

2021

COMPUTER SCIENCE — HONOURS

Fifth Paper

Full Marks : 100

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer question 1 and **any five** taking at least **one** from each **Group**.

1. Answer **any ten** questions : 2×10
- (a) What is the flag register?
 - (b) Write down the difference between Hardware and Software interrupt with respect to Microprocessor 8085.
 - (c) What is the purpose of READY terminals in Microprocessor 8085?
 - (d) What are the differences between OPCODE and OPEPAND?
 - (e) What is the maximum number of I/O ports that can be interfaced with microprocessor 8085, when connected in I/O mapped I/O method?
 - (f) What is the purpose of SIM instruction? Explain with suitable example.
 - (g) Highlight the main differences between Hardwired and Micro programmed Control Unit.
 - (h) What is Arithmetic shift? Explain with example.
 - (i) Name the different Transmission Impairments.
 - (j) What are bit rate and band rate?
 - (k) Assume seven computing devices are connected and arranged in Mesh topology. How many cables are needed?
 - (l) Highlight main four differences between RISC and CISC computers.
 - (m) What are the different line coding schemes used for digital data transmission?
 - (n) Identify the five components of a data communication system.

Group - A
(Microprocessor)

2. (a) Draw the internal Architecture of Microprocessor 8085 and explain each section in brief.
- (b) Explain the De-Multiplexing of Address/Data bus of Microprocessor 8085 with a neat labeled diagram.
- (c) Write down the differences between Memory mapped I/O and I/O mapped I/O with respect to Microprocessor 8085. 6+5+5

Please Turn Over

3. (a) Draw the timing diagram for the Instruction of STA 8000, the Opcode of STA 8000 is 32_H and the code is written across E000H, E001H and E002H memory locations which is shown below :

E000H	3AH	STA 8000
E001H	00H	
E002H	80H	

- (b) State briefly on cycle stealing technique.
- (c) What is foldback memory? Explain with example. 5+6+5
4. (a) Write down the different addressing modes of Microprocessor 8085 with suitable example.
- (b) Explain the Stack and subroutine operation of Microprocessor 8085 with the help of neat diagram and suitable example.
- (c) What is the function of Program Counter? 8+5+3

Group - B
(Computer Organization-II)

5. (a) What is DMA? Explain it with suitable block diagram.
- (b) Explain Booth's Algorithm for multiplication with a suitable example.
- (c) Explain with example parallelism in micro-instructions. 6+6+4
6. (a) Explain bus arbitration with appropriate illustration.
- (b) Write short note on computer peripherals.
- (c) What are the different Secondary memory devices used in computing devices? Explain each in brief. 6+5+5
7. Draw a logic circuit of ALU capable of performing 4-bit 2's complement subtraction and addition. 8+8

Group - C
(Computer Networks)

8. (a) Explain the function of physical layer and data link layer.
- (b) What are the different modes of Transmission? Explain with suitable example.
- (c) What do you mean by logical and Physical Addressing? 7+5+4
9. (a) What is Frequency Division Multiplexing (FDM)? Explain with suitable example.
- (b) Write down some characteristics of Line coding.
- (c) Write a short note on TCP/IP protocol suit. 6+4+6

(3)

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- 10.** (a) What are the different characteristics of Network Layer?
- (b) What are the different types of guided medium used for data communication? Explain with suitable example.
- (c) Encode the following streams of bits using RZ line coding scheme.
0100011100001110
- (d) What is DNS? Why is it important? 4+4+4+4
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