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CS-64

BACHELOR OF COMPUTER APPLICATIONS

(BCA) (Pre-Revised)

Term-End Examination

00340 **December, 2017**

CS-64 : INTRODUCTION TO COMPUTER ORGANISATION

Time : 3 hours *Maximum Marks : 75*

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

1. (a) Do the following conversions : *10*

(i) $(154.25)_{10}$ to binary number

(ii) $(1100.1010)_2$ to octal number

(iii) $(734.28)_8$ to binary number

(iv) $(F2)_{16}$ to binary number

(v) $(725)_{10}$ to hexadecimal number

(b) What is a Multiplexer (MUX) ? Draw the logic diagram of a 4×1 MUX. *6*

(c) Write an assembly language program for 8086 microprocessor to exchange two words stored in the memory. Make suitable assumptions. *6*

(d) Explain the following terms with the help of a suitable diagram/illustration for a computer : 8

(i) I/O processor

(ii) Logic micro-operations

(iii) Micro-instructions

(iv) Access time for hard disks

2. (a) What is Bus Arbitration ? Explain the Daisy Chaining bus arbitration method with the help of a suitable diagram. List its advantages and disadvantages. 8

(b) Explain the main memory to cache mapping using the two-way set associative scheme with the help of an example. 7

3. (a) Write a program in 8086 Assembly language to convert a 2-digit BCD number into its binary equivalent. 6

(b) What is an Instruction ? Explain the factors considered while deciding the instruction length. What are variable length instructions ? 4

(c) What are Counters ? Explain the working of a 3-bit ripple counter. 5

4. (a) Draw the K-map and write the simplified function for

$F(A, B, C, D) = \Sigma (0, 1, 2, 3, 8, 9, 10, 11)$. *3*

(b) Explain any two string instructions of 8086 microprocessor. *3*

(c) "Most of the semiconductor memories are packaged in chips." Explain the 2D and $2\frac{1}{2}D$ chip organisation. Support your answer with a diagram. *6*

(d) Why is 2's complement preferred in binary arithmetic ? *3*

5. (a) What is the use of addressing modes ? Describe any three addressing modes. *7*

(b) What is a logical shift operation ? Explain the difference between logical shift and arithmetic shift with the help of an example. *8*
