuss about differed database updates and immediate database updated with examples of each **07**

Q.7 Answer the following

A) What is distributed database? Explain the concept of fragmentation and its types with example of each. **08**

B) Consider the following database schema. **06**

STUDENT (Name, Student_Number, Class, Major)
COURSE (Course_name, Course_number, Credit_Hours, Department)
SECTION (Selection_Identifier, Course_Number, Semester, Year, Instructor)
GRADE_REPORT (Student_Number, Section_Identifier, Grade)
PREREQUISITE (Course_Number, Prerequisite_Number)

Answer the following queries:

1. Retrieve the name of all courses taught by professor Mishra in year 2014.
2. Retrieve the name and transcripts of each student majoring in 'COSE (Computer Science). Transcript includes Course_Name, Course_Number, Credit_Hours, Semester, Year and Grade.
3. Retrieve the name and major departments of all students who do not have grade 'A' in any of their courses.

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 25	Friday 25/11/2016	02.30 PM to 05.00 PM	Computer Oriented Statistics	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**
4) **Use of simple or scientific calculator is allowed**

Total Marks: 70

Q.1 A) Select most correct alternatives **10**

1) Histogram is a graph of _____
   a) Cumulative frequency
   b) Less than cf
   c) Greater than cf
   d) Frequency
2) _____ is a measure of dispersion
   a) Standard deviation
   b) Arithmetic mean
   c) Median
   d) None of these
3) For a positively skew distribution
   a) Mean<median<mode
   b) Mean>median>mode
   c) Median<mean<mode
   d) None of these

4) If $P(A \cap B) = 0$ then thee events A and B are
   a) Independent
   b) Mutually exclusive
   c) Equally likely
   d) All of these
5) For a Poisson distribution
   a) Mean<variance
   b) Mean>variance
   c) Mean=variance
   d) both a) and b)

6) Normal distribution is _____ distribution
   a) Positively skew
   b) Negatively skew
   c) Symmetric
   d) Asymmetric

7) Variance of the exponential distribution with mean 10 is
   e) 100
   f) 10
   g) 1
   h) 0.01

8) Regression analysis is concerned with
   a) Establishing a mathematical relationship between two variables
   b) Measuring the extent of association between two variables
   c) Predicting the value of the dependent variable for a given value of the independent variable
   d) Both a) and c)

9) If the correlation between the two variables X and Y is positive, then the correlation between X and Y+2 is :
   a) Zero
   b) Positive
   c) Negative
   d) Not certain

10) If the value of coefficient of Kurtosis γ_2 is zero, then the frequency distribution curve is said to be :

a) Leptokurtic
b) Platykurtic
c) Mesokurtic
d) None of these

B) Fill in the blanks **04**

1) If P(A)=0.2 and P(A∩B)=0.1 then P(B⁄A)is _____
2) The median of the values 11, 15, 12, 15, 13, 16, 19, 12, 15, 12 is _____
3) If the mean and standard deviation of a distribution are 50 and 16 respectively, then the coefficient of variation of the distribution is _____
4) If X ~ B(10,0.5) then mean is _____

Q.2 **A)** 1) What do you mean by dispersion? State the types of measures of dispersion. **04**

2) Calculate S.D. for the data : 10, 12, 14, 16 18 **04**

B) 1) State multiplication theorem of probability. **03**

2) An integer is chosen at random from 1 to 100. What is the probability that the chosen integer is not divisible by 5? **03**

Q.3 A) A box contains 4 white, 6 black and 5 red balls. Two balls are drawn at random one by one without replacement. Find the probability of drawing a black ball in second draw. **07**

B) Products produced by a machine has 3% defective rate. What is the probability that the first defective occurs in the fifth item inspected? **07**

Q.4 A) Generate five random observation from uniform distribution over (5,50) using the sequence of random number 0.04, 0.14, 0.36, 0.98, 0.67 **07**

B) Define normal distribution and state its important properties. **07**

Q.5 A) Fit an exponential curve of the form $Y = a.b^x$ to the following data : **07**

X:	1	2	3	4	5	6	7	8
Y:	1	1.2	1.8	2.5	3.6	4.7	6.6	9.1

Estimate Y then X = 4.5

B) The probability distribution of a random variable X is as follows : **07**

X :	0	1	2	3	4	5	6	7
P(X=x)	0	2k	3k	K	2k	K^2	$7k^2$	$2k^2+k$

Find (i) k (ii) $p(3<X \leq 6.5)$

Q.6 A) From the following data of the height of person in a certain company calculate coefficient of variation **07**

Heights (inches):	58	60	61	62	63	64	65	66	68	70
No.of persons	4	6	5	10	20	22	24	6	2	1

B) Explain Bayes' theorem **07**

Q.7 A) From a bivariate distribution a sample of 40 gives following values. **07**

$\sum X=628$ $\sum Y=550$ $\sum X^2=40376$ $\sum Y^2=30812$ $\sum XY=33969$

Find a line of regression of X on Y

B) Define exponential distribution. If line time of a certain brand of computer follows an exponential distribution with mean life time 5000 hours, find the probability that the computer will fair after 4000 hours. **07**

Master of Computer Application – II (Computer Science)
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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 26	Thursday 17/11/2016	02:30 PM to 05:00 PM	Distributed Operating System	–	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) Once a file has been created, it cannot be changed. Such a file is said to be __
   a) Mutable file
   b) Immutable file
   c) Non-Alterable file
   d) Variable file

2) In _____ the process first acquires all the locks it needs during growing phase.
   a) Rollback locking
   b) Write-ahead log locking
   c) Two phase locking
   d) Privates workspace

3) It is possible to program a timer to generate an interrupt 60 times a second, or at any other desired frequency. Each interrupt is called one _____
   a) Clock Hour
   b) Solar day
   c) Clock tick
   d) Clock skew

4) If the system is _____ transparent, the users will not notice the existence of other users.
   e) Parallelism
   f) Migration
   g) Location
   h) Concurrency

5) The mechanism of _____ is to group bits into units, called as frames.
   a) Information Layer
   b) TCP/IP Layer
   c) Network layer
   d) Data link layer

6) A technique that is commonly used in threads packages is the _____ , which is a kind of semaphore.
   a) Monitor
   b) Condition variable
   c) Mutex
   d) Page fault

7) Subdirectories can contain their own subdirectories, and so on, leading to a tree of directories, often called a _____
   a) Remote access file system
   b) Hierarchical file system
   c) Subdirectories file system
   d) General file system

8) A _____ is a directory entry that maps onto a (Server, File name) string, which can be looked up on the server named to find the binary name.
   a) Binary name
   b) Symbolic link
   c) File pointer
   d) None of these

9) When a packet is sent to one of addresses, it is automatically delivered to all machines listening to the address, this technique is called _____
   a) Unicasting
   b) Point to point
   c) Multicasting
   d) None of these

10) With _____ allocation, a process can be moved even if it has already started execution and allows better load balancing
   a) Migratory
   b) Non-migratory
   c) Linked
   d) Contiguous

B) State True or False **04**

1) If the cache is large enough, the portability of success, called the success rate will be low.
2) The file server accept request from user programs running on different machines, called clients, to read and write files.
3) The algorithm is known as wait-die, because one transaction is supposedly wounded and other waits
4) A global time ordering is that delivers all messages in the exact order in which they were sent.

Q.2 A) Write a short note on the following: **08**

1) Blocking versus Non-blocking primitives (Client Server Model)
2) Bus-based Multiprocessor

B) Answer the following **06**

1) What do you mean by Hierarchical group?
2) Briefly explain the concept of Stable Storages.

Q.3 Answer the following

A) What do you mean by Distributed OS? Discuss its various advantages and disadvantages. **07**

B) What do you mean by clock Synchronization? Discuss Centralized algorithm to achieve Mutual Exclusion in Distributed OS. **07**

Q.4 Answer the followings

A) What do you mean by Idle Workstation? Discuss registry based algorithm for finding and using an idle workstations. **07**

B) Define Deadlock. State and describe distributed deadlock detection with suitable example. **07**

Q.5 Answer the followings:

A) What do you mean by Processor allocation? Discuss in detail various design issues for processor Allocation Algorithms. **07**

B) Discuss in detail comparative study of MS-windows NT and Novel Netware **07**

Q.6 Answer the following:

A) Define the term Virtual Memory. Explain in detail concept of demand paging with suitable example? **07**

B) What do you mean by Distributed File System? Discuss in detail various trends in Distributed file system. **07**

Q.7 Answer the following

A) Discuss in detail the basic operations and mechanism of Remote Procedure Call with suitable example **07**

B) State and describe the comparison of Election algorithm with suitable example. **07**

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U –27	Saturday 19/11/2016	02.30 PM to 05.00 PM	Data Mining and Warehouse	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) Classification rules are extracted from _____
   a) root node
   b) decision tree
   c) siblings
   d) branches

2) Data compression is to compress the given data by encoding in terms of _____
   a) bytes
   b) bits
   c) cluster
   d) group

3) Which of the following table type belongs to snowflake schema?
   a) free
   b) dimension
   c) replicator
   d) double

4) Fact tables are _____
   a) completely demoralized
   b) partially demoralized
   c) completely normalized
   d) partially normalized

5) The types of relationships in star schema is
   a) many-to-many
   b) one-to-one
   c) one-to-many
   d) many-to-one

6) Which of the following is true?
   a) The data warehouse consists of data marts and operational data
   b) The data warehouse consists of data marts and application data.
   c) The data warehouse is used as a source for the operational data.
   d) The operational data are used as a source for the data warehouse

7) _____ is the first stage in KDD process.
   a) data selection
   b) cleaning
   c) mining
   d) Enrichment

8) The _____ operation is used for reducing data cube by one or more dimensions.
   a) Drilling
   b) Rolling
   c) Dicing
   d) Slicing

9) A _____ acts a bride between data warehouse and database applications.

a) data mart
b) operational data
c) meta data
d) data cube

10) A data warehouse is an integrated collection of data because _____

a) it is a collection of data of different data types
b) it is a collection of data derived from multiple sources
c) it is a relational database
d) it contains summarized data

B) State true or false **04**

1) A data warehouse is said to contain a time-varying collection of data because it contains historical data.
2) A volatile is not the rule that govern the basic structure of data warehouse.
3) The client/server represents the best choice for building a data warehouse.
4) The transactional data are stored in data warehouse.

Q.2 A) write a short notes on :

A) Snowflake Schema model **08**
B) Star Schema model

B) Answer the following **06**

A) What is data cube?
B) Write a note on fact constellation schema model.

Q.3 Answer the following

A) Explain data mining primitives. **06**
B) Explain K – Means algorithm with example. **08**

Q.4 Answer the followings

A) Explain outlier analysis **06**
B) Explain data preprocessing. **08**

Q.5 Answer the followings

A) Explain Data Mining Query Language (DMQL). **06**
B) Data mining as a step in the process of KDD. Explain. **08**

Q.6 Answer the following **14**

A) Differentiate between OLAP and OLTP
B) What are the attributes selection measures in classification?.

Q.7 Answer the following **14**

A) Explain agglomerative and divisive hierarchical method of clustering.
B) Write a note on data warehousing back end tools.

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 28	Tuesday 22/11/2016	02.30 PM To 05.00 PM	UML	--	

Instructions: **1) Question no. 1 & 2 are compulsory**
2) Attempt any three questions from Q. No. 3 to Q. No. 7
3) Figures to the right indicate full marks.

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) If you want to plan project activities such as developing new functionalities or test cases, which of the following OOAD artifacts is the most useful?
   a) Sequence diagrams
   b) Use cases
   c) Domain model
   d) Package diagram

2) Package diagrams are designed for :
   a) Organizing a large project into components
   b) Assisting deployment
   c) Reducing dependency
   d) None of these

3) Divide a complex system into small, self-contained pieces that can be managed independency. How is it called?
   a) Abstraction
   b) Modularity
   c) Encapsulation
   d) Hierarchy

4) Ordering abstractions into a tree-like structure. How is it called?
   a) Abstraction
   b) Modularity
   c) Encapsulation
   d) Hierarchy

5) Which of these are part of class operations specification format?
   a) Name
   b) Parameter list
   c) Return-type list
   d) All of these

6) Which statements are considered correct in reference to use case diagram?
   a) A scenario is an interaction between product and particular interaction.
   b) A use case diagram represents a product's use cases and actors involved in each use case
   c) Both a and b
   d) None of the mentioned

7) What are true about a sequence diagram?
   1. It describes the behavior in many use cases
   2. It describes the behavior in a single use case.
   3. It describes the behavior in a single object
   4. It describes the behavior of several objects
   a) 1 and 2
   b) 1 and 3
   c) 2 and 3
   d) 2 and 4

8) _____ shows interaction between objects over a specific period time.
   a) Sequence diagram
   b) Class diagram
   c) Use Case diagram
   d) Package diagram

9) What is true about UML stereotypes?
   a) A stereotypes is used for extending the UML language
   b) A stereotypes class must be abstract
   c) The stereotype {frozen} indicates that the UML element cannot be changed
   d) UML profiles can be stereotyped for backward compatibility.

10) Which are valid events in a state diagram?
   a) If()
   b) Else()
   c) Close()
   d) After()

B) State whether true or false **04**

1) Activity diagram can be used to explore/discover parallel activities.
2) Generalization allows abstracting common features and defining them in a super-class.
3) Association lines may be unlabeled or they may show association name.
4) An instance operation can be called using any object.

Q.2 A) write a short notes on the following **08**

1) Annotational things
2) Reverse things

B) Answer the following **06**

1) Describe aggregation with example.
2) What are stereotypes applied to dependency relations.

Q.3 Answer the following

A) Describes the concept of interface, types and roles. **07**

B) What is a instance? What is state of an object? How these are represented in the UML? **07**

Q.4 Answer the followings

A) What is collaboration? Describe the structural part of the collaboration. **06**

B) How the objects interact when they collaborate with one another? What are the four possible combinations of interaction? **08**

Q.5 Answer the followings

A) Describe action states and activity states. **06**

B) What is an event? What are the different types of events that you can model in the UML? **08**

Q.6 Answer the following

A) Explain statechart diagram with example. **06**

B) What is modeling? Explain the importance modeling? What are the five different views of a software system? **08**

Q.7 Answer the following

A) Explain behavioral things and grouping things in the UML. **06**

B) UML is made simpler by the presence of common mechanisms. Explain those four common mechanisms. **08**

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Examination: Oct / Nov 2016 Semester – IV (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 29	Thursday 24/11/2016	02:30 P.M To 05:00 P.M	.Net	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) _____ XML file is important in developing an ASP.NET application.
   a) Web.Config b) App.Config
   c) Machine.Config d) Web.Data

2) _____ namespace contains the features of the HTML server controls?
   a) System.Web.UI.Controls b) Sytem.Web.UI.ServerControls
   c) Sestem.Web.UI.HtmlControls d) System.Web.UI.Page.Controls

3) _____ property is used to set for cross page posting.
   a) AutoPostBack b) PostBackUrl
   c) CrossPage d) Posting

4) Items in _____ list are not selectable.
   a) List Box b) DropDownList
   c) BulletedList d) None of these

5) The _____ directive is used to include a user control in a web form.
   a) Control b) UserControl
   c) Register d) Assembly

6) _____ state management technique is most secure technique.
   a) Cookies b) View
   c) QueryString d) Session

7) _____ modifies is used when an abstract method is redefined by a derived class?
   a) Base b) Virtual
   c) Overload d) Override

8) Properties can be declared in _____.
   a) Class b) Interface
   c) Structure d) All of these

9) When no exception is thrown at runtime then _____ will catch it.
   a) OS b) CLR
   c) Compiler d) Loader

10) _____ is default parameter direction.

a) Input
b) Output
c) InOut
d) None

B) Fill in the blanks **04**

1) _____ keyword is used to declare Indexer.
2) Two or more methods with the same name but with different parameters is called as _____
3) By default value of EditIndex property of DataGridView is _____
4) For validating pattern _____ validation control is used.

Q.2 **A)** 1) Explain Value type and Reference type in detail. **08**
2) Explain validation summary and validationGroup in detail.

B) Explain function of CLR in detail **06**

Q.3 **Answer the following:** **14**

A) What is multithreading? Explain thread priority with example.

B) What is application folder? Explain with example which application folders are used for creating web application which supports multiple languages.

Q.4 **Answer the followings:** **14**

A) What is state management? Which state management technique is used to store small amount of data on client browser? Explain with example.

B) What is operator overloading? Write a program to overload greater then (>) operator.

Q.5 **Answer the followings:** **14**

A) Explain the role of constructor in inheritance.

B) What is client side and server side validation? Explain use of Custom Validation control with example.

Q.6 **Answer the following:** **14**

A) Write a program to insert and retrieve record using stored procedure.

B) How to pass variable length parameters? Explain with example.

Q.7 **Answer the following:** **14**

A) What is need of master page? Explain how to create nested mater pages.

B) What is used of list? Explain different list used in ASP.Net.

Master of Computer Application – II (Science)
Examination: Oct/Nov 2016 Semester – IV (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 30	Saturday 26/11/2016	02.30 PM to 05.00 PM	Finite Automata	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) All possible subset of set is known as _____
   a) sub set
   b) power set
   c) super set
   d) none of these

2) Proper suffix of the string abc are _____
   a) {ε,c,bc,abc}
   b) {ε,c,bc}
   c) {ε,a,ab,abc}
   d) {ε,a,ab}

3) Function which mapping one to one from input to output such function is known as _____ function.
   a) Machine
   b) State
   c) Both a and b
   d) None of these

4) NFA is more powerful than DFA.
   a) True
   b) False

5) Regular expression (a + b).(a + b)denotes the set _____
   a) {a}
   b) {aa, ba, ab, bb}
   c) {abab}
   d) {aabb}

6) 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

7) The context free language is not closed under _____
   a) union
   b) intersection
   c) series
   d) none of these

8) In GNF grammar is required in the form of _____
   a) A - > BC | a
   b) A - > $a\alpha$
   c) Both a and b
   d) None of these

9) A grammar that produce more than one parse tree for some sentence is called _____
   a) Context free
   b) Regular
   c) Ambiguous
   d) None of these

10) The string $a^nb^nc^n$ can be accepted by PDA
   a) True
   b) False

B) Fill in the blanks **04**

1) In _____ each and every input symbol has exactly one transition from each DFA and every state.
2) The empty set is denoted by _____
3) If L(r)= {ε, X, XX, XXX, XXXX, XXXXX} then r = _____
4) The grammar in which right hand side production contains at most on non-terminal is called _____ grammar.

Q.2 A) Write a short note on. **08**

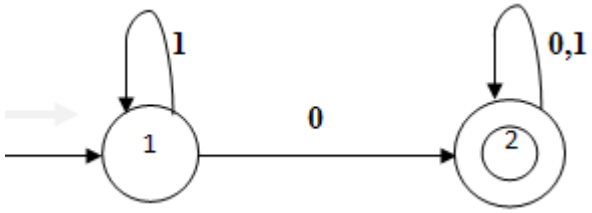
1) Pictorial representation of PDA.
2) Rules for conversion of RE to FA.

B) Answer the following **06**

1) Design a DFA which accept number is ever or odd.
2) Give the applications of TM.

Q.3 Answer the following

A) Find regular expression for the following DFA by using Arden's theorem. **07**



B) Construct F.A. equivalence to R.E. **07**
$(a / b)^* (aaa + bbb)^* (a / b)^*$

Q.4 Answer the followings

A) What is pumping lemma? Using pumping lemma check $\{a^n b^{n+1} | n >= 1\}$ is regular or not. **07**

B) Find a grammar in GNF equivalence to grammar E -> E + T|T, T-> T*F|F, F->(E) | a **07**

Q.5 Answer the followings

A) Design a PDA for language $L = \{a^i b^j c^k | i,j,k > = 1; k = i + j\}$ use final state. **07**

B) Check whether the following grammar is ambiguous or not; if ambiguity found remove the ambiguity and rewrite an equivalent grammar. **07**
E - > E + E |E*E| id.

Q.6 Answer the following

A) For the grammar : $S \rightarrow aABB \mid aAA$ **07**
$A \rightarrow aBB \mid a$
$B \rightarrow bBB \mid A$
$C \rightarrow a$
Obtain the corresponding PDA.

B) Explain closure properties of RL with example. **07**

Q.7 Answer the following

A) Construct Turing machine for copy string over $\Sigma = \{a, b\}$. **07**

B) How to convert PDA to CFG? Explain with example. **07**

Master of Computer Application – II (Computer Science)
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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 31	Thursday 17/11/2016	02:30 PM to 05:00 PM	Distributed Operating System	–	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) The _____ allow millions of machines all over the earth to be connected at speeds varying form 64 Kbps to gigabits per second for some advanced experimental networks.
   a) Local Area Networks
   b) World Wide Web Networks
   c) Metropolitan Area Networks
   d) Wide Area Networks

2) A _____ is a situation in which a resource can be released only voluntarily by process holding it, after that process has completed its task.
   a) Hold and wait
   b) No preemption
   c) Resource sharing
   d) Process Election

3) A _____ strategy allow better load balancing and has major impact on system design.
   a) Non-migratory allocation
   b) Deterministic allocation
   c) Migratory allocation
   d) Flexibility allocation

4) A _____ threads package can be implemented on an operation system that does not support threads.
   a) Kernel
   b) Scheduler activation
   c) Spin lock
   d) User

5) The _____ property ensures the concurrent transaction do not interfere with each other.
   a) Atomic
   b) Durable
   c) Isolated
   d) Consistent

6) If the workstations are diskless, the file system must be implanted by one or more _____ file servers.
   a) Remote
   b) Block cache
   c) Local
   d) Temporary

7) A _____ is an agreement between the communicating parties on how communications is to proceed.
   a) Scheduler activation
   b) Protocol
   c) Multiprocessor
   d) Monolithic kernel

8) Using _____ transparency, the multiple users can share resources automatically.
   a) Domain Name
   b) Mutual Exclusion
   c) Concurrent
   d) Replication

9) A file can have _____ which are piece of information about the file but which are not part of the file itself.
   a) Directory
   b) Server interface
   c) Data section
   d) Attributes

10) Each user has a kind of ticket called a _____, for each object to which it has access.
   a) Capability
   b) Data server
   c) Access control list
   d) Upload model

B) State True or False **04**

1) Protection must provide a means for specifying the controls to be imposed together with a means of enforcement.
2) When a single sender sending a message to a single receiver is called multicasting addressing.
3) In non-blocking primitives, the process remains suspended in receive until a message arrives, even if it takes hours.
4) A Multi thread model to construct server can be characterized with parallelism and having blocking system calls.

Q.2 A) Write a short note on: **08**

1) Clock Synchronization
2) OSI Reference Model

B) Answer the following: **06**

1) What do you mean by Open and Close group?
2) Define the term Pipes?

Q.3 Answer the following

A) What do you mean by Remote Procedure Call? Discuss in detail acts involved for sending calls and messages as Remote Procedure Call. **07**

B) What do you mean by File Services? Describe in detail the various semantics of File sharing? **07**

Q.4 Answer the followings:

A) Define the term Logical Clocks. Discuss in detail Lamport's Algorithm for the clock correction. **07**

B) What do you mean by Processor allocation? Discuss issues for processor allocation algorithms. **07**

Q.5 Answer the followings:

A) State the comparison in detail between MS-windows NT and Novel Netware? **07**

B) What do you mean by Deadlock? Discuss algorithms for centralized deadlock detection with suitable example. **07**

Q.6 Answer the following:

A) What is mean by Distributed Operating System? Explain in detail its merits and demerits? **07**

B) Define Mutual Exclusion. Discuss Distributed algorithm for Mutual Exclusion? **07**

Q.7 Answer the following:

A) Define the term Election Algorithm. Discuss in detail Ring and Bully Election algorithm? **07**

B) Discuss Workstation Model using Idle Workstation with suitable example. **07**

Master of Computer Application – II (Computer Science)
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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U –32	Saturday 19/11/2016	02.30 PM to 05.00 PM	Data Mining and Warehouse	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) The partitions of overall data warehouse is _____
   a) Database
   b) data cube
   c) data mart
   d) operational data

2) Which of the following is/are the Data mining tasks?
   a) Classification Association
   b) clustering
   c) interface of associative rules
   d) all of the above

3) In K-nearest neighbor algorithm K stands for _____
   a) number of neighbors that are investigated
   b) number of interactions
   c) number of total records
   d) random number

4) Data mining is used to aid in
   a) operational management
   b) analyzing past decision made by managers
   c) detecting patterns in operational data
   d) retrieving archival data

5) KDD describes the _____
   a) whole process of extraction of knowledge from data
   b) extraction of data
   c) extraction of information
   d) extraction of rules

6) An OLAP tool provides for
   a) multidimensional analysis
   b) Roll-up and drill-down
   c) slicing and dicing
   d) Rotation

7) Which of the following statement is true?
   a) A fact table describes the transaction stored in a DWH
   b) the fact table of a data warehouse is the main store of descriptions of the transactions stored in a DWH
   c) The fact table of a data warehouse is the main store of all of the recorded transactions over time.
   d) a fact table maintains the old records of the database

8) The type of relationships in star schema is _____
   a) Many-to-many
   b) one-to-one
   c) one-to-many
   d) many-to-one

9) The next stage to data selection in KDD process_____
   a) Enrichment
   b) coding
   c) cleaning
   d) reporting

10) The partition of overall data warehouse is _____
   a) database
   b) Data Cube
   c) data mart
   d) operational data

B) State true or false **04**

1) The Synonym for data mining is OLAP.
2) OLTP stands for online Transaction Processing.
3) OLAP manages both current and historic transactions.
4) Data mining is used to refer discovery stage in knowledge discovery in database.

Q.2 A) write a short notes on :

A) Data Marts **08**
B) Data Cube

B) Answer the following **06**

A) Describe data reduction technique.
B) What is data mining?

Q.3 Answer the following **14**

A) What is cluster analysis? Explain types of data in cluster analysis.
B) Differentiate between OLTP an OLAP.

Q.4 Answer the followings **14**

A) Explain snowflake and fact constellation schema model with example.
B) Explain different applications of data mining.

Q.5 Answer the followings **14**

A) Discuss different OLAP Operations.
B) Explain agglomerative and divisive hierarchical method of clustering

Q.6 Answer the following **14**

A) Explain in detail decisions tree induction method.
B) Describe the issues regarding classification and prediction.

Q.7 Answer the following **14**

A) Explain data warehouse architecture.
B) Explain K – medoids method.

Master of Computer Application – II (Science)
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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 33	Tuesday 22/11/2016	02.30 PM To 05.00 PM	UML	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) An element owned by a package is _____
   a) Public b) Private
   c) Protected d) Friend

2) _____ is sometimes called an "is-a-kind-of" relationship
   a) Generalization b) Association
   c) Specialization d) Dependencies

3) _____ is a concrete manifestation of an abstraction to which a set of operations can be applied and which has a state that stores the effects of the operations.
   a) Instance b) Abstraction
   c) Operations d) State

4) "Java :: awt" is example of
   a) Simple name b) Qualified name
   c) Complex name d) None of these

5) Use case diagrams commonly contain
   a) Subject b) Association relationship
   c) Generalization relationship d) All of above

6) _____ is a named property of a class that describes a range of values that instance of the property may hold.
   a) Attribute b) Object
   c) Instance d) None of above

7) A _____ is a language whose vocabulary and rules focus on the conceptual and physical representation of a system.
   a) High level language b) Low level language
   c) Modeling language d) None of these

8) A _____ is a physical element that exists at run time and represents a computational resource.
   a) Artifacts b) Components
   c) States d) None of these

9) The _____ of a system encompasses the classes, interfaces, and collaborations that form the vocabulary of the problem and its solution
   a) Design view b) Implementation view
   c) Interaction view d) Deployment view

10) What is the programming style of the object oriented conceptual model?

a) Invariant relationships
b) Algorithms
c) Classes and objects
d) Goals, often expressed in a predicate calculus

B) State true or false **04**

1) In UML diagrams relationship between object and component parts is represented by ordination.
2) Object encapsulates both data and data manipulation functions.
3) The vocabulary of the UML encompasses four kinds of building blocks.
4) A component diagrams show the dependencies among a set of components.

Q.2 A) Explain things in UML **08**
B) Explain system architecture **06**

Q.3 A) What is class? Explain its attributes, operations and responsibilities. **08**
B) Explain software development life cycle. **06**

Q.4 A) What is object? Explain object diagram with an example. **08**
B) Explain object oriented fundamentals. **06**

Q.5 A) Draw activity diagram for college admission system. **08**
B) Explain classifiers. **06**

Q.6 A) What is an interface? Discuss the ways that element realizes an interface with suitable example. **08**
B) Explain packages. **06**

Q.7 A) Explain events and signals in detail. **08**
B) Explain difference between collaborations and sequence diagram. **06**

Master of Computer Application – II (Science)
Examination: Oct / Nov 2016 Semester – IV (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 34	Thursday 24/11/2016	02:30 P.M To 05:00 P.M	.Net	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives: **10**

1) _____ namespace is used to create connection with MS-Access.
   a) System.Data.Access
   b) System.Data.AccessClient
   c) System.Data.OLEDB
   d) All of these

2) _____ property indicates whether this is the first time the page is being run or the page is being submitted in response to a control event.
   a) PostBack
   b) IsPostBack
   c) AutoPostBack
   d) IsServerVisit

3) _____ keyword is not a part of exception handling.
   a) Thrown
   b) Try
   c) Finally
   d) Catch

4) Which modifies are used to control the accessibility of the delegate?
   a) New
   b) Public
   c) Internal
   d) All of these

5) _____ attribute of advertisement file is set which describe how many times advertisement will appear
   a) Number
   b) Impression
   c) Frequency
   d) DisplayNumber

6) _____ method is used to come out from the C# windows forms Application.
   a) Application.Close()
   b) Form.Close()
   c) Application.Exit()
   d) Form.Exit()

7) By default, _____ web control has AutoPostBack property to true.
   a) ImageButton
   b) TextBox
   c) DropDownList
   d) CheckBox

8) _____ property is need to assign for validations in multiple groups.
   a) Group
   b) validationGroup
   c) IsValid
   d) SetValidation

9) _____ state management technique is not secure technique.
   a) Application
   b) Session
   c) Hidden
   d) None of these

10) \App_GlobaleResources folders stores _____ types of files.
   a) .Resx file
   b) .Browser files
   c) .CSS files
   d) .JS files

B) Fill in the blanks: **04**

1) Read only property will be created by using _____ method.
2) By default access specifire for class is _____.
3) _____ property is needed to set for selecting only one item from list of radio buttons.
4) _____ validation control is used for validating pin code number.

Q.2 **A)** 1) Explain boxing and unboxing in detail. **08**
2) Explain girdview control with example.

B) Explain \AppGlobalResources and \AppLocalResources folders with example. **06**

Q.3 **Answer the following:** **14**

A) Discuss Abstract keyword with example.
B) What is control Array? Design web page which display 10 TextBoxes using control array.

Q.4 **Answer the followings:** **14**

A) What are lists in list class? Explain important properties related with each list.
B) Explain exception class in detail.

Q.5 **Answer the followings:** **14**

A) What is overloading and overriding? Explain difference between overloading and overriding with example.
B) Explain compilation technique of ASP.Net page.

Q.6 **Answer the following:** **14**

A) What is profile? Explain profile with example.
B) What is use of session state? Explain session state in detail.

Q.7 **Answer the following :** **14**

A) Explain different visibility modifies used in C#.
B) Write a program to search and update record.

Master of Computer Application – I (Computer Science)
Examination: Oct / Nov 2016 Semester – V (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 36	Wednesday 16/11/2016	10.30 AM to 01.00 PM	Artificial Intelligence	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives : **10**

1) AI focused on the sort of problem solving that we do every day when we decide how to get to work in morning often celled _____.
   a) Scientific Analysis
   b) Theorem proving
   c) Commonsense reasoning
   d) Depth First search

2) Specify one or more states that would be acceptable as solutions to the problem. These states are called. _____
   a) Problem state
   b) Solution state
   c) Goal state
   d) Initial state

3) _____ requires less memory since only the nodes on the current path are stored.
   a) Breadth First Search
   b) Solution space
   c) Depth First Search
   d) Problem space

4) _____ is an area of the search space that is higher than surrounding areas and that itself has a slope.
   a) Local maxima
   b) Ridge
   c) Plateau
   d) Foothills

5) A straight forward procedure to solve _____ might operate in a state space of partial solutions in which letters are assigned particular numbers as their values.
   a) Monkey and Banana problem
   b) Missionaries and Cannibal problem
   c) Crypt-arithmetic problem
   d) Tower of Hanoi problem

6) The predicate _____ is a binary one, whose first argument is object and whose second argument is class to which object belongs.
   a) Isa
   b) Instance
   c) $\rightarrow$ *instance*
   d) None of these

7) Alpha represents a lower bound on the value that a _____ node may ultimately be assigned.
   a) Minimizing
   b) Maximizing
   c) Leaf
   d) Root

8) _____ an early AI program that simulated the behavioral of Rogerian therapist.
   a) MYCIN
   b) PROSPECTOR
   c) ELIZA
   d) DENDRAL

9) The _____ primitive acts stands for applications of physical location of an object.
   a) ATTEND
   b) MBUILD
   c) PROPEL
   d) MOVE

10) In _____ analysis, the structure representing what was said is reinterpreted to determine what was actually meant.
   a) Semantic
   b) Syntactic
   c) Pragmatic
   d) Morphological

B) State True or False: **04**

1) User can search forward through the state space from the start to a goal state.
2) One efficient many-many match algorithm is RETE.
3) First three decades of AI research is that intelligence requires color image processing.
4) A computable functions is a function that maps from problem state descriptions to measures of desirability, usually represented as numbers.

Q.2 A) Write a short note: **08**

1) Baye's theorem
2) Production System

B) Answer the following: **06**

1) What do you mean by Artificial Intelligence?
2) Briefly define the term script

Q.3 Answer the following:

A) What do you mean by predicate logic? Discuss the applicability of computable functions and predicates. **07**

B) What do you mean by cut-off or pruning? State and describe procedure for adding Alpha-Beta cut-off. **07**

Q.4 Answer the followings

A) Discuss the first search as a part of Heuristic search technique with suitable example. **07**

B) Define the term reasoning. Discuss the four factor influence to decide a better kind of reasoning. **07**

Q.5 Answer the followings

A) Discuss different kinds of questions as issues in knowledge representation needs to be addressed? **07**

B) What do you mean by probability? State and describe Dempster-Shafer Theory with suitable example. **07**

Q.6 Answer the following

A) Discuss in detail steps of semantic Analysis as the process of Natural Language processing with suitable example. **07**

B) Discuss in detail the concept of conceptual Dependency as strong slot and filler structure with suitable example. **07**

Q.7 Answer the following

A) Explain in detail various task domain of Artificial Intelligence as the target of work in it? **07**

B) State and discuss in detail process of explanation and knowledge acquisition as a part of Expert system. **07**

Master of Computer Application – III (Science)
Examination: Oct/Nov 2016 Semester – V (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U 37	Friday 18/11/2016	10:30 AM to 01:00 PM	Web Design Techniques	–	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) A web cookie is a small piece of data
   a) Sent from a website and stored in user's web browser while a user is browsing a website
   b) Sent from user and stored in the server while a user is browsing a website
   c) Sent from root server to all servers
   d) None
2) Common gateway interface is used to
   a) Generate executable files from web content by who server
   b) Generate web pages
   c) Stream videos
   d) None
3) Linked regions of image map are called as
   a) Map regions
   b) Hyper refions
   c) Hot regions
   d) None
4) To match the root node in XMLT transform the syntax will be
   a) <xsl:template match="Document">
   b) <xsl:template match="Root">
   c) <xsl:template match="RootNode">
   d) <xsl:template match=" /">
5) Which of the following is a utility function in jQuery?
   a) jQuery .each()
   b) jQuery.parseJSON()
   c) jQuesry.noConflict()
   d) none
6) AJAX based on
   a) JavaScript and XML
   b) JavaScript and JAVA
   c) VBScript and XML
   d) JavaScript and HTTP requests
7) To use the external DTD we have the syntax
   a) <?xml version="A.0" standalone ="no"?>
      <! DOCTYPE DOCUMENT SYSTEM "order.dtd"?>
   b) <?xml version="A.0" standalone ="yes"?>
      <! DOCTYPE DOCUMENT SYSTEM "order.dtd"?>
   c) <?xml version="A.0" standalone ="no"?>
      <! DOCTYPE DOCUMENT SYSTEM "order.dtd"?>
   d) <?xml version="A.0" standalone ="yes"?>
      <! DOCTYPE DOCUMENT SYSTEM "order.dtd"?>

8) How to create a Date object in JavaScript?
   a) dataObjectName = new Date([parameters])
   b) dataObjectName . new Date([parameters])
   c) dataObjectName := new Date([parameters])
   d) dataObjectName Date([parameters])
9) HTTP is a _____ protocol
   a) Stateless b) State full
   c) Session d) None

10) Server-side JavaScript is a collection of objects that make the language useful on
   a) Client program b) Web server
   c) Mouse click d) None

B) State True or False **04**

1) XML preserve white space.
2) HSPACE: Indicates the amount of space to the top and bottom of the image
3) Jquery's event system requires that a DOM element allows attaching data via a property on the element, so that events can be tracked and delivered
4) JavaScript closures can be used for handling concurrent requests in AJAX.

Q.2 A) Write a short note on the following: **08**

1) External CSS
2) XML schemes

B) Answer the following: **06**

1) DOM concept
2) Animate () method in jquery

Q.3 Answer the following :

A) Explain image and image map tag with one example. **07**

B) Write a java script program to print validates the hotel booking from with proper validation **07**

Q.4 Answer the followings

A) Explain the control structure in JavaScript **07**

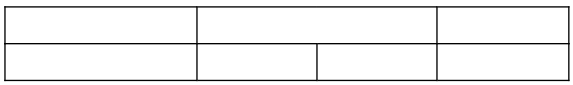
B) What is use of HTML from? Create HTML page for login details. **07**

Q.5 Answer the followings

A) Write and explain HTML form? Create HTML page for login details **07**

1. Textbox
2. Password
3. Select
4. Hidden
5. submit

B) Using Frames divide the web pages as follows



07

Q.6 Answer the following

A) What is array? Explain its predefined functions. **07**

B) What functions? Explain how parameters are passed to functions in javascript **07**

Q.7 Answer the following

A) Create HTML document that contain employee information viz empno, name, designation, salary. Insert the values for each employee. Assume that there are ten students whose information is to be entered **07**

B) Explain SOAP briefly. **07**

Master of Computer Application – III (Science)
Examination: Oct / Nov 2016 Semester – V (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 38	Monday 21/11/2016	10.30 AM to 01.00 PM	Network Security	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) Pretty good privacy (PGP) is used in
   a) Browser security b) Email security
   c) FTP security d) None of these

2) This consist of encrypted content of any type and encrypted – content encryption keys for one or more recipients
   a) Enveloped data b) Signed data
   c) Clear-singed data d) None of these

3) _____ responsible for technical management of IEFT activities and the Internet standard process.
   a) IAB b) IETF
   c) IESG d) None of these

4) A _____ prevents or inhibits the normal use or management of communications facilities.
   a) Masquerade b) Reply
   c) Denial of service d) None of these

5) _____ is the protection of transmitted data from passive attacks
   a) Authentication b) Access control
   c) Data integrity d) Data confidentially

6) _____ is the scrambled message produced as output.
   a) Secret key b) Cipher text
   c) Plaint text d) Cryptanalysis

7) A _____ process the input elements continuously, producing output one element at a time, as it goes along.
   a) Stream cipher b) Block cipher
   c) Chain cipher d) None of these

8) A _____ attacks attempts to learn or make use of information from the system but does not affect system resources.
   a) Active b) Negative
   c) Passive d) None of these

9) A _____ is a piece of software that can "infect" other programs by modifying them.

a) Malicious software
b) Virus
c) Worm
d) None of these

10) _____ virus lodges in main memory as part of a resident system program.

a) Parasitic
b) Memory-resident
c) Boot sector
d) Stealth

B) State true or false **04**

1) Intrusion detection system have been developed to provide early warning of an intrusion so that defensive action can be taken to prevent or minimize damage
2) The denial of service do not prevents or inhibits the normal use or management of communications facilities.
3) The encryption algorithm performs various substitution and transformation on the plaintext.
4) SSL provides security services between TCP and applications that use TCP.

Q.2 A) Write a short notes on the following

A) Internet standards **08**
B) Hardware firewall

B) Answer the following **06**

A) What is non-repudiation? Explain in short
B) What is data integrity?

Q.3 Attempt the following questions : **14**

A) How DES algorithm works? Explain the procedure of DES with example.
B) What is Attack? Explain types of Active Attacks.

Q.4 Attempt the following questions : **14**

A) Define Access Matrix? Explain capabilities of ACL.
B) What is Cryptanalysis? Explain strategy used by cryptanalyst to discover plaintext or key.

Q.5 Attempt the following questions : **14**

A) Explain IP Encapsulating Security Protocol.
B) What is Biometric? Explain behavioral characteristics of individuals in biometric

Q.6 Attempt the following questions : **14**

A) What is Firewall? Explain types of Firewalls.
B) How E-mail security can be achieved? Explain in detail.

Q.7 Attempt the following questions : **14**

A) What are the business requirements of Secure Electronic Transaction (SET)?
B) Explain the features of Kerberos and requirements associated with it.

Master of computer application – III (Science)
Examination: Oct/Nov 2016 Semester – V(New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 39	Wednesday 23/11/2016	10.30 AM to 01.00 PM	Digital Image Processing	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) The early Bartlane cable transmission system was capable of coding image in _____ levels was increased to _____ level in 1929.
   a) 3, 5
   b) 5, 9
   c) 9,15
   d) 5, 15

2) Which of the following is more sophisticated way of accomplishing gray-level assignments while doing image zooming and shrinking?
   a) Bilinear interpolation
   b) Pixel replication
   c) Nearest neighbors interpolation
   d) Pixel interpolation

3) The storage space required for storing and image of size 10 x 10 with 16 gray level is _____ bytes
   a) 50
   b) 100
   c) 400
   d) 1600

4) Name the logical operator which is/are functionally complete.
   a) AND
   b) OR
   c) NOT
   d) All of them

5) Which is the false statement regarding Fourier transform?
   a) Fourier transform helps in image enhancement
   b) Any function that periodically repeats itself can be expressed as the sum of sines and/or cosines of different frequencies, each multiplied by a different coefficient
   c) A function, expressed in Fourier transform, can be reconstructed (recovered) completely via an inverse process, with loss of information.
   d) The practical application of Fourier transform started late 1950's with advent of digital computation.

6) A _____ filter returns 50^{th} percentile of a ranked set of values.
   a) Midpoint
   b) Mean
   c) Median
   d) Min and Max

7) When a closing is persormed on an equilateral triangle of each side 3 cm using a structuring element which is right angle triangle with base and height 1, the change in the area of result will be _____
   a) Area remains same but shape changes
   b) Area and shape remain same
   c) Area increases
   d) Area decreases

8) The response of second order derivative at start and end of a ramp having $+45^0$ slope is _____ and _____ respectively.
   a) Positive, negative
   b) Negative, positive
   c) Zero on both side
   d) Positive on both side

9) A region contains 3 holes, 9 edges, 7 vertices and 6 connected components. How many fares are there?
   a) 1
   b) 3
   c) 5
   d) 7

10) The distance between any two shapes is _____
   a) Always finite
   b) Always greater than 1
   c) Zero of both shape match
   d) Infinite of both shapes match

B) Fill in the blanks or true / false **04**

1) D_4 distance between pixels at coordinates (12,7) and (8, 13) is _____
2) The expression for two dimensional Fourier transform in continuous domain is _____
3) Expression for harmonic filter function is _____
4) In the basic global thresholding algorithm the new threshold is computer using expression _____

Q.2 A) Write a short notes on the following **08**

1) Characteristics and uses of thermic bands in NASA's LANDSAT satellite
2) Pattern, pattern class and their examples.

B) Answer the following **06**

1) List different properties of topological descriptors
2) Discuss Butterworth low pass filter

Q.3 Answer the following

A) How to convert analog image into digital? Explain with an example. **07**

B) Apply global thresholding algorithm on following image to obtain binary image by selecting initial threshold using mid-point filter. Iteration of algorithm must stop when difference of threshold is less than 0.1 **07**

14	6	9
0	7	12
13	10	11

Q.4 Answer the followings

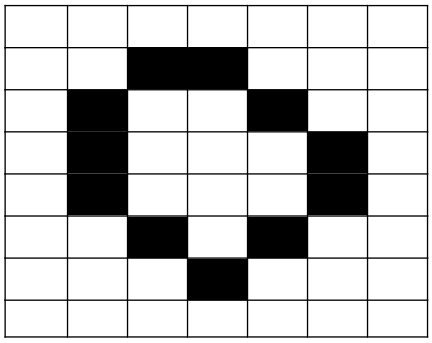
A) What are different order statistics filters? Explain any two with examples. **07**

B) Dilate a triangle having each side 6 cm using a rectangle with width 2 cm and height 1 cm **07**

Q.5 Answer the followings

A) What are smoothing filters in frequency domain? Describe any two. **07**

B) Fill following region using cross structuring element. **07**



Q.6 Answer the following

A) Discuss Rayleigh and exponential noise probability density function. **07**

B) Find mean and covariance matrix for the vectors $x_1 = (0,1,1,1)^T$ **07**
$x_2 = (1,0,1,0)^T$ $x_3 = (1,1,0,1)^T$ and $x_4 = (0,1,1,1)^T$

Q.7 Answer the following

A) Derive Hotelling transform. **07**

B) Compare mean matrix for the following matrix using 3 x 3 filter. Only consider values within boundary for computation. **07**

17	45	16
15	28	12
42	9	21

Master of Computer Application – III (Science) Examination: Oct/Nov 2016 Semester – V (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 40	Friday 25/11/2016	10.30 AM to 01.00 PM	Mobile Computing	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the most correct alternatives **10**

1) How to pass the data between activities in Android?
   a) Intent
   b) Content provider
   c) Broadcast receiver
   d) None of the above
2) In a GSM system BTS and BSC together form _____
   a) BTS
   b) BSC
   c) MSC
   d) MS
3) Cellular architecture is based on _____
   a) Hub network
   b) Mobile network
   c) Ad hoc network
   d) ATM network
4) In CDMA a channel is _____
   a) Time slot
   b) Frequency slot
   c) Orthogonal code
   d) All of these
5) Fading of the received radio signals in a mobile communication environment occurs because of _____
   a) Direct propagation
   b) Multipath propagation
   c) Bi-bath propagation
   d) None of these
6) The interference between the neighboring base stations is avoided by _____
   a) Assigning different group of channels
   b) Using transmitters with different power level
   c) Using different antennas
   d) All of the above
7) The shape for the cellular region for maximum radio coverage is _____
   a) Circular
   b) Square
   c) Oval
   d) Hexagon
8) In IEEE 802.11, the MAC layer frame has _____ fields
   a) Four
   b) Five
   c) Six
   d) None of these
9) The _____xml file that contains all the text that your applications uses.
   a) stack.xml
   b) string.xml
   c) text.xml
   d) app.xml

10) When activity is not in focus, but still visible on the screen is in _____
   a) running state
   b) stopped state
   c) destroyed state
   d) paused state

B) State True or False **04**

1) An activity in a stopped state doing nothing.
2) The android software development kit is used to develop android applications
3) The maximum throughput for pure ALOHA is 36.8 per cent.
4) In the reservation method, a station needs to make a reservation before sending data.

Q.2 A) Write a short notes on the following **08**

1) Antennas
2) SDMA

B) Answer the following **06**

1) What is handover? Give its types.
2) What are the types of android application?

Q.3 Answer the following **14**

A) Explain frequency spectrum used for radio transmission with suitable diagram.
B) What is multiplexing? Explain time division multiplexing scheme.

Q.4 Answer the followings **14**

A) What is classical aloha and slotted aloha scheme used for multiple access?
B) Explain how the packet reservation multiple access scheme can be implemented.

Q.5 Answer the followings **14**

A) Explain the MTC and MOC in telecommunication system.
B) Explain the architecture of an infrastructure based of IEEE 802.11 network

Q.6 Answer the following **14**

A) Explain in brief the DHCP.
B) Explain snooping TCP. What its advantages and disadvantages?

Q.7 Answer the following **14**

A) Describe in brief the Android Application Manifest along with XML snippet.
B) Explain communication with Bluetooth by opening socket connection, listening and transmitting data using android.

Master of Computer Application – I (Computer Science)
Examination: Oct / Nov 2016 Semester – V (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U - 41	Wednesday 16/11/2016	10.30 AM to 01.00 PM	Artificial Intelligence	----	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) What is Artificial Intelligence?
   a) Putting your intelligence into computer
   b) Programming with your own intelligence
   c) Making a machine intelligent
   d) Playing a Game

2) Which is the commonly used programming language for AI?
   a) PROLOG b) LISP
   c) Java d) Perl

3) What is the problem state space ?
   a) The whole problem
   b) Your definition to a problem
   c) Problem you design
   d) Representing your problem with variable and parameter

4) A production consists of
   a) A set of Rule
   b) A sequence of steps
   c) Both (a) and (b)
   d) An arbitrary representation to problem

5) Which search method takes less memory ?
   a) Depth First Search b) Breadth First Search
   c) Both (a) and (b) d) Linear search

6) Which is the best way to go for Game playing problem ?
   a) Linear approach b) Heuristic approach
   c) Random approach d) Optimal approach

7) How do you represent "All dogs have tails".
   a) $\forall x: dog(x) \rightarrow hastail(x)$ b) $\forall x: dog(x) \rightarrow hastail(y)$
   c) $\forall x: dog(y) \rightarrow hastail(x)$ d) None of these

8) Which is not a property of knowledge representation?
   a) Representational Verification
   b) Representation Adequacy
   c) Inferential adequacy
   d) Inferential efficiency

9) A Hybrid Bayesian network contains
   a) Both discrete and continuous variables
   b) Only discrete variables
   c) Only continuous variable
   d) Both discrete and discontinuous variable

10) Which is not a desirable property of a logical rule-based system ?
   a) Locality
   b) Attachment
   c) Detachment
   d) Truth Functionality

B) State True or False **04**

1) It is possible to get stuck in a local maximum in simulated annealing.
2) The backward chaining is that it runs a greater risk of not being a complete search technique if first-order logic.
3) The basic idea of partitioned nets is to break network into spaces which consist of group of nodes and arcs with regard each space as a node.
4) The traditional set theory is also known as Fuzzy set theory.

Q.2 A) Write a short note on the following **08**

1) Means Ends analysis
2) Predicate logic

B) Answer the following **06**

1) What do you mean by frames?
2) Write a note on fuzzy logic.

Q.3 Answer the following

A) Explain the different steps in natural language processing. **07**
B) Explain hill climbing search technique in detail. **07**

Q.4 Answer the followings

A) Explain iterative deepening. **07**
B) Explain in detail the various issues in knowledge representation. **07**

Q.5 Answer the followings:

A) Explain expert system shells and explanation knowledge acquisition. **07**
B) Define problem. Explain problem as a state space search. **07**

Q.6 Answer the following:

A) What is Artificial intelligence? Discuss the underlying assumption. **07**
B) Describe the procedure of MINIMAX search in game playing. **07**

Q.7 Answer the following:

A) Explain rule based system with example. **07**
B) Explain in detail the concept of scripts with example **07**

Master of Computer Application – III (Science)
Examination: Oct/Nov 2016 Semester – V (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U 42	Friday 18/11/2016	10:30 AM to 01:00 PM	Web Technology	–	

Instructions: 1) Question no. 1 & 2 are compulsory
2) Attempt any three questions from Q. No. 3 to Q. No. 7

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) <b> tag makes the enclosed text bold. What is other tag to make text bold
   a)
   b) <p>
   c) <bold>
   d) None of these

2) A webpage displays a picture. What tag was used to display that picture
   a) Picture
   b) Image
   c) Img
   d) None of these

3) Which of the following code is used to get names of the headers in servlet
   a) response.getHeaderNames()
   b) request.getHeaderNames()
   c) Header.getHeaderNames()
   d) None of these

4) Which of the following is true about init() method of servlet
   a) The init()method simply creates or loads some data that will be used throughout the life of the servlet
   b) The init() method is not called again and again for each user request
   c) Both of these above
   d) None of these

5) The method forward (request, response) will
   a) Return back to the same method from where the forward was invoked
   b) Not return back to the same method from where the forward was invoked
   c) Both A and B are correct
   d) None of these

6) To generate HTML in servlet
   a) Tell the browser that you're sending it HTML
   b) Modify the printInstatements to build a legal web page.
   c) Check your HTML with a formal syntax validator.
   d) All of these

7) Advantages of GET
   a) Can bookmark results page
   b) Browsers can cache results
   c) Easier to test interactively
   d) All of these

8) _____ called when server deletes servlet instance
   a) Destroy
   b) Delete
   c) Service
   d) None of these

9) _____ adds a value to the set-cookie header
   a) addCookie
   b) setContent type
   c) addHeader
   d) None of these

10) How to create a cookie in servlet
   a) Use new operator
   b) Use request.getCookie() method
   c) Use response.getCookie() method
   d) None of the above

B) State True or False: **04**

1) 302 HTTP 1.1 status codes used when Browser tried to access password-protected page without proper Authorization header.
2) Cookies used to identifying user during an e-commerce session
3) JSF stand for JavaServer Faces
4) <html> should be the first tag in any HTML document.

Q.2 A) Write a short notes on the following **08**

1) Explain types of array available in JavaScript
2) Explain basic servlet structure.

B) Answer the following **06**

1) Explain switch statement available in JavaScript
2) Explain <table> <tr>, <th> and <td> tags

Q.3 A) What is cookie? Explain persistent and non-persistent cookie with an example. **07**

B) Explain the concept of URL writing in servlet with an example. **07**

Q.4 A) What is session? Explain how to create session in servlet. **08**

B) Explain Request Dispatcher. **06**

Q.5 A) Explain action elements in JSP with an example. **08**

B) What is JavaBean? Explain <jsp:useBean>, <jsp.getproperty> **06**

Q.6 A) What is XML? Write a program to create simple XML file containing root, elements and their elements. **07**

B) Write a program to upload file using servlet. **07**

Q.7 A) What is JSP? Explain life cycle of JSP with an example **08**

B) Explain servlet filter methods. **06**

Master of Computer Application – III (Science)
Examination: Oct / Nov 2016 Semester – V (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 43	Monday 21/11/2016	10.30 AM to 01.00 PM	Network Security	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) _____ are very crucial for success of RSA algorithm.
   a) Integers b) Prime numbers
   c) Negative numbers d) Fraction

2) _____ is the ability to limit and control the access to host systems and applications via communications links
   a) Message authentication b) Access control
   c) Confidentiality d) Integrity

3) SSL provides _____
   a) Message integrity b) Confidentiality
   c) Compression d) All of the mentioned

4) _____ is the most common authentication mechanism
   a) Smart card b) PIN
   c) Biometrics d) Password

5) Application gateways are _____ than packet filters
   a) Less secure b) More secure
   c) Equally secure d) Slower

6) A combination of an encryption algorithm and a decryption algorithm is called a _____
   a) Cipher b) Secret
   c) Key d) None of the above

7) _____ is the message digest algorithm
   a) DES b) IDEA
   c) MD5 d) RSA

8) _____ operates in the transport mode or the tunnel mode.
   a) IPSec b) SSL
   c) PGP d) None of the above

9) A(n) _____ function creates a message digest out of a message.
   a) Encryption b) Decryption
   c) Hash d) None of the above

10) SET uses the concept of _____.
   a) Double signature
   b) Dual signature
   c) Multiple signature
   d) Single signature

B) State whether true or false **04**

1) In transposition cipher letters of plaintext are replaced by other letters or by numbers or symbols.
2) PGP is popular email security protocol.
3) RSA is a symmetric key cryptographic algorithm.
4) DES encrypts blocks of 64 bits

Q.2 **A) Write short note on :** **08**

1) Application category
2) Types of Attacks

B) Answer the following **06**

1) Explain smart card in short
2) What is cryptanalysis?

Q.3 A) Explain various security services. **08**
B) Define the term cipher. Explain Caesar cipher with example. **06**

Q.4 A) What is Kerberos? Explain how it provides authenticated service. **08**
B) Explain secure socket layer in detail. **06**

Q.5 A) Explain Secure Electronic transaction with neat diagram. **08**
B) Explain block ciphers and stream ciphers in detail. **06**

Q.6 A) Explain IPsec in detail. **08**
B) Explain digital signature in detail. **06**

Q.7 A) What is intruder? Explain different types of intruders. **08**
B) Define Access Matrix. Explain Access Control Model. **06**

Master of Computer Application – V (Science) Examination: Oct / Nov 2016 Semester – V (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 44	Wednesday 23/11/2016	10.30 AM to 01.00 PM	Digital Image Processing	--	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

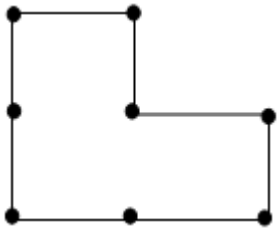
1) The behavior of second derivative for input signals having ramp segments with constant slope are :
   a) Non zero and varying
   b) Non zero and constant
   c) Non zero and positive constant
   d) Zero

2) For any pixel in an image f(x,y), its gradient and direction are given as _____
   a) $[G_x^2 - G_y^2]^{1/2}$ and $\tan^{-1}\left(\frac{G_x}{G_x}\right)$
   b) $[G_x^2 - G_y^2]^{1/2}$ and $\tan^{-1}\left(\frac{G_x}{G_y}\right)$
   c) $[G_x^2 + G_y^2]^{1/2}$ and $\tan^{-1}\left(\frac{G_x}{G_x}\right)$
   d) $[G_x^2 + G_y^2]^{1/2}$ and $\tan^{-1}\left(\frac{G_x}{G_y}\right)$

3) The storage space required for an RGB color image of 8X8 pixel size with 64 gray level in each frame is _____ bytes
   a) 144
   b) 512
   c) 192
   d) 64

4) In the homomorphic filtering _____
   a) Homogeneous filtering applied on images
   b) Frequency domain filtering applied on image function
   c) Filtering applied separately on illumination and reflectance component
   d) Filters are always used for smoothing

5) The difference code of following shape is _____



   a) 33033130
   b) 33133030
   c) 03032211
   d) 03033133

6) The response of which of the following image transformation functions(s) is/are also known as Gamma correction?
   a) Exponential transform
   b) Piece-wise linear transform
   c) Power-law transform
   d) Exponential and power-lay transform

7) Which of the following imaging modality does not use electromagnetic spectrum?
   a) Magnetic resonance imaging
   b) Electron microscopy
   c) Radar
   d) Lithography

8) Two shapes have shape numbers 0033131103 and 0033130303101303. How much is the similarity between these two shapes?
   a) 6
   b) 0.375
   c) 1.5
   d) 0.6

9) Which of the following filer works well for white noise and fails for dark noise?
   a) Harmonic mean filter
   b) Geometric mean filter
   c) Arithmetic mean filter
   d) Median filter

10) When a square with each side 4cm is dilated by a square with each side 1cm, the area of resulting square is _____
   a) 5 cm^2
   b) 25 cm^2
   c) 6 cm^2
   d) 36 cm^2

B) Fill in the blanks or true / false **04**

1) In case of histogram equalization function $s = T(r)$, $T(r)$ is single-valued and _____ in the interval $0 \leq r \leq 1$
2) The 2 X 2 filters used to implement Roberts mask are _____
3) The ratio of major axis and minor axis of an object is called as _____
4) Euler number E can be expressed using holes H and connected components C as _____

Q.2 A) Write a short notes on the following **08**

1) Thematic bands in NASA's LANDSAT satellite.
2) Inner and outer boundary

B) Answer the following **06**

1) How topological descriptors are interrelated?
2) Find shortest m-path between P and Q

0	1	1	1	1P
1	1	0	1	1
1	0	0	0	1
1	0	0	1	1
1Q	1	1	0	0

Q.3 Answer the following

A) Derive two dimensional Fourier transform and its inverse in discrete and continuous domain. **07**

B) What are the result of applying 3 X 3 mean and median filters on following image? Perform zero padding for boundary conditions. **07**

8	2	9	4
7	12	0	6
5	1	4	8
11	2	7	0

Q.4 Answer the followings

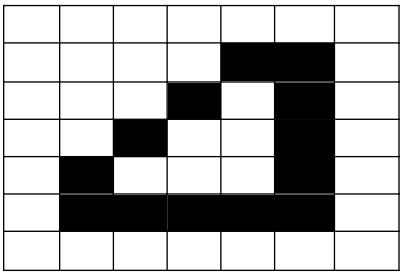
A) What are different smoothing spatial filters? Briefly explain them. **07**

B) Perform opening of a rectangle with 6 cm width and 4 cm height using a triangle having each side 2 cm and circle with 2 cm diameter. **07**

Q.5 Answer the followings

A) What are different band reject filters? Discuss them. **07**

B) Fill the following region using cross structuring elements. **07**



Q.6 Answer the following

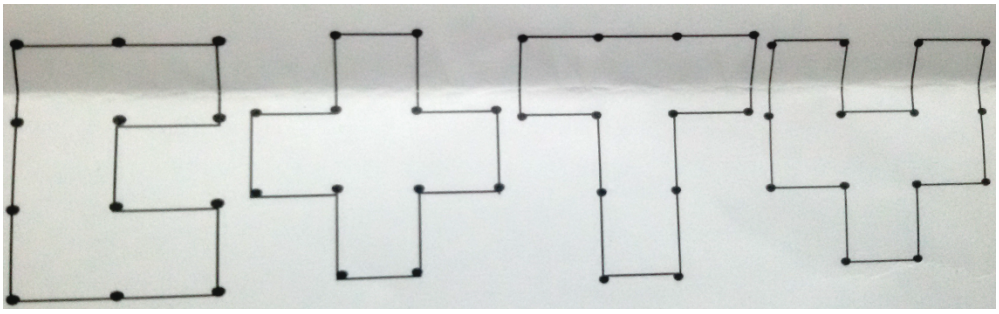
A) Describe algorithm for basic global thresholding. Compare it with adaptive thresholding. **07**

B) Two class of fruits $\omega_1$and ω_2 have sampled mean feature vector (7, 12) and (15, 8) respectively. Compute the boundary bisecting these two classes. Also find the class of object having feature vector (12, 11)? **07**

Q.7 Answer the following

A) Derive Principal component transform. **07**

B) Which among the following objects have highest similarly R? **07**



Master of Computer Application – III (Science)
Examination: Oct / Nov 2016 Semester – V (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 45	Friday 25/11/2016	10.30 AM to 01.00 PM	Mobile Computing	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the most correct alternatives **10**

1) Find odd man out from group – AMPS, UMTS, CDMA, BPRN
   a) AMPS b) UMTS
   c) CDMA d) BPRN

2) A GSM super frame consists of _____ multiframes.
   a) 51 b) 26
   c) 1236 d) 2,715,648

3) Which of below is a standard for WPNs
   a) IEEE 802.11 b) IEEE 802.3
   c) IEEE 802.15 d) All of above

4) A DHCP protocol is based on _____ model
   a) Agent discovery b) Agent solicitation
   c) Client server d) All of above

5) In a typical MAC if a station sense the carrier and start sending immediately if the medium is idle, it follows
   a) A persistent CSMA b) 1 persistent CSMA
   c) Non persistent CSMA d) CSMA/CA

6) Full rate channels of GSM carry data at _____
   a) 114.4 kbps b) 2.4 kbps
   c) 200 kbps d) None of above

7) Which of the below is low power mode of Bluetooth device?
   a) Park b) Hold
   c) Sniff d) All of above

8) In a mobile IP, a tunnel usually ends at
   a) HA b) FA
   c) CN d) Router

9) HLR & VLR data bases are maintained by
   a) NSS b) RSS
   c) AUC d) All of above

10) RFCOMM in a Bluetooth protocol stack is a _____ interface

a) Host controller
b) Link control
c) Serial Line
d) Radio Frequency

B) State True or False **04**

1) In a GSM system, mobile stations & base station subsystems forms RSS
2) Universal Frequency Reuse is a property of CDMA
3) In ARFCN, letter 'A' means adaptive
4) Maximum paging channels on a forward CDMA link are eight

Q.2 A) Write a short notes on the following **08**

1) PRMA
2) IP in IP encapsulation

B) Answer the following **06**

1) With suitable example explain transmission, detection and interference range
2) Explain FHSS transmitter & receiver.

Q.3 Answer the following **14**

A) Explain wireless MAC – slotted ALOHA. What are its advantages?
B) Explain CSMA/CD MA in wired network. With suitable example explain why it fails in wireless network

Q.4 Answer the followings **14**

A) With suitable diagram explain different radio interfaces in different subsystems of a GSM architecture.
B) Explain authentication and Encryption in GSM signal processing

Q.5 Answer the followings **14**

A) Explain the terms BSS and ESS in respect of IEEE 802.11.
B) Draw & explain how Bluetooth Piconet & Scatternet are formed

Q.6 Answer the following **14**

A) What is agent discovery? Why it is required? Explain agent discovery packet.
B) What is DHCP? With suitable diagram explain basic DHCP configuration

Q.7 Answer the following **14**

A) Explain indirect TCP
B) Explain congestion control and slow start concept related to traditional TCP.

Master of Computer Application – I (Computer Science)
Examination: Oct / Nov 2016 Semester – I (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 46	Wednesday 16/11/2016	10.30 AM to 01.00 PM	Introduction to Computers	HCT 1.1	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose M correct alternatives **10**

1) MICR stands for _____
   a) Magnetic Ink character Reader
   b) Magnetic Ink code Reader
   c) Magnetic Ink Cases Reader
   d) None of these

2) The output of printer is measured by
   a) Dot per inch
   b) Dot per sq. inch
   c) Dots printed per unit time
   d) All of above

3) Instructions and memory address are represented by
   a) Character code
   b) Binary codes
   c) Binary word
   d) Parity bit

4) In which language is source program written ?
   a) English
   b) Symbolic
   c) High level
   d) Temporary

5) Which of the following memories must be refreshed many times per second?
   a) Static RAM
   b) Dynamic RAM
   c) EPROM
   d) ROM

6) The word processing task associated with changing the appearance of a document is _____
   a) Editing
   b) Writing
   c) Formatting
   d) All of above

7) Fifth generation computers are based on _____
   a) Transistor
   b) Diode
   c) Vacuum tubes
   d) Artificial Intelligence

8) Which one of these is not input device?
   a) Speaker
   b) Mouse
   c) Scanner
   d) Keyboard

9) Which of the following is not OS?
   a) Android
   b) MAC
   c) Opera
   d) LINUX

10) Computer Monitor is also known as _____

a) DVU b) UVD

c) VDU d) CCTV

B) State True or False **04**

1) Forth generation computer use integrated circuits.
2) One megabyte is equivalent to 1024 Byte.
3) Primary memory is usually referred to as RAM.
4) Unix is a single user operating system.

Q.2 A) write a short note on the following **08**

1) Assembler
2) Joystick

B) answer the following **06**

1) Explain history of computer
2) Give the features of super computer

Q.3 Answer the following

A) Convert the following binary into decimal number. **08**

$(11011)_2$ 2) $(10101)_2$ 3) $(110100)_2$ 4) $(1000100)_2$

B) What is Internet? Explain uses of internet. **06**

Q.4 Answer the followings

A) Explain classification of languages in brief. **07**

B) Explain various formatting commands on text in MS-Word **07**

Q.5 Answer the followings

A) What is computer network? Explain different networks models. **07**

B) Write a short note on evolution of computers. **07**

Q.6 Answer the following

A) Explain following Linux commands with suitable examples: **08**

1) wall 2) adduser 3) talk 3) In

B) Explain working of digitizer. **06**

Q.7 Answer the following

A) Explain classification of computers according to size. **08**

B) Explain any three external DOS commands with suitable examples. **06**

Master of Computer Application – I (Computer Science)
Examination: Oct/Nov 2016 Semester – I (New CBCS)

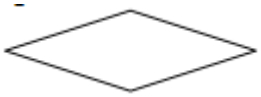
SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 47	Friday 18/11/2016	10.30 AM to 01.00 PM	Programming using C	---	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) The geometrical figure shown below in flow chart represents _____



   a) start / stop
   b) looping
   c) processing
   d) decision

2) Who developed C language?
   a) Bjarne strostrup
   b) James Gosling
   c) Dennis Ritchie
   d) Bill Gates

3) C language follow the _____
   a) Object oriented programming method
   b) Procedural programming method
   c) Both a and b
   d) None of these

4) Which of the following is a keyword used for storage class?
   a) int
   b) intern
   c) auto
   d) externa

5) Preprocessor directives are used for _____
   a) Macro substitution
   b) File inclusion
   c) Conditional compilation
   d) All of these

6) Which of the following is a string termination character?
   a) /0
   b) //0
   c) \0
   d) \\0

7) What is the output of the following program?

```
void main()
{
        int x = 20; y = 30; z = 80;
        if (x < y < z)
              printf("\n Hello world");
        else
              printf("\n Good bye");
}
```

   a) Hello world
   b) Good bye
   c) Compile time error
   d) Hello world Good bye

8) What is valid range of numbers for 'int' data type?
   a) 0 to 256
   b) -32767 to +32768
   c) -32768 to +32767
   d) -32768 to +32768

9) How will you free the dynamically allocated memory ?
   a) Delete(variable_name);
   b) Drop(variable_name)
   c) Free(variable_name);
   d) Release(variable_name)

10) Which header file should be included to use the functions like malloc() and calloc ()?

a) stdio.h b) conio.h
c) memory.h d) stdlib.n

B) State whether following statements are true or false **04**

1) If 'a' is an integer variable the will assign 2.500000 to variable 'a'
2) '*union*' is a data type in which all members are stored in the same location.
3) A function is a module or block of program code which deals with a particular task.
4) The static variable in initialized at run time but is not reinitialized when the functions is called.

Q.2 A) write a short notes on the following **08**

1) Flow chart
2) Modes of opening a file

B) Answer the following **06**

1) Explain operator precedence
2) Write a program using ternary operator to find greatest among three integer numbers

Q.3 Answer the following

A) Design an algorithm that reads a list of numbers and displays the count of the negative and positive numbers in the list **08**

B) Explain *Call by Value* and *Call by Reference*. **06**

Q.4 Answer the followings

A) Explain the various decision making statement in C with an example for each. **08**

B) Write a program to get an integer from the user. If the number is even and two digit number then print the message "Thank you" else display the message "Bye" **06**

Q.5 Answer the followings

A) Define a structure called "Cricket" that will describe the following information. **08**
Player name, team name and batting average. Using Cricket, declare an array with 50 elements and write a program to read the information of all the players and print the same information in tabular form.

B) What is preprocessor? Write use of any three preprocessor. **06**

Q.6 Answer the following

A) Write a program to demonstrate use of array as function argument. **08**

B) Discuss the unary operators in C language. **06**

Q.7 Answer the following

A) Discuss structure and union **06**

B) Write a program to print the following output - **08**

```
        5
      4 5
    3 4 5
  2 3 4 5
1 2 3 4 5
```

Master of Computer Application – I (Science) Examination: Oct / Nov 2016 Semester – I (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 48	Monday 21/11/2016	10.30 AM to 01.00 PM	Discrete Mathematical Structures	SCT 1.1	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Select most correct alternative **10**

1) The negation of $(p \vee q)$ is _____

a) $p \wedge q$ b) $\sim p \wedge \sim q$
c) $\sim p \wedge q$ d) $\sim p \vee \sim q$

2) Let $(A, \leq)$ be any poset, two elements a & b of A are _____ if either $a \leq b$ or $b \leq a$
a) Comparable b) Not comparable
c) Equality d) None of these

3) The formula of c(n, r) = _____
a) $\frac{n!}{r!(n-r)!}$ b) $\frac{n!}{(n-r)!}$
c) $\frac{n!}{(n+r)!}$ d) $\frac{n!}{r!(n+r)!}$

4) A complete graph with 'n' vertices have _____ edges
a) $n(n-1)$ b) $\frac{n(n+1)}{2}$
c) $\frac{n(n-1)}{2}$ d) $\frac{(n-1)}{2}$

5) The number of circular permutation of n different things taken out all at a time is _____
a) n^2 b) $(n-1)!$
c) $\frac{(n-1)}{2!}$ d) none of these

6) A single vertex with single loop is cycle of length is _____
a) one b) zero
c) two d) three

7) The problem of selecting 'r' objects for 'n' distinct objects allowing repetitions then there are _____ ways of selection.
a) $c(n-1,\ r)$ b) $c(n+r,\ r)$
c) $c(n+r-1,\ r)$ d) none of these

8) A group G is called a belian if _____ $\forall a,b \in G$
a) $a * b = b * a$ b) $a * e = a = e * a$
c) $a * a^{-1} = a^{-1} * a = e$ d) none of these

9) The inverse of any matrix A is _____
   a) one b) unique
   c) different d) equal

10) A group is monoid in which every elements has an _____
   a) Unique b) Inverse
   c) equal d) none of these

B) State whether following statements are true or false **04**

1) A bounded poset is a lattice
2) Every Relations is function
3) A set having single element is called Null set.
4) If A & B are two square matrices of the same order then

$$|AB| = |A|.|B|$$

Q.2 **A) Write a short notes on the following** **08**

1) Define permutation & combination
2) Explain Boolean matrix with example.

B) Answer the following **06**

1) Define Relation & give an example of Relation is Reflexive neither symmetric nor transitive
2) Define complete graph with example

Q.3 **A)** solve the following equation by reduction method **07**

$$x + 3y + 3z = 12$$
$$x + 4y + 4z = 15$$
$$x + 3y + 4z = 13$$

B) show that $(n+1).{}^{n}P_r = (n-r+1).\ {}^{n+1}P_r$ **07**

Q.4 **A)** Using Warshall's algorithm find the transitive closure of the given relation **07**

$A = \{1,2,3,4\}$ & $R = \{(1,1),(1,4),(2,2),(2,3),(3,2),(3,3),(4,1),(4,4)\}$ **07**

B) Explain Hasse – diagram. Draw Hass – diagram D_{20}

Q.5 A) Show that $(t \wedge s)$ can be derived from the premises $p \to q,\ q \to \backsim t,\ r,\ p \vee (t \wedge s)$ **07**

B) Obtain the Disjunctive Normal form & conjunctive Normal form **07**
$(\sim P \vee \sim Q \to (P \Leftrightarrow \sim Q)$

Q.6 A) Give the residue representation of all integers of all integers in Z_{15} with $m_1 = 3$ & $m_2 = 5$ **07**

B) Define (G, *) be a group show that Each element in G has only one inverse in G. **07**

Q.7 1) Explain Regular & planner graph with example **07**

2) Prove that following equivalence **07**

$$\sim (P \wedge Q) \to (\sim P \vee (\sim P \vee Q)) \equiv \sim P \vee Q$$

Master of Computer Application – I (Science) Examination:
Oct / Nov 2016 Semester – I (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 49	Monday 21/11/2016	10.30 AM to 01.00 PM	Operations Research	SCT 1.2	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Select most correct alternatives **10**

1) The objectives function & constraints are linear relationship between _____
   a) Variables b) Constraints
   c) Function d) None of these
2) A slack variables are used to convert the inequalities of the type _____ into equation
   a) $\leq$ b) $\geq$
   c) $=$ d) None of these
3) One can find the initial basic feasible solution by using _____?
   a) VAM b) MODI
   c) Optimality test d) None of the above
4) VAM stands for _____
   a) Vogeal's Approximation Method b) Vogel's Approximation Method
   c) Vange's Approximation Method d) Vegel's Approximation Method
5) The sequence of critical activities in a network is called _____
   a) Critical path b) Critical walk
   c) Critical chain d) Critical cycle
6) A s-t cut is a partition (A, B) of the vertices
   a) $S \in A \,\&\, t \in B$ b) $S \in A \,\&\, S \in B$
   c) $S \in B \,\&\, S \in A$ d) $t \in A \,\&\, S \in B$
7) _____ is the shortest possible time in which the activity can be finished
   a) Pessimistic time b) Optimistic time
   c) Most likely time d) Optimistic time
8) A feasible solution to a transportation problem containing m origins & n destinations is said to be _____
   a) Independent b) Degenerate
   c) Non-degenerate d) Both a & b
9) Graphic method can be applied to solve a LPP when there are only _____ variable
   a) One b) More than one
   c) Two d) Zero
10) In simplex method, we add _____ variables in the case of '____'
   a) Stack variable b) Surplus variable
   c) Artificial variable d) None of these

B) Fill in the blanks **04**

1) If S & T are two convex sets then 2S + 3T is _____.
2) Using _____ method we can never have an unbounded solution.
3) If the primal problem as an unbounded optimum solution then the dual problem has _____
4) Find as $s \rightarrow t$ path P where each edge has _____

Q.2 A) Write the limitation of linear programming **03**

B) Define slack & surplus variable **04**

C) Explain the need of artificial variables. **04**

D) Define general LPP & write in a matrix form **03**

Q.3 A) Solve the following problem by simplex method. **07**

Max Z = 3x + 2y

Subject to the constraints

$x + y \leq 4$

$x - y \leq 2$ &

$x \geq 0\ ,\ y \geq 0$

B) Explain algorithm of Big – M Method **07**

Q.4 A) Use Big - M method to solve **07**

Max z = 3x – y

Subject to constraints

$2x + y \geq 2$

$x + 3y \leq 3$

$y \leq 4$ &

$x \geq 0\ ,\ y \geq 0$

B) Explain algorithm of Hungarian assignment problem method. **07**

Q.5 A) A project has the following time schedule **10**

Activity	Time in month
1-2	2
1-3	2
1-4	1
2-5	4
3-6	8
3-7	5
4-6	3
5-8	1
6-9	5
7-8	4
8-9	3

Construct PERT network & compute

1) Total float for each activity
2) Critical path & its duration

B) The dual of the dual of a given primal is the primal **04**

Q.6 A) Five men are available to do five different jobs from past records, the time (in hours) that each man takes to do each job is given in the following table **08**

man \ Job	I	II	III	IV	V
A	2	9	2	7	1
B	6	8	7	6	1
C	4	6	5	3	1
D	4	2	7	3	1
E	5	3	9	5	1

B) Define Matroids with example. **06**

Q.7 A) Explain the Application Areas of PERT/CPM Techniques **07**

B) Explain Ford – Fulkerson Algorithm **07**

Master of Computer Application – I (Science) Examination: Oct / Nov 2016 Semester – I (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 50	Wednesday 23/11/2016	10.30 AM to 01.00 PM	Digital Circuits & Microprocessors	HCT 1.3	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose correct alternatives **10**

1) Popular application flip-flop are
   a) Counter
   b) Shift registers
   c) Both a and b
   d) None of the above

2) When used with an IC, what does the term "QUAD" indicate
   a) 4 circuits
   b) 2 circuits
   c) 8 circuits
   d) None of the above

3) The Boolean expression for a 3-input AND gate
   a) A = AB
   b) X = ABC
   c) X = A + B + C
   d) None of the above

4) 4 to 1 mux would have
   a) 2 inputs
   b) 3 inputs
   c) 4 inputs
   d) None of the above

5) MOS stands for
   a) Metal oxide semiconductor
   b) Memory oxide semiconductor
   c) Metal oxide select
   d) None of the above

6) PC stands for
   a) Program counter
   b) Point counter
   c) Paragraph counter
   d) None of the above

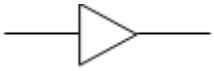
7) Which is used to store critical pieces of data during subroutines and interrupts
   e) Stack
   f) Queue
   g) Accumulator
   h) None of the above

8) The left side of any binary number is called
   a) Least significant digit
   b) Most significant digit
   c) Medium significant digit
   d) None of the above

9) The instruction unconditionally transfer the control of execution to the specified address is
   a) CALL
   b) JMP
   c) RET
   d) None of the above

10) The OF is called as
   a) Overflow flag
   b) Over flag
   c) Overdue flag
   d) None of the above

B) State true or false **04**

1) The first microprocessor was Intel 4004
2) In 8086 the 1 MB byte of memory can be divide into 64 MB segment.
3) INC is not an arithmetic instruction
4)  Given gate is not gate

Q.2 A) Explain flags in 8086 with an example. **08**

B) Write 8085 program to add contents of two memory locations and store result in another memory location **06**

Q.3 A) What is addressing mode? Explain 8086 addressing modes. **08**

B) Explain working of SR Flip-flop **06**

Q.4 A) What are combinational circuits? Explain full adder. **08**

B) Explain integrated circuits and its level of integrations **06**

Q.5 A) Explain data transfer and arithmetic Instructions of 8085. **08**

B) Explain working of D flip flop. **06**

Q.6 A) What is timing diagram? Draw timing diagram of MVI instruction. **08**

B) Explain D-Morgan's theorem. **06**

Q.7 A) Realization of different gates using universal gates. **08**

B) Explain memory segmentation of 8086. **06**

Master of Computer Application – I (Science)
Examination: Oct / Nov 2016 Semester – I (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – U – 51	Friday 25/11/2016	10.30 AM to 01.00 PM	Management	HCT 1.4	

Instructions:
1) **Question no. 1 & 2 are compulsory**
2) **Attempt any three questions from Q. No. 3 to Q. No. 7**
3) **Figures to the right indicate full marks.**

Total Marks: 70

Q.1 A) Choose the correct alternatives **10**

1) Cash is a _____ account
   a) Real b) Nominal
   c) Personal d) Fictitious

2) The goal of selection is to meet the _____ requirements
   a) Job b) Employee
   c) Owner d) Leasers

3) A trial Balance is list of _____ accounts
   a) Personal b) Real
   c) Nominal d) Ledger

4) A document is issued for goods sold on cash is _____
   a) Invoice b) Cash memo
   c) Debit note d) Credit note

5) Which of the following is a current asset?
   a) Land b) Building
   c) Machinery d) Stock

6) FIFO stands for _____
   a) Fast in fast out b) Fast in first out
   c) First in first out d) First in fast out

7) Cost unit for furniture industry is _____
   a) Kilograms b) Tones
   c) Number d) None of the above

8) Direct Material Cost is a _____ cost
   a) Selling b) Administration
   c) Distribution d) Production

9) Standard or Normal Liquid Ratio is _____
   a) 1:2 b) 2:1
   c) 3:1 d) 1:1

10) Training to the staff improves _____
   a) Tension b) Conflicts
   c) Working problems d) Working skill

B) State true or false **04**

1) Goals are timeless.
2) Task control is transaction oriented.
3) Bank overdraft means amount receivable from bank.
4) Training decreases the efficiency of the employee.

Q.2 A) Write a short notes on **08**

A) Capital Expenditure & Revenue Expenditure
B) On the job training & off the job training

B) Answer the following **06**

A) Steps in designing MIS
B) Budget committee

Q.3 Following transaction are extracted from the books of Shri Narayan.

2016 Mar 1. Shri Narayan started business with cash Rs. 50,000 of which Rs. 20000 were borrowed from Shri Durgaprasad.
2. Deposited into Bank Rs. 4700.
3. Purchased goods worth Rs. 2000 from Shri. Guddu & paid for thean by cheque
5. Received Rs. 475 from Shantanu in settlement of his account for Rs. 500
10. Paid life insurance premium of Rs. 700 on the life of Shri Narayan
12. Shri Kamalesh, a customer paid directly into bank of Narayan Rs. 485 in full settlement his account for Rs. 500
15. Drew for office use by cheque Rs. 1000.

A) Prepare cash book with Cash, Bank & Discount column. **07**
B) Prepare Ledger Accounts for the above transaction. **07**

Q.4 Following information regarding balances from the books of Account of Shri Shanta Prasad for March 2016 is available.

	Rs.		Rs.
Sales	190500	Commission Received	900
Closing Stock	20900	Opening Stock	20200
General Expenses	9100	Purchases	111500
Carriage Outward	3000	Return Outward	2200
Rent	11700	Depreciation	11000
Legal Charges	1400	Discount Received	900
Bad debts Recovered	850		

A) Prepare Trading Profit & Loss A/c from the above **07**
B) Compute - i) Gross Profit Ratio ii) Net Profit Ratio from the above **07**

Q.5 Following transactions are extracted from the books of Accounts of Shri. Ramrao

2016 July
1. Ramrao purchased goods from Gajananrao worth Rs. 5000
2. Ramrao sold goods to Laxmanrao Rs. 7000.
3. Vijayrao sold goods to Ramrao Rs. 4000
5. Laxmibai purchased goods from Ramrao Rs. 7000
6. Returned goods to Gajananrao Rs. 500
7. Received goods returned by Laxmibai Rs. 600
8. Vijayrao received goods returned by Ramrao Rs. 400
9. Laxmibai returned goods to Ramrao Rs. 700

A) Enter the above transaction in the proper subsidiary Books. **07**
B) Journalise the above transactions in the books of Shri. Ramrao. **07**

Q.6 Answer the following

A) Explain the importance of KYC documents in banking transaction. **07**
B) Explain the concept of Quality circle. **07**

Q.7 Answer the following

A) Explain the importance of marketing intermediaries and discuss the advantages of Zero Level Channel of distribution **07**
B) Explain the cost classification according to purpose of function. **07**