

PGDCA / MCA (I Year) / BCA

Term-End Examination

December, 2008

CS-01 : COMPUTER FUNDAMENTALS

Time : 3 hours

Maximum Marks : 75

Note : Question number 1 is **compulsory**. Answer any **three** questions from the rest.

1. (a) Perform the following number conversions : 10

(i) $(167.23)_8 = (\quad)_2$

(ii) $(AB.3)_{16} = (\quad)_{10}$

(iii) $(1100.0101)_2 = (\quad)_8$

(iv) $(43.125)_{10} = (\quad)_2$

(v) $(732.23)_{10} = (\quad)_{16}$

(b) What is the purpose of error detection and correction code ? Explain the process of error correction through Hamming code. 8

(c) Show the gate implementation of logic function $\overline{\overline{A+B+B}}$. 4

(d) Write a program for evaluating $A \times B + C \times D / E$ using one address instruction. 4

(e) Explain function of following commands : 4

(i) XLAT

(ii) LEA

(iii) XCHG

(iv) POP

2. (a) What is meant by assembler directives ? Explain the function of the following directives : 7

(i) EQU

(ii) ASSUME

(iii) END

(iv) DUP

(b) Minimise the following expressions : 8

(i) $\overline{(\overline{X + Y})} XY + Z$

(ii) $X\overline{Y}Z + \overline{X} \overline{Y} \overline{Z} + XZ$

(iii) $XY + XYZ + \overline{X} Y \overline{Z}$

(iv) $XY + \overline{X} \overline{Y} \overline{Z} + XZ$

3. (a) With the help of suitable diagrams explain the functioning of the following interconnection networks : 8
- (i) 8×8 Omega network
 - (ii) 3D Hypercube network
- (b) Differentiate between Serial arbitration and Parallel arbitration. 7
4. (a) Make diagram and explain the working of pipeline processor. 8
- (b) What is the purpose of having multiple addressing modes ? Explain any 3 addressing modes in detail. 7
5. Write a short note on each of the following : 15
- (i) Microprogramming
 - (ii) Microprogram counter
 - (iii) Microinstruction sequencer
 - (iv) Bit-slice CPU
 - (v) Hardwired control unit

