

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

SUBJECT CODE : 11PH/MC/MM54

B.Sc. DEGREE EXAMINATION NOVEMBER 2016
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:

- How many buses are connected as part of the 8085A microprocessor?
a) 2 b) 3 c) 5 d) 8
- When referring to instruction words, a mnemonic is
a) a short abbreviation for the operand address
b) a short abbreviation for the operation to be performed
c) a short abbreviation for the data word stored at the operand address
d) shorthand for machine language
- The task jump to 16bit if zero flag is reset is given by the branch instruction
a) JNZ – 16 bit b) JN 16 bit c) JM 16 bit d) JNC 16 bit
- MVI r,data 8 is _____ byte instruction.
a) 1 b) 2 c) 3 d) 8
- For the 8085 assembly language program given below, the content of the accumulator after the execution of the program is
3000 MVI A, 45H
3002 MOV B, A
3003 STC
3004 CMC
3005 RAR
3006 XRA B
a) 00H b) 45H c) 67H d) E7H
- The program that translate the mnemonics into their machine code is
a) PC b) STACK c) Assembler d) None
- The number of memory cycles required to execute the following 8085 instructions
(i) LDA 3000H
(ii) LXI D, FOF1H would be
a) 2 for (i) and 2 for (ii) b) 4 for (i) and 2 for (ii)
c) 3 for (i) and 3 for (ii) d) 3 for (i) and 4 for (ii)

8. The _____ inputs are used by the chip 8255A to decide the port to or from which data is to be transferred.
 a) S_1 and S_0 b) A_0 and A_1 c) CS d) DS_1 and DS_2
9. The 8255 Programmable Peripheral Interface is used as described below.
 (i) An A/D converter is interfaced to a microprocessor through an 8255. The conversion is initiated by a signal from the 8255 on Port C. A signal on Port C causes data to be stored into Port A.
 (ii) Two computers exchange data using a pair of 8255s. Port A works as a bidirectional data port supported by appropriate handshaking signals. The appropriate modes of operation of the 8255 for (i) and (ii) would be
 a) Mode 0 for (i) and Mode 1 for (ii) b) Mode 1 for (i) and Mode 2 for (ii)
 c) Mode 2 for (i) and Mode 0 for (ii) d) Mode 2 for (i) and Mode 1 for (ii)
10. The number of software interrupts in 8085 is ____
 a) 5 b) 8 c) 9 d) 10
11. Address line for RST 3 is
 a) 0020H b) 0028H c) 0018H d) 0038H
12. Which of the following hardware interrupts enjoy the highest priority?
 a) RST 4.5 b) RST 5.5 c) RST 6.5 d) RST 7.5
13. In 8051, After reset the SP register is initialized to address _____.
 a) 8H b) 9H c) 7H d) 6H
14. In 8051 _____ pins are used for I/O
 a) 32 b) 42 c) 12 d) 16
15. When the 8051 is reset and the line is LOW, the program counter points to the first program instruction in the:
 a).internal code memory b) external code memory
 c).internal data memory d).external data memory

II. FILL IN THE BLANKS:

16. The microprocessor 8085 has _____ basic instructions and _____ opcodes.
17. The 16 Bit accumulator in 8085 is _____.
18. No. of NAND gates in an 4-1 MUX will be _____.
19. _____ is a non maskable interrupt.
20. In 8051 _____ interrupt has highest priority.

III. STATE WHETHER TRUE OR FALSE:

- 21. A microprocessor with the necessary support circuits will include at least two memory ICs: ROM or EPROM, and a RAM.
- 22. DAA instruction is Decimal adjust the address.
- 23. I/O-mapped systems identify their input and output devices by giving them an 8-bit port number.
- 24. When an 8085 system is Reset, all interrupts including the TRAP are disabled.
- 25. 8051 is a 40 pin device

IV. ANSWER BRIEFLY:

- 26. What is a mnemonic?

- 27. What is the operating frequency of 8085?

- 28. In how many modes can 8255 operate?

- 29. Mention the interrupt pins of 8085.

- 30. Any two applications of microcontrollers?

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TIME : 2½ HOURS **MAX. MARKS : 70**

SECTION – B

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

1. What are flags? What are the different flags in μP 8085?
2. Write down the program to add two sixteen bit numbers. Draw the corresponding flowchart also.
3. Distinguish between the three modes of 8255.
4. Draw the SIM instruction format and discuss.
5. What are embedded systems? Explain.
6. Draw the lower and higher order address bus during the machine cycles.
7. Draw the TRAP interrupt circuit diagram and explain the same.

SECTION – C

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

8. Explain with a neat diagram the internal architecture of μP 8085.
9. Ten number 8-bit data are stored starting from memory location 2100 H. Transfer this entire block of data to memory location starting from 3100 H.
10. Mention the facilities available when power fails in a mC based system.
11. Draw the interrupt circuit diagram for 8085 and explain.
12. What is a microcontroller? How is a microcontroller different from a microprocessor?
Enumerate few applications of a microcontroller.

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