

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous Institute U/s UGC Act 1956)

B.Tech. SEMESTER-III, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1CS304

DATE: 24-12-2025

**SUBJECT NAME: MICROPROCESSOR PERIPHERALS AND
INTERFACING**

TIME: 11:00 AM to 01:30 PM

TOTAL MARKS: 70

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Write answers of **Section A** and **Section B** in **separate answer books**.
3. Attempt all questions from both **Section A** and **Section B**.
4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
6. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

SECTION A

		Marks	BL	CO
Q.1	(a) Define the following terms: (I) Microprocessor (II) Accumulator (III) Instruction	03	R	1
	(b) Discuss the registers of 8085 Microprocessor.	04	U	1
Q.2	(a) Explain the concept of stack. Discuss PUSH and POP instructions.	03	U	4
	(b) Write an assembly language program to load the 16-bit number 2060H in the register pair HL using LXI and MVI opcodes. Store result at memory location 2070H.	04	A	4
	(c) Describe any four data transfer instructions in 8085 with appropriate examples.	07	U	4
OR				
Q.2	(a) Explain subroutine with an example.	03	U	4
	(b) Write an 8085 assembly language program to convert a two-digit BCD number into its equivalent hexadecimal number.	04	A	4
	(c) Explain counters and time delays with proper examples. Enlist different applications of counters and time delay.	07	U	4
Q.3	(a) What is the function of Read/Write logic in 8259A?	03	R	5
	(b) Explain control word in 8255A.	04	U	5

(c) Draw and explain the block diagram of 8255A. **07 U 5**

OR

- Q.3** (a) Enlist the Software and Hardware interrupts of 8085. **03 R 5**
(b) Explain the Bit Set/Reset (BSR) Mode in 8255A? **04 U 5**
(c) Draw and explain the block diagram of 8259A. **07 U 5**

SECTION B

- | | | Marks | BL | CO |
|------------|--|--------------|-----------|-----------|
| Q.4 | (a) Define the following term in context with a microprocessor 8085.
(1) T-state (2) Machine cycle (3) Instruction cycle | 03 | R | 2 |
| | (b) Explain in brief the architecture of a microprocessor 8085. | 04 | U | 2 |
| Q.5 | (a) Discuss in brief the various types of addressing modes of a microprocessor 8085. | 03 | U | 3 |
| | (b) Explain following instructions of a microprocessor 8085 with no. of bytes, machine cycles and T states required for execution: (1) SHLD (2) RAL. | 04 | N | 3 |
| | (c) Write an 8085 assembly language program to arrange the following numbers in ascending order: 29H, 47H, 06H, 03H, 17H. | 07 | A | 3 |

OR

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|------------|--|-----------|----------|----------|
| Q.5 | (a) Explain following instructions of a microprocessor 8085.
(1) STC (2) SBB (3) RET | 03 | U | 3 |
| | (b) Explain following instructions of a microprocessor 8085 with no. of bytes, machine cycles and T states required for execution: (1) CALL (2) CPI. | 04 | N | 3 |
| | (c) Write an 8085 assembly language program to arrange the following numbers in descending order: 29H, 47H, 06H, 03H, 17H. | 07 | A | 3 |
| Q.6 | (a) Explain the given pins of 8086.
(1) ALE (2) DEN (3) MN/MX | 03 | R | 6 |
| | (b) Analyze the architecture of the 80286 microprocessor with a neat block diagram. | 04 | N | 6 |
| | (c) Discuss the different types of bit manipulation instructions available with 8051. | 07 | U | 6 |

OR

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|------------|--|-----------|----------|----------|
| Q.6 | (a) Explain the function of the following pins in the 8051 microcontroller.
(1) INT0 (2) RXD (3) EA | 03 | R | 6 |
| | (b) Analyze the architecture of the 80386 microprocessor with a neat block diagram. | 04 | N | 6 |
| | (c) Explain with the block diagram of 8086 microprocessor. | 07 | U | 6 |
