

Printed Page:-

Subject Code:- BEC0402

Roll. No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - THEORY EXAMINATION (20.....- 20.....)

Subject: Microprocessor and Microcontroller

Time: 2 Hours

Max. Marks: 50

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C**. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A

15

1. Attempt all parts:-

- 1-a. Which of the following is the primary component of microprocessor architecture?(CO1,K2) 1
- (a) RAM
- (b) Arithmetic and Logic Unit (ALU)
- (c) Printer
- (d) Keyboard
- 1-b. SP stands for: (CO2,K5) 1
- (a) Stack Processor
- (b) Stack Pointer
- (c) Source Pointer
- (d) Segment Pointer
- 1-c. Which register is used for multiplication and division in 8051?(CO3,K3) 1
- (a) SP
- (b) PSW
- (c) A and B
- (d) DPTR
- 1-d. Which of the following is an ARM processor family? (CO4,K4) 1
- (a) Intel i7
- (b) ARM Cortex

- (c) AMD Ryzen
- (d) Pentium
- 1-e. The Thumb instruction set is mostly used in:(CO5,K4) 1
 - (a) High-end servers
 - (b) Embedded and low-power applications
 - (c) Supercomputers
 - (d) Gaming consoles

2. Attempt all parts:-

- 2.a. Define Bus.(CO1,K2) 2
- 2.b. What are segment registers in 8086? Name them.(CO2,K5) 2
- 2.c. What is the function of the Program Counter in the 8051?(CO3,K3) 2
- 2.d. What is Cortex A processor?(CO4,K4) 2
- 2.e. What is the Thumb instruction set in ARM architecture?(CO5,K4) 2

SECTION-B

15

3. Answer any three of the following:-

- 3-a. Explain Microprocessor architecture and its operations.(CO1,K2) 5
- 3-b. Explain the architecture of the 8086 microprocessor with a neat block diagram.(CO2,K5) 5
- 3.c. Draw the pin diagram of 8051 and explain in detail.(CO3,K3) 5
- 3.d. Differentiate between ARM Cortex A and M processor in detail. (CO4,K4) 5
- 3.e. Explain the purpose of PUSH and POP instructions in ARM. How do they affect the stack and which registers are typically involved?(CO5,K4) 5

SECTION-C

20

4. Answer any one of the following:-

- 4-a. Describe the evolution of microprocessors from the Intel 4004 to modern processors. Highlight key developments.(CO1,K2) 4
- 4-b. Differentiate between microprocessor and microcontroller.(CO1,K2) 4

5. Answer any one of the following:-

- 5-a. Draw the architecture of 8086 microprocessor.(CO2,K5) 4
- 5-b. Explain the function of the following flags in 8086: Carry Flag, Zero Flag, Sign Flag, Overflow Flag.(CO2,K5) 4

6. Answer any one of the following:-

- 6-a. What are the various pins in 8051 IC? Explain with help of diagram. (CO3,K3) 4
- 6-b. Explain the various flags of 8051 microcontroller.(CO3,K3) 4

7. Answer any one of the following:-

- 7-a. What are the different stages involved in pipelining process of Cortex M0 processor? Explain it. (CO4,K4) 4

- 7-b. Describe various memory space used in memory map of Cortex Mo processor.(CO4,K4) 4
8. Answer any one of the following:-
- 8-a. Explain the purpose of the MOV instruction in ARM.(CO5,K4) 4
- 8-b. Explain the key features of the Thumb instruction set. How is it different from the ARM instruction set?(CO5,K4) 4

REG:JAN_JUN-2025