Roll No.____

SOM-LALIT INSTITUTE OF COMPUTER APPLICATIONS
B.C.A. SEM III

Semester End Examination
Computer Organization (CC-201)

Date: 1/10/2018 **Time: 2:15pm TO 3:45pm** **Marks: 50**

Instruction: Figures to the right indicate full marks.

Q.1 (A) Answer the following (Any 2) [10]

1. Explain JK flip-flop with block diagram, circuit diagram and truth table.
2. Explain half adder with circuit and truth table.
3. Explain shift register with diagram.

(B) Do as directed [3]

1. The register is a type of
   a. Sequential circuit
   b. CPU
   c. Latches
   d. Combinational circuit
2. Which of the following Store data or information temporarily and pass it on as directed by the control unit.
   a. Address
   b. Number
   c. Register
   d. Memory
3. Operation carried out by a NOT gate are also termed as inverting.(T/F)

Q.2 (A) Answer the following (Any 2) [10]

1. Explain parity bits, generator and checker with diagram in error detection.
2. Explain binary incrementer with diagram.
3. Explain three state buffer with diagram of bus system using three state buffer.

(B) Do as directed [3]

1. An adder- subtractor single unit can be designed using full adder and
   a. OR gates
   b. XOR gates
   c. NOR gates
   d. NAND gates
2. Do subtraction using 9's complement
   a. 55-23
3. Obtain 2's complement of a number
   a. 10101110

Q.3 (A) Answer the following (Any 2) [8]

1. Explain three basic computer instructions and draw format of it.
2. Explain any two addressing modes.
3. Explain three address and two address instruction by showing evaluation for expression X = (A + B) * (C + D).

(B) Do as directed [4]

1. Stack pointer contains address of top element of stack.(T/ F)
2. Computer address bus is
   a. Bidirectional
   b. multidirectional
   c. unidirectional
   d. circular
3. If the value V(x) of the target operand is contain in the address field itself, the addressing mode is
   a. Immediate
   b. Indirect
   c. Implied
   d. direct
4. A group of bits tells computer to perform a specific operation is called
   a. micro-operation
   b. instruction code
   c. accumulator
   d. register

Q.4 (A) Answer the following (Any 2) **[8]**

1. Explain handshaking for source initiated transfer with diagram.
2. Explain associative mapping with diagram.
3. What DMA? Explain DMA controller with diagram.

(B) Do as directed **[4]**

1. Where does most data go first with in a computer memory hierarchy?
   a. RAM
   b. ROM
   c. BIOS
   d. CACHE
2. Memory unit access by content is called
   a. read-only
   b. programmable memory
   c. associative memory
   d. virtual memory
3. The postfix form of A*B+C/D is_____
4. An interface that provide i/o transfer of data directly to and from the memory unit and peripherals is termed as
   a. DDA
   b. DMA
   c. BR
   d. serial interface

********** ALL THE BEST*********

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SOM-LALIT INSTITUTE OF COMPUTER APPLICATIONS
B.C.A. SEM III

Semester End Examination
Data Structures (CC-202)

Date: 03/10/2018 Time: 2:15pm TO 3:45pm Marks: 50

Q.1)

A) Attempt the following. [Any Two] [8]
1) Explain linear and non-linear data structures with example.
2) Write an algorithm of binary search.
3) Write an algorithm to insert a node at the end in doubly linked list.

B) Attempt the following. [5]
1) Draw the node structure of singly linked list.
2) What is sparse matrix?
3) Show the tracing of following numbers with insertion sort.
32 50 20 4
4) Full form of ADT is _____.
5) _____ search technique does not require sorted data.

Q.2)

A) Attempt the following. [Any Two] [8]
1) Explain recursion with example.
2) Write push and pop stack algorithms.
3) Write an algorithm to insert an element in queue.

B) Attempt the following. [5]
1) What is priority queue?
2) Give postfix expression of a+b*c-d .
3) Evaluate postfix expression: 4,9,3,/,5,*,+
4) In _____ deque, insertion is restricted at one end while deletion can be done from both the ends.
5) Stack follows FIFO. [True/False]

Q.3)

A) Attempt the following. [Any Two] [8]
1) Explain any one representation of binary tree with example.
2) Create binary search tree for following data.
25,45,5,65,15,35.
Show in-order and post-order traversal of the above created tree.
3) Explain LL and LR rotations with example.

B) Attempt the following. [4]
1) Draw an expression tree for : (a+b)*(m-n)
2) In B-tree, all _____ nodes should be at same level.
3) _____ binary tree utilizes null pointers.
4) Explain height of the tree with example.

Q.4)

A) Attempt the following. [Any Two] [8]
1) Draw any directed graph with 4 nodes and 6 edges.
Show its adjacency matrix representation.
2) Write an algorithm for Breadth First Traversal of graph.
3) Explain tree, fringe and unseen vertices of Prim's algorithm.

B) Attempt the following. [4]
1) Graph is a linear data structure. [True/False]
2) What is sink?
3) _____ data structure is used by Depth First Traversal.
4) What is weighted graph?

---------- ALL THE BEST ----------

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SOM-LALIT INSTITUTE OF COMPUTER APPLICATIONS

B.C.A. SEMIII

Semester End Examination

Object Oriented Concepts &Programming (CC-203)

Date: 4/10/2018 **Time: 2:15pm TO 3:45pm** **Marks: 50**

Instruction: Figures to the right indicate full marks.

Q-1(a) **Fill in the blanks.** (4)

1. A reference variable is an _____ pointer.
2. _____ is used to resolve a global scope.
3. Class is a basic building block of _____.
4. Object oriented programming is _____ centric.

Q-1(b) **Answer the following :(Any two)** (8)

1. List and explain any four features of reference variables.
2. Discuss the rules and concept of function overloading.
3. Explain arrow operator and this pointer.

Q-2(a) **True or False.** (4)

1. Mutable data members can be modified by the constant member function.
2. Constructors don't return values.
3. A destructor can be declared in the public section.
4. set_new_handler function gets invoked when new operator fails to allocate memory.

Q-2(b) **Answer the following :(Any two)** (8)

1. How do you dynamically allocate and deallocate memory in C++.
2. Explain in brief the concept of friend in C++. Why is friend class used?
3. Discuss copy constructors.

Q-3(a) **Fill in the blanks.** (4)

1. Pure virtual function is a _____ function.
2. _____ mechanism allows ability to add extra features to the derived class without disturbing existing class.
3. Global functions cannot be declared _____.
4. _____ binding is achieved through virtual function.

Q-3(b) **Answer the following :(Any two)** (9)

1. Discuss protected access specifiers with respect to inheritance.
2. Explain function overriding.
3. Discuss virtual base classes.

Q-4(a) **True or False.** (4)

1. Operator function can be a member function or a friend function.
2. The second parameter of getline() function indicates the number of lines to be read.
3. If an operator function is a friend to a particular class, then it expects one arguments.
4. Implementation of templates reduces the source code.

Q-4(b) **Answer the following :(Any two)** (9)

1. Explain operator overloading using friend functions.
2. Discuss conversion from one class type to another class type.
3. List and explain the text mode input and binary mode output in file operations.

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SOM-LALIT INSTITUTE OF COMPUTER APPLICATIONS

B.C.A. SEM - III

Semester End Examination

Statistical Methods (CC-205)

Date: 5/10/2018 **Time: 2:15pm TO 3:45pm** **Mark50**

Q.1)

(A) Do as directed (any 2) **[10]**

1) Calculate median and mode from the following data

Class	0-7	7-14	14-21	21-28	28-35	35-42
Frequency	7	11	24	19	12	9

2) The mean and standard deviation of 20 observations are found to be 10 and 2,respectively. On rechecking, it was found that an observation 8 was incorrect. Calculate the correct mean and standard deviation in each of the following cases:
(i) If wrong item is omitted. (ii) If it is replaced by 12.
3) Explain the merits and demerits of measures of central tendency.

(B) Do as directed **[03]**

1) State relation among AM, GM and HM.
2) Explain the term: Statistics.
3) Define weighted mean.

Q.2)

(A) Do as directed (any 1) **[10]**

1) Find Q_1, Q_2, D_9 and P_{35} for the following frequency distribution

Class	30-34	35-39	40-44	45-49	50-54	55-59	60-64
Frequency	3	5	12	18	14	6	2

2) Find the mean deviation about the mean, SD and CV for the data given below:

xi	5	10	15	20	25
fi	7	4	6	3	5

(B) Do as directed **[03]**

1) State the different measures of variation.
2) Explain the term: percentile.
3) State relation among QD, MD and SD.

Q.3)

(A) Do as directed (Any 1) **[10]**

1) Find the co-efficient of the correlation between internal and external assessment of the post graduate student's performance (out of 100 marks)

Roll no.	1	2	3	4	5	6	7	8	9	10
Int. assemt	45	62	67	32	12	38	47	67	42	85
Ext. assemt	39	48	65	32	20	35	45	77	30	62

2) The sales in a particular department store for the last five years is given in the following table.

Year	1974	1976	1978	1980	1982
Sales(in lakhs)	40	43	48	52	57

Estimate the sales for year 1979.

(B) Do as directed **[02]**

1) State the propertied of coefficient of correlation.
2) What is curve fitting

Q.4)

(A) Do as directed (any 2) **[10]**

1) A box-I contains 4 red and 5 blue balls and box-II contains 6 red and 3 blue balls. A ball is selected at random from the box-I and transferred to box-II. Then a ball is selected from the box-II. If the ball is selected from the box-II is found to be blue what is the probability that the ball selected from box-I and transferred to box-II is red?
2) Three machines A, B and C produce respectively 50%, 30% and 20% of the total numbers of the items of a factory. The % defective outputs of these machines are 3, 4 and 5 respectively. If an item is selected at random, find the probability that item is defective.
3) Jigna participants in a shooting competition the probability of her shooting a target is 0.2. What is the probability of shooting the target exactly three times out of five trials?

(B) Do as directed **[02]**

1) Define equally likely events
2) State the Multiplication rule for of the probability

--------- ALL THE BEST ----------

SOM-LALIT INSTITUTE OF COMPUTER APPLICATIONS
B.C.A. SEM III

Semester End Examination
Fundamentals of Operating System (CC-204)

Date: 08/10/2018 Time: 2:15pm TO 3:45pm Marks: 50

Q1. (A) Attempt the following [Any Two] [10]

1. Explain segment paged memory allocation.
2. Explain three cases of memory deallocation.
3. Main memory composed of three page frames. The program request following pages in the following order: H I J K H I L H I J K L H I. Compute the failure and success ratios.

Q1. (B) Do as directed [03]

1. Define operating system
2. FIFO anomaly also known as Belady's anamoly. (T/F)
3. The process of moving a program from one area of memory to another is called _____.

Q2. (A) Attempt the following [Any Two] [10]

1. Define Process. Explain Process control block.
2. Define Turnaround time, aging, context switching.
3. Explain preemptive process scheduling algorithm with example.

Q2. (B) Do as directed [03]

1. The time slice the process get processor is called _____.
2. List five process status
3. Jobs are classified as _____ and _____.

Q3. (A) Attempt the following [Any Two] [10]

1. Explain Multi processing configurations.
2. Explain detection and recovery of deadlock.
3. Define semaphore. Explain producers and consumers problem.

Q3. (B) Do as directed [02]

1. Define critical region.
2. _____ is a situation in which system has too few available resources to guarantee the completion of at least one job running on the system.

Q4. (A) Attempt the following [Any Two] [10]

1. Explain communication among devices.
2. Explain access control verification and data compression.
3. Given that it takes 2 ms to travel from one track to the next, and that the arm is positioned at track 25 moving toward the low-numbered tracks, compute how long it will take to satisfy the following requests – 27, 38, 35, 20, 41, 21 using SSTF and FIFO scheduling policy.

Q4. (B) Do as directed [02]

1. CBA = _____ for direct access with fixed length records.
2. Define transfer time.

****** ALL THE BEST ******

SLICA

SOM-LALIT INSTITUTE OF COMPUTER APPLICATION

B.C.A. SEM III

Semester End Examination

Mass Communication (FC – 201)

Date: 09-10-2018 Time: 2.15 to 3.35 pm Mark

Q-1Attempt any two short notes:

1. Definition of Mass Media and its functions
2. Reach of Mass Media in developing countries
3. Presentation of women in Mass Media
4. Media effects on children

Q-2 Attempt any two Short notes:

1. The Role of the Press
2. Development of Radio in India as a Mass Medium
3. Straight news reports
4. Media Ethics

Q-3 State whether the given statements are TRUE or FALSE:

1. 'Tabloid Journalism' is often termed as 'Yellow Journalism'.
2. News is an account of an event and not an event in itself.
3. Advertisement is the primary function of Mass Media.
4. Headlines are generally written in the historical present tense.
5. The sub-editor is an outdoor man.
6. Feature-Writing is the domain of senior reporters or outside experts.
7. Journalists are expected to offer their opinions in news reports.
8. Readership and popularity are identical.
9. Revenue generation has become the major concern for Mass Media.
10. Straight news reporting is very popular among modern journalists.

***** ALL THE BEST *****