



# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

UNIVERSITY OF BARISAL

## B.Sc. (Hons) Final Examination 2024

Course Title: Microprocessors and Microcontrollers

Course Code: CSE-3101

3<sup>rd</sup> year 1<sup>st</sup> Semester

Session: 2023-24 (Admission: 2021-22)

Time: 3 hours

Marks: 60

### Answer any five Questions from the followings.

1. a) Mention three 16-bit Intel microprocessors and compare them. [4]  
b) What is coprocessor? With appropriate examples, explain how this concept affected overall performance of microprocessors. [4]  
c) Why was DMA introduced? Explain its main functions and types. [4]
2. a) Explain main features of 8086 microprocessor. [4]  
b) What are the advantages of segmented memory? How is memory of an 8086-based microprocessor organized? [4]  
c) With an appropriate example, explain how logical address is converted to physical address. Mention the responsibilities of segment registers in 8086 microprocessors. [4]
3. a) Classify 8086 interrupts. Discuss how these interrupts support different processing in 8086. [5]  
b) Mention responsibilities of flag registers in 8086. [3]  
c) Explain maximum mode configuration of 8086 microprocessor with appropriate diagram. [4]
4. Draw the internal block diagram of 80286 microprocessor and explain different sections' configurations and responsibilities within the processor. [12]
5. a) Explain data transfer technique of 80386 microprocessor. [3]  
b) Comparing with the previous Intel processor series, mention improved important features of Intel Pentium processor? [3]  
c) Draw the diagram of the Intel Pentium processor. [6]
6. a) Explain the structure of an assembly language program. [6]  
b) Why different interrupt instructions are used in assembly language programs? Explain with examples. [2]  
c) Write an assembly language program to convert temperature. [4]
7. a) Explain step by step process to create and run an assembly language program. [3]  
b) Write assembly language code segments corresponding to for and while loop of C programming language. [2]  
c) Write an assembly language program to find the largest among 3 values. [3]  
d) Write an assembly language program to find the AM of n number of values inputted through keyboard. [4]
8. a) How would you choose a microcontroller for your system? [4]  
b) Draw and explain Arm architecture. [4]  
c) How Arm is programed and become ready to be installed into a system? [4]



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