# WEST BENGAL STATE UNIVERSITY

B.Sc. Honours Part-III Examination, 2019

## COMPUTER SCIENCE

## PAPER-CMSA-V

Time Allotted: 4 Hours | Full Marks: 100

*The figures in the margin indicate full marks.*
*Candidates should answer in their own words and adhere to the word limit as practicable.*
*All symbols are of usual significance.*

**Answer Question No. 1 and any *five* from the rest taking at least one from each group.**

1. Answer any ***ten*** questions from the following: 2×10 = 20

   (a) What do you understand by "Full Duplex" and "Half Duplex" communication?

   (b) If clock frequency is 2 MHz, then calculate the value of T.

   (c) What is a nested subroutine in 8085?

   (d) The memory address of the last location of a 2KB memory is FFFFH. Specify the starting address.

   (e) What is the use of RIM instruction?

   (f) Find the Shannon capacity of a channel with bandwidth 1 MHz and SNR 0.63.

   (g) What is the role of scrambler in MODEM?

   (h) Distinguish between persistent and non-persistent connection.

   (i) Why is the page size always a power of 2?

   (j) What do you mean by significant overflow?

   (k) Differentiate between DRAM and SRAM.

   (l) Mention two disadvantages of OSI reference model.

   (m) What do you mean by S/N ratio?

   (n) What do you mean by MAN?

   (o) How does URL differ from domain name?

### GROUP-A

2. (a) Write an assembly language program in 8085 to count the number of even and odd numbers in a given set of numbers. 8+8

   (b) Write an assembly language program in 8085 to find the maximum and minimum number in a given set of numbers.

3. (a) What do you mean by absolute and partial decoding of address? What are the advantages and disadvantages of them? (2+2)+(2+2)

   (b) What do you mean by write-through and write-back cache? What are the advantages and disadvantages of them? 2+3

   (c) What do you mean by locality of reference? 3

4. (a) Calculate the COUNT to obtain 120μs loop delay, and express the value in Hex. Use clock frequency 2MHz. (Ignore the three T-state difference of the last cycle). 4

| Label | Mnemonics | T-states |
|---|---|---|
| | MVI B, COUNT | 4 |
| LOOP: | NOP | 4 |
| | NOP | 4 |
| | DCR B | 4 |
| | JNZ LOOP | 10/7 |

   (b) Can Microprocessor differentiate between data and instruction? 4

   (c) What is the difference between CALL and JMP instruction? 4

   (d) What is ‘mirror memory’? 4

5. (a) Why does a stack organized computer need only a op-code and no address field? 4

   (b) Multiply –5 and +10 using Booth’s multiplication algorithm. 8

   (c) Explain the Daisy-Chaining method of bus arbitration. 4

## GROUP-B

## (Data Communication & Computer Network)

6. (a) Discuss channel capacity of noiseless and noisy channels. 3

   (b) Differentiate between Manchester and Differential Manchester encoding. Hence show the waveform of 01001110 in both the systems. 4+4

   (c) Explain ASK and PSK. 5

7. (a) Distinguish between Hardwired and Micro-programmed Control Unit. 4

   (b) Give a brief idea of Wilkes Control Unit. 5

   (c) What is a Micro instruction? Differentiate between Horizontal Micro instruction (HMI) and Vertical Micro instruction (VMI). 2+5

8. (a) Differentiate between “Flow Control” & “Error Control”. Why “Flow and Error Control” is done both in Data Link Layer & Transport Layer? 3+3

   (b) What are the services provided by Session Layer and Presentation Layer? 2+2

   (c) Distinguish between Logical Addressing (Network Layer) and Port Addressing (Transport Layer). 4

(d) Indicate the layers of TCP / IP Layered model by a block diagram. 2

9. (a) Distinguish between Circuit switch, Message switch and Packet switch Network. 5

(b) Briefly explain the various types of transmission impairments. 5

(c) What are the rules for choosing a good polynomial divisor in CRC? What are the advantages and disadvantages of CRC? What are the disadvantages of Parity Error Detection method? 2+2+2

## GROUP-C

10.(a) What do you mean by internet service providers? 4

(b) What is the difference between intranet and internet? 4

(c) Why modem is necessary in data communication? 4

(d) What is URL? Give example. 4

11. Write short notes on any ***four*** of the following: 4×4 = 16

(a) Dynamic Domain Name System (DDNS)

(b) Inverse Domain in DNS

(c) Extranet

(d) ADSDN

(e) Internet Service Providers

(f) Cookies.

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