

Semester End Examination
Computer Organization (CC-201)

Date: 19/9/2019

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. Draw the block diagram and truth table of AND, NOT, X-OR and OR gate.
2. What is multiplexer? Draw block diagram, circuit diagram and truth table, for 4×1 multiplexer.
3. Explain RS flip-flop with block diagram, circuit diagram and truth table.

(B) Do as directed

[3]

1. Which of the following control signals are selected for read and write operations in a RAM?

a. Data buffer	c. Memory
b. Chip select	d. Read and write
2. In shift register, each bit is updated on a clock transition by copying state of

a. Its neighbour	c. input
b. itself	d. voltage supply
3. Flip-flop is used to store one bit of data. (T/F)

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

[10]

1. Explain binary adder with diagram.
2. What is floating point number? Explain normalization of floating point number with example.
3. Explain memory transfer construction of bus system for four register with diagram.

(B) Do as directed

[3]

1. In computers, subtraction is carried out generally by _____.

a. 2's complement method	c. signed magnitude method
b. 1's complement method	d. BCD subtraction method
2. $(2FAOC)_{16}$ is equivalent to _____.

a. $2(195\ 084)_{10}$	c. $(00101111010\ 0000\ 1100)_2$
b. Both (a)and (b)	d. None of these
3. Do subtraction using 10's complement

a. 22-42

Q.3 (A) Answer the following (Any 2)

[8]

1. Explain computer registers with diagram.
2. Explain any two addressing modes.
3. Explain interrupt cycle with flowchart.

(B) Do as directed

1. The BSA instruction is _____.
 - a. Branch and store accumulator
 - b. Branch and save return address
 - c. Branch and shift address
 - d. Branch and show accumulator
2. _____ register keeps tracks of the instructions stored in program stored in memory.
 - a. AR (Address Register)
 - b. AC (Accumulator)
 - c. XR (Index Register)
 - d. PC (Program Counter)
3. A single Interrupt line can be used to service n different devices.(T/F).
4. The addressing mode, where you directly specify the operand value is _____.
 - a. Immediate
 - b. Direct
 - c. Relative
 - d. Index

Q.4 (A) Answer the following (Any 2)

[8]

1. Explain direct mapping with diagram.
2. Explain daisy chain priority with diagram.
3. Explain DMA controller with block diagram.

(B) Do as directed

[4]

1. Cache memory acts between _____.
 - a. CPU and RAM
 - b. RAM and ROM
 - c. CPU and Hard Disk
 - d. None of these
2. The physical memory is not as large as the address space spanned by the processor ,this is one of the main reasons for the usage of virtual memories.(T/F)
3. _____ interrupt establishes a priority over the various sources to determine which request should be entertained first.
 - a. Polling
 - b. Daisy chaining
 - c. Priority interrupt
 - d. None of these
3. In DMA transfers, the required signals and addresses are given by the
 - a. Device drivers
 - b. The program itself
 - c. Processor
 - d. DMA controllers

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

Roll No. _____

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

Semester End Examination
Data Structures (CC-202)

Date: 20/09/2019

Time: 2:15pm TO 3:45pm

Marks: 50

Question:1

- [A] Answer the following: (Any Two) [10]
1. What are Abstract data types? List and explain them.
 2. What is Binary Search? Write an algorithm/Program for binary search.
 3. What is sorting? Write an algorithm/Program to perform quick sort.
 4. What is doubly linked list? Write an algorithm to delete given value from it.
- [B] State the following statements are TRUE / FALSE: [03]
1. Worst case complexity for Bubble sort algorithm is $O(n^2)$.
 2. Merge sort can be implemented using recursion.
 3. Sparse matrix is a 2-dimessional array having most elements are non-zero.

Question:2

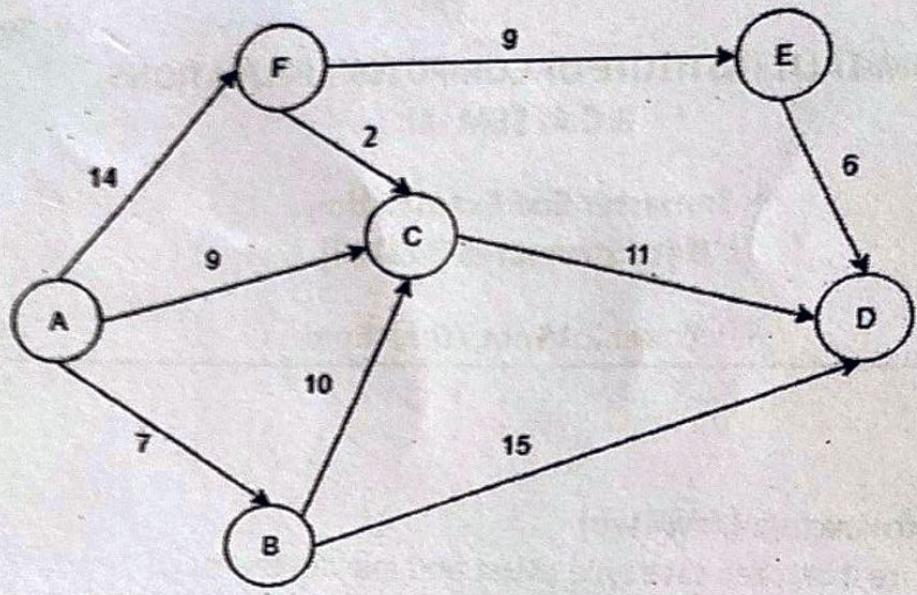
- [A] Do as directed: (Any Two) [10]
1. What is Stack? Write an algorithm/Program to implement stack.
 2. Write postfix expression from the Infix expression: $(A + B / C * (D + E) - F)$.
 3. What is Queue? Write an algorithm/program to implement circular queue.
- [B] Fill in the blanks: [03]
1. After evaluating $5 \ 6 \ 3 / 7 \ 1 + * + 2 -$ postfix expression we get _____.
 2. Deque stands for _____.
 3. _____ data structure can be used to replace recursion.

Question:3

- [A] Do as directed: (Any Two) [10]
1. Draw a BST from the given traversal data:
Preorder: 57, 45, 18, 9, 20, 50, 55, 75, 60, 59, 62, 85, 95
Inorder: 9, 18, 20, 45, 50, 55, 57, 59, 60, 62, 75, 85, 95
 2. What is Tree? What is BST? List and explain traversal methods of BST.
 3. Construct the AVL-Tree from the given data:
14, 17, 11, 7, 53, 4, 13, 12, 8
 4. Construct B-Tree of order 4 from the given data.
1, 5, 6, 2, 8, 11, 13, 18, 20, 7, 9
- [B] Fill in the blanks: [02]
1. Visit sequence for post order traversal of BST is _____.
 2. _____ data structure can be used for back tracking.

Question:4

- Do as directed: [10]
1. What is graph? Explain representation methods of graph.
 2. Write a short note on: Prims algorithm.
 3. Find a shortest path for the given graph using Dijkstra algorithm.



[B]

Fill in the blanks:

1. BFS stands for _____.
2. Prims and Kruskal algorithm are used to get _____ from graph.

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

SOM-LALIT INSTITUTE OF COMPUTER APPLICATIONS**B.C.A. SEM III****Semester End Examination****Object Oriented Concepts & Programming (CC-203)****Date: 21/09/2019****Time: 2:15pm TO 3:45pm****Marks: 50****Instruction:** Figures to the right indicate full marks.**Q-1(a) Answer the following: (Any two) (4)**

1. Inline functions.
2. Default arguments.
3. Static data members.
4. Namespace.

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

1. List and explain the access specifiers available in C++.
2. Differentiate between Object oriented and Procedure oriented programming.
3. Discuss this pointer and its characteristics.

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

1. A destructor can be declared as static or const.
2. Memory leaks arise due to allocated memory is not been freed.
3. Friend function must be declared in the public section.
4. Static member functions cannot be used to access the non-static data members.

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

1. Discuss how a non-member function be friend of more than one class.
2. Define DMA and explain how it can be implemented.
3. Justify the statement "Destructor are called in reverse".

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

1. In overriding the function should have same _____ and _____.
2. Virtual functions should be declared in _____ section of the class.
3. A class that has at least one pure virtual function is known as _____.
4. _____ is a feature in which new classes are created from the existing classes.

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

1. Explain how base class members can be initialized through derived class object.
2. When we make base class as virtual? Explain by giving example.
3. List and explain any three categories of inheritance.

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

1. Operator overloading is a compile time polymorphism.
2. Function templates are independent of the data type.
3. Using operator overloading new operators can be created.
4. put() function is used to copy a character from one file to another.

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

1. Why type conversions are required? Explain the conversion from class to basic type.
2. Discuss class templates with multiple parameters.
3. Explain how unary operator can be overloaded using member functions.

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

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

Date: 23/09/2019

Time: 2:15pm TO 3:45pm

Marks: 50

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

1. Define the following: virtual memory, internal fragmentation, bound register, demand paging
2. Define dynamic partition. Explain dynamic memory reallocation with example.
3. Main memory composed of three page frames. The program request following pages in the following order: A,B,C,A,C,D,B,A,C,B,A,D. Compute the failure and success ratios.

Q1. (B) Do as directed [03]

1. List types of operating system.
2. Instruction number 345 will be in page number _____ is page size is 60 lines.
3. _____ is a phenomenon in a virtual memory where an excessive amount of page swapping between main memory and secondary memory happens.

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

1. Explain transition of process from one state to another.
2. Give difference between :
 - a. preemptive and non preemptive scheduling
 - b. CPU bound jobs and I/O bound jobs.
3. Define the following: context switching, time quantum, response time, process, priority scheduling

Q2. (B) Do as directed [03]

1. List contents of PCB
2. SRT cannot be implemented in an interactive system. (T/F)
3. _____ is high level scheduler of process manager that selects a job for queuing.

Q3. (A) Attempt the following [Any Two] [08]

1. Define process synchronization. Explain test and set, wait and signal.
2. Define deadlock. How to detect deadlock? Explain deadlock avoidance with example.
3. Explain conditions of deadlock. How to recover from deadlock?

Q3. (B) Do as directed

1. Define starvation.
2. Draw graph showing deadlock.
3. List types of multiprocessing configuration
4. Name traditionally given to binary semaphore is _____.

Q4. (A) Attempt the following [Any Two] [08]

1. Define: channel status word, I/O channel program, I/O subsystem. Dedicated device.
2. Given that it takes 3 ms to travel from one track to the next, and that the arm is positioned at track 15 moving toward the low-numbered tracks, compute how long it will take to satisfy the following requests – 18,6,25,30,19,10,27 using SSTF and FIFO scheduling policy.
3. Explain access control verification.

Q4. (B) Do as directed

1. CBA = _____ for sequential access of variable length records.
2. _____ compression is used in database management system for index compression.
3. Fixed head access time consists of search time and _____.
4. MFD stands for _____

**** ALL THE BEST ****

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

Semester End Examination
Statistical Methods (CC-205)

Date: 24/9/2019

Time: 2:15pm TO 3:45pm

Mark: 50

Q.1)**(A) Do as directed (Any 2)****[10]**

- 1) Find mean and mode from following set of points.

x	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	18	16	15	12	10	5	2	1

- 2) Explain the measures of the central tendency with example.
 3) Find the missing frequencies in the following table given that median of the data is 54 and total frequency is 120

Class	30-40	40-50	50-60	60-70	70-80
Frequency	12	-	35	-	11

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

- 1) Statistics is the science which deals with method of _____ of numerical data
 (a) collection (b) presentation (c) analysis and interpretation (d) each of above
 2) Sample is a _____.
 (a) Population (b) a numerical value (c) portion of the population (d) none
 3) Which of the following is not a measure of the central tendency?
 (a) S.D. (b) Median (c) Mode (d) none

Q.2)**(A) Do as directed (Any 2)****[10]**

- 1) In a survey, data on daily wages paid to workers of two factories A and B are as follows

Daily wages	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Factory A :	15	30	44	60	30	14	7
Factory B :	25	40	60	35	20	15	5

Find out wages of which factory has greater variability.

- 2) What are the measures of the dispersion? Why they are so called? Explain each with example in brief.
 3) Find the standard deviation of first n-positive integers.

[03]

B) Do as directed

- 1) Scatteredness of data or observations about their mean value is defined as _____.
 (a) Range (b) Mean deviation (c) Variance (d) Dispersion
- 2) Among the measures of the variation, the simplest one is _____.
 (a) S.D. (b) Variance (c) Range (d) none
- 3) State relation among QD, MD and SD.

Q.3)**(A) Do as directed (Any 2)**

[10]

- 1) Define co-efficient of correlation. What is it intended to measure? How would you interpret the sign and magnitude of calculated r ? Consider in particular $r=0$, $r=+1$ and $r=-1$.
- 2) A survey regarding income and savings provided the following data:

Income (Rs.)	Saving (Rs.)			
	50	100	150	200
400	8	4	-	-
600	-	12	24	6
800	-	9	7	2
1000	-	-	10	5
1200	-	-	9	4

Compute Karl Pearson's coefficient of correlation

- 3) From the following data, find any one regression equation

$$\begin{array}{ccccccc} X : & 4 & 5 & 6 & 7 & 1 & 2 & 3 \\ Y : & 6 & 5 & 6 & 5 & 2 & 4 & 7 \end{array}$$

(B) Do as directed

[02]

- 1) What is curve fitting ?
 2) If X and Y are variables, then there can be maximum no of regression lines _____.

Q.4)**(A) Do as directed (Any 2)**

[10]

- 1) Define: 1. Sample space 2. Elementary events 3. Multiplication rule for the probability 4. Addition rule 5. Exhaustive events
- 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) Two cards are selected at random from a pack of 52 cards. Find the probability that both the cards are (i) of black colour (ii) of red colour (iii) of diamond (iv) face cards.

(B) Do as directed

[02]

- 1) If $P(A)=0.35$, $P(B)=0.45$ and $P(A \cup B) = 0.65$, $P(B/A) =$ _____.
 2) If A and B are independent events, $P(A/B) =$ _____.

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SOM-LALIT INSTITUTE OF COMPUTER APPLICATION

B.C.A. SEM III

Semester End Examination

Mass Communication (FC – 201)

Date: 26-09-2019

Time: 2.15 to 3.45

Marks: 50

Q-1 Attempt [Any Two] shortnotes:

[20]

1. Definition of Mass Communication and its functions
2. Journalism
3. Working journalist
4. Difference between tabloid and broadsheet

Q-2 Attempt [Any Two] shortnotes:

[20]

1. Media ethics
2. Making of Newspaper
3. Role of a sub-editor
4. Feature writing

Q-3 Fill in the blanks with appropriate option:

[10]

1. Newspapers and magazines are turning more towards ----- reporting. (straight, investigative)
2. News reports are classified into ----- broad types. (two, four)
3. ----- is a social institution and a cultural discourse. (news, newspaper)
4. Basically news is a forecast of ----- events. (future, past)
5. Tabloid is also known as ----- press. (popular, quality)
6. ----- is the creative organ of newspaper. (editor, reporter)
7. For mass media primary source of revenue is ----- . (advertisement, information)
8. The preferred format for media ----- . (inverted pyramid, upright pyramid)
9. Media focuses more on ----- content. (exceptional, ordinary)
10. In India the reach of Media is ----- . (limited, unlimited)

**** ALL THE BEST ****