MCA Sem-II, Minor Test – I, 2018-19

Time: 1 Hour

CBSE22 : *Object-Oriented Programming in C++*

Max Marks: 15

Attempt any *three* questions.

1. (a) Distinguish between Procedure-Oriented and Object-Oriented paradigms with suitable examples. (2)

   (b) Distinguish between pointer and reference variables. Why do reference to an object is passed in a copy constructor instead of value? Explain. (3)

2. (a) What is a friend function? What are the merits and demerits of a friend function? (2)

   (b) Explain the Inline function and the situations where inline expansion may not work and why? Discuss its advantages and disadvantages. (3)

3. Define a class *Employee* which has *empid* and *empname* as private members. Define the constructor, the Destructor and a member function *print()* which prints the details of an employee. Create an object of type *Employee* in main() and print it. (5)

4. What are the static data members and static member functions? Explain the situations in which they are used through appropriate examples. (5)

Code: CSCC24

Roll No.....

MCA (SEM-II) MID TERM EXAM-I- 2019

Microprocessor and Computer Architecture

Time:1 Hour

Max Marks: 15

- *Write your Roll No. on the top immediately on receipt of the question paper.*
- *Attempt all questions. Marks are indicated against each question. Your answer should be relevant, precise and Complete.*

1. What are the sequence of events that occurs when the 8085 MPU reads from memory. [3]
2. How many address lines are necessary to address two megabytes (2048K) of memory? [2]
3. Why are the program counter and the stack pointer 16-bits registers? [2]
4. If the 8085 microprocessor has fetched the machine code located at the memory location 205FH, what will be the contents of the program counter? [2]
5. What are the different addressing modes supported by 8086 microprocessor? [4]
   What are their advantages ?
6. List out the five categories of the 8086 instructions. Give two examples of instructions for each group? [2]

DEAPARTMENT OF COMPUTER SCIENCE
SESSIONAL FIRST - OPERATING SYSTEM, MCA-II SEM

DATE: 25-02-2019 TIME: 45 mnts, M.M. : 15

NOTE: ATTEMPT ANY three QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

1. List three general categories of information in a process control block. What is the difference between turnaround time and response time?
2. Illustrate the steps performed by an OS to create a new process. What common events lead to the creation of a process?
3. Show the traces of three processes and illustrate interleaved execution (with instruction cycles, I/O, context switch, etc.) of these processes performed by the processor.
4. Consider the following set of processes, with the length of the CPU-burst time given in milliseconds. What is the average turnaround time for these processes with the SJF scheduling algorithm (with preemption and without pre-emption)?

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

Department of Computer Science, Jamia Millia Islamia, New Delhi-25

M.C.A., II Semester, First Sessional Test Examination, February 26, 2019

CSCC23: Data and File Structures

Time: 45 Minutes Max. Marks: 15

Instructions: Attempt all Questions. Answer in brief and avoid unnecessary details.

Ques. No. 1. Suppose that the numbers of the below series are stored in an Array object 'a'. Write algorithms (that takes minimum number of movement operations) to delete duplicate numbers from 'a' one by one using its *del(index)* function and also derive the formula to get total number of movement operations. (8)

1, 2, 2, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, …. n, n, n, n, …n^2 times.

Ques. No. 2. Show that product of a lower triangular matrix and a diagonal matrix of same orders is a lower triangular matrix. Let A be a lower triangular matrix and B is an upper triangular matrix of order n x n. Write efficient algorithm to get product of A and B i.e. A x B. Also derive the formula to get total number of multiplication operations in this algorithm. (7)

DEPARTMENT OF COMPUTER SCIENCE, JMI, NEW DELHI

Course: MCA-II Semester
Time: 50 Min.

Sessional Tests Series-I, 2014-15
Subject: Theory of Computations (CSCC 26)

Max. Marks: 15

Note: Attempt any two parts from each question and each question carries equal marks

Q1. a) What do mean by finite automata? Describe the applications of finite automata.
b) Define the Chomsky hierarchy mentioning the format of productions of each type of grammar.
c) Construct the finite automata over $\Sigma = \{0,1\}$ which does not ~~except~~ accept 1101 as a substring. Trace the result also.

Q2. a) Prove that the regular languages are closed under Union, Concatenation, Kleen (star), Complementation, Reversal, and intersection.
b) What do you mean by the normal forms of the CFGs? Find the CNF of $(0+1)^*00(0+1)^*$.
c) What do you mean by pumping lemma and prove that $L = \{ w w^r \mid w \in \{0,1\}^* \}$ is not a regular language.