NATIONAL INSTITUTE OF TECHNOLOGY, KURUKSHETRA

THEORY EXAMINATION, Question Paper

Month and Year of the Examination: May/Jun 2009
Programme: B.Tech
Subject: Computer Engineering
Course No: COT-101
Total No. Of Questions: 8
Semester: II[nd]

Maximum Marks: 60
Time allowed: 3 Hrs.

NOTE: Attempt any FIVE questions.

1 a) Compare and contrast: High level language, Assembly language and Machine language. (6)

b) Write a short note on the following: (6)
   i) RAM & ROM
   ii) Compiler & interpreter

2 a) Draw the block diagram of computer system and explain its major parts. (6)

b) Do the following conversion: (6)
   (1) $(241)_{10}$ = ( )$_8$
   (2) $(1011100)_2$ = ( )$_{16}$
   (3) $(56)_8$ = ( )$_2$
   (4) $(347)_8$ = ( )$_{16}$
   (5) $(1101101)_2$ = ( )$_8$
   (6) $(6E)_{16}$ = ( )$_{10}$

3 a) Given a 4-digit number representing a year. Write a program to find out whether it is leap. (6)
   A year is said to be leap year if it is divided by 4 and not by 100 or year which is not divided by 400.

b) Write a program that will read the value of x and evaluate the following function (6)

$$Y = \begin{cases} 1 \text{ for } x>0 \\ 0 \text{ for } x=0 \\ -1 \text{ for } x<0 \end{cases}$$

   (i) Using nested if
   (ii) Using if only

Q4 a) Write a program to evaluate the following series: (6)
   $e^x = 1+x+x^2/2!+x^3/3!+x^4/4!.....x^n/n!$
   Enter the value of n, x from keyboard

b) Write a program to print the multiplication table of 1 to 10 using do-while loop. (6)

Q5 a) Write a program to find out prime numbers below a given number N using break statement. (6)
   Enter the number N from keyboard

b) Write down any program showing the use of continue statement. (6)

Q6 a) Find out the roots of a quadratic equation $ax^2+bx+c=0$ using switch statement. (6)

b) Write a program to print the following pattern using for loop. (6)

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1
2 2
3 3 3
4 4 4 4
.....
N rows.
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Q7 a) Write down a program to calculate (6)

$$^nC_r = n!/(r!(n-r)!)$$

b) Define function prototype and how parameters are passed to the function? (6)

Q8 a) Write a program to multiply two matrices A and B. (6)

b) Write a program to compare two strings without using library function. (6)