PRELIMINARY COURSE ASSESSMENT
(CPE103-1 : MICROPROCESSORS)

GENERAL INSTRUCTIONS:
- Use the standard MCL test booklet only.
- Borrowing of exam materials like pens, calculator etc. while taking the exam is not permitted.
- Write your answers legibly and avoid erasures. Provide solutions for problem-based items if needed and make sure to enclose your answer in a box with the appropriate units.

I. Multiple Choice (20 pts.). Write the letter of your choice as your answer.

Learning Outcome Codes

1. The emergence of mobile and wireless applications belongs to the _____ generation.

    a. Third   b. Fourth   c. Fifth   d. Sixth

2. There are _____ bits in a word.

    a. 4   b. 8   c. 16   d. 32

3. Which of the following is not an input device?

    a. stylus   b. plotter   c. magnetic stripe card reader   d. touchpad

4. DDR3 (Double Data Rate Type 3) is a modern type of synchronous _____ memory.

    a. PROM   b. SRAM   c. DRAM   d. ROM

5. Secure digital is a/an _____ device.

    a. output   b. input   c. storage   d. Cpu

6. One Exabyte of storage capacity is equivalent to 10 raised to _____.

    a. 15   b. 18   c. 21   d. 24

7. LINUX is a/an _____ software.

    a. application   b. system   c. utility   d. operating system

8. The _____ interrupt temporarily suspends the execution of the main program in favor of a special routine that services the interrupt.

    a. timing   b. hardware   c. software   d. fetching

9. The .model _____ is a model definition where the data can exceed 64kbytes but not the code.

    a. compact   b. huge   c. large   d. medium

10. The memory can be found at the _____ of a modern chipset-based motherboard.

    a. South Bridge   b. West Bridge   c. North Bridge   d. East Bridge

11. Multitasking, memory management and protection is available in the _____ mode of operation.

    a. Real   b. DOS   c. Protected   d. Fast

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12. What general purpose register is being used as repetition counter for loop and repeated data movement?

    a. AX   b. BX   c. CX   d. DX

13. Intel Itanium has _____ bits data bus width.

    a. 64   b. 48   c. 32   d. 16

14. The software model has _____ segment registers.

    a. 1   b. 2   c. 3   d. 4

15. The storage concept being used by Intel CPU is called _____ because the lower byte is written first followed by the higher byte.

    a. Little endian   b. Big endian   c. Tiny endian   d. Small endian

16. The instruction MOV BX, LIST [DI] is a/an _____ addressing mode.

    a. Register   b. Register indirect   c. Indexed relative   d. Based indexed relative

17. The instruction MOV CS, BX is an invalid instruction due to _____.

    a. Segment move not allowed   b. Code segment cannot be used as destination   c. Mixed size   d. No physical address

18. The POP instruction falls under the category of _____ instruction.

    a. Data transfer   b. Arithmetic   c. Bit manipulation   d. String

19. The STOS instruction falls under the category of _____ instruction.

    a. Data transfer   b. Arithmetic   c. Bit manipulation   d. String

20. The function call 09H (AH=09H) which reads and displays a string under INT _____.

    a. 20H   b. 21H   c. 25H   d. 26H

II. Please write yours answers legibly (20 pts.)

1. Draw and explain the components of the basic computer system organization.

2. Give the equivalent instruction for the following:
    a) Save a copy of EDX on stack
    b) Pop stack into EAX
    c) Increment EBX
    d) Clear BX
    e) Add AX into BX and store to AX
    f) Initialize loop counter 100
    g) Compare DX with 5BH
    h) Subtract AX from BX
    i) Swap CX and DX
    j) Save 8H into AL

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III. Application (20 pts.)

1. Create a program that will display the string "Malayan Colleges Laguna "on the screen using function 09H of INT 21H.

2. Determine the type of addressing mode used and compute for the physical address.

a.	Register	e.	Based Relative
b.	Immediate	f.	Indexed Relative
c.	Direct	g.	Based Index Relative
d.	Register Indirect	h.	Invalid

Given: CS=1500H   DS=3500H   BP=0280H   SI=0500H   DI=00FFH   ES=9000H
          AX=1234H   DX=FACEH   BX=0690H   SP=0200H   SS=A000H   ARRAY=2000H

1. MOV AX,[BP+DI]
2. MOV [SI], [1000H]
3. MOV BX,AL
4. MOV CL,ARRAY[BX +BP]
5. MOV BX,[DI]
6. MOV CS,SS
7. MOV BX,3568H
8. MOV ARRAY[BX+SI],DX
9. MOV [BX+85H],CX
10. MOV BL,CX

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