BACHELOR OF COMPUTER APPLICATIONS (BCA) (Pre-Revised)

Term-End Examination

February, 2021

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) Write a program in 8086 Assembly language to swap two byte sized numbers stored in memory. Make suitable assumptions. *6*

(b) Convert the octal number 476.46 to the following : *8*

(i) BCD equivalent

(ii) Decimal number

(iii) Binary number

(iv) Hexadecimal number

(c) Explain the use of memory hierarchy in a computer system. List its various components. *4*

(d) Explain the following addressing modes with an example each : *8*

(i) Indirect Addressing

(ii) Register Addressing

(iii) Register Indirect Addressing

(iv) Immediate Addressing

(e) Differentiate between EXE and COM programs. *4*

2. (a) Using 2's complement notation perform the following arithmetic operations using 8-bit register(s) : *10*

(i) $25 + (-12)$

(ii) $17 - 6$

(iii) $-18 - 16$

(iv) $-8 + (18)$

(v) $12 - (-9)$

(b) What is Secondary Memory ? Explain seek and latency time with respect to hard disk. *5*

3. (a) What is Direct Memory Access (DMA) ? Explain the use of Data Register and Address Register in DMA. *5*

(b) What is an Interrupt ? Explain its uses. *4*

(c) Calculate the physical address for the following data for 8086 microprocessor. All data is in hexadecimal. *6*

(i) $CS = 1100_h$ $IP = F\ 321_h$

(ii) $SS = 1212_h$ $SP = 0123_h$

4. (a) What are Flip-Flops ? Describe the R-S flip flop and J-K flip flop, with help of their logic diagrams. *7*

(b) Explain the syntax and functionality of any ***four*** of the following Assembly instructions : *8*

(i) ADD

(ii) MOV

(iii) CMP

(iv) SAR

(v) LOOP

5. Explain the following with the help of a suitable diagram, program segment or illustration : *15*

(i) Horizontal microinstructions

(ii) Wilkes Control Unit

(iii) Shift micro-operations

(iv) Flag register

(v) Interleaved Memory