STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.
(For candidates admitted during the academic year 2011-12)

SUBJECT CODE : 11PH/MC/MM54

B.Sc. DEGREE EXAMINATION NOVEMBER 2013
BRANCH III - PHYSICS
FIFTH SEMESTER

REG. No._____

COURSE : MAJOR – CORE
PAPER : MICROPROCESSORS AND MICROCONTROLLERS
TIME : 30 MINS. MAX. MARKS : 30

SECTION – A
TO BE ANSWERED IN THE QUESTION PAPER ITSELF

ANSWER ALL QUESTIONS: (30 x 1 = 30)

I. CHOOSE THE CORRECT ANSWER:

1. Intel 8085 is a _____
   a) 8 bit microprocessor b) 4 bit microprocessor
   c) 16 bit microprocessor d) 32 bit microprocessor

2. What is the addressing mode of the instruction PCHL?
   a) Implicit b) Immediate c) Register d) Register indirect

3. Maximum memory which can be connected with 8085
   a) 2kB b) 4kB c)32 kB d) 64 kB

4. Which of the following instructions may be used to save the content of accumulator onto the stack?
   a) PUSH PSW b) POP rp c) PUSH rp d) POP PSW

5. A single instruction to clear the lower four bits of the accumulator in 8085 is
   a) XRI 0FH b) ANI F0H c) XRI F0H d) ANI 0FH

6. Which of the following instructions may be used for clearing accumulator content?
   a) XRA A b) SUB A c) MVI A, 00H d) all of these

7. Number of address and data lines needed to interface memory of 2K x 8 is
   a) 10,8 b) 12, 16 c) 12,8 d) 11,8

8. Which of the following instructions will not be there in a memory-mapped I/O system?
   a) IN b) OUT c) both a & b d) none of these

9. Specify the bit of the control word for 8255, which differentiates between the I/O mode and the BSR mode?
   a) D_0 b) D_4 c) D_6 d) D_7

10. Which interrupt has highest priority?
    a) TRAP b) INTR c) RST 7.5 d) RST 6.5

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11. Vector address for RST2 is _____
    a) 0008H b) 0010H c) 0018H d) 0028H

12. Which of the following is not a vectored interrupt?
    a) INTR b) RST 3 c) RST 7.5 d) TRAP

13. Indicate which of the following registers are bit addressable in the 8051.
    a) A b) B c) PSW d) all of these

14. On power up, which of the register banks is used?
    a) Bank 0 b) Bank 1 c) Bank 2 d) Bank 3

15. The 8051 has _____ on chip timer(s).
    a) 3 b) 2 c) 1 d) none of these

II. FILL IN THE BLANKS:

16. _____ pin is used for demultiplexing of address and data bus.
17. The Rotate operations are performed in _____ register.
18. The size of the control word register of 8255 is _____ bits wide.
19. In the 8085 _____ interrupt is nonmaskable.
20. The byte addresses assigned to the SFR are _____ to _____.

III. STATE WHETHER TRUE OR FALSE:

21. The data bus of an 8085 microprocessor is bidirectional.
22. Program counter is used to store the instructions.
23. Port C in the 8255 is not bit addressable.
24. In the 8085, the software interrupt cannot be disabled.
25. The PSW is an 8 bit register in the 8051.

IV. ANSWER BRIEFLY:

26. Show the bit positions of various flags in 8085 flag register.

27. Find the content of the accumulator after execution of the following program?
    MVIA, 0EH
    RAL
    SUB A

28. Differentiate exhaustive and partial decoding.

29. Explain DI and EI.

30. List the features of an 8051 microcontroller.

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SECTION – B

ANSWER ANY FIVE QUESTIONS: (5 X 5 = 25)

1. Explain the different types of addressing modes available in 8085 with suitable examples.

2. Write an 8085 assembly language program, which takes the data from memory location 8100H, and divides this byte by 4, and stores the result at memory location 8150H & 8151H.

3. State the differences between memory mapped I/O and I/O mapped I/O.

4. Explain the RIM and SIM instructions with their formats.

5. How stacks are accessed in the 8051? Which register bank conflicts with the stack?

6. Bring out the differences between a) CALL and Return b) Conditional Jump and Unconditional jump in 8085 microprocessor.

7. Write an 8085 assembly language program to perform 16 –bit addition on the following data 1020H and 2030H. Store the result in H and L register.

SECTION – C

ANSWER ANY THREE QUESTIONS: (3 X 15 = 45)

8. With the help of a functional block diagram, explain the internal architecture of 8085 microprocessor.

9. Write an 8085 assembly language program with proper comments to arrange N numbers in ascending order.

10. Explain with a block diagram the programmable peripheral interface 8255 and also Illustrate the different modes of operation.

11. With necessary circuit diagram, explain the 8085 interrupts system in detail.

12. Discuss the internal and external memory organization of 8051.

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