

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.**  
**(For candidates admitted during the academic year 2015-2016 & thereafter)**

**SUBJECT CODE :15PH/MC/MM54**

**B.Sc. DEGREE EXAMINATION NOVEMBER 2018**  
**BRANCH III - PHYSICS**  
**FIFTH SEMESTER**

**COURSE : MAJOR – CORE**  
**PAPER : MICROPROCESSORS AND MICROCONTROLLERS**  
**TIME : 3 HOURS** **MAX. MARKS :100**

**SECTION – A**

**ANSWER ALL QUESTIONS: (30 x 1 = 30)**

**I. CHOOSE THE CORRECT ANSWER:**

1. The 8085 microprocessor comprises of,  
(a) Register section (b) One or more ALU  
(c) Control unit (d) All of these
2. The following is not the part of programming model in 8085.  
(a) Instruction register (b) Memory address register  
(c) Status register (d) Temporary data register
3. SIM stands for,  
(a) Select Interrupt Mask (b) Set Interrupt Mask  
(c) Sort Interrupt Mask (d) Single Interrupt Mask
4. The stack used in 8085 is,  
(a) LIFO (b) LIFE (c) FILO (d) FIFO
5. Portions of I/O address space given to I/O devices, is called  
(a) Data mapping (b) Memory mapping  
(c) backplane (d) Both (a) and (b)
6. The input and output operations are respectively similar to  
(a) Read, Read (b) Write, Write (c) Read, Write (d) Write, Read
7. The 8051 is a \_\_\_\_\_ pin package and a \_\_\_\_\_ processor.  
(a) 30, 1byte (b) 20, 1 byte (c) 40, 8 byte (d) 40, 8 bit
8. The highest priority interrupt in 8051 is,  
(a) IE0 (b) TF0 (c) IE1 (d) TF1
9. DAC (Digital to Analog Converter) finds application in,  
(a) Digital controlled gains (b) Motor speed controls  
(c) Program gain amplifiers (d) All the above
10. A simple scheme for rotating the shaft of stepper motor is called  
(a) Rotating scheme (b) Shaft scheme  
(c) Wave scheme (d) None

11. The strobed input/output mode is another name of.  
 (a) mode 0                      (b) mode 1                      (c) mode 2                      (d) none,
12. In the I/O mode, the 8255 ports work as,  
 (a) reset pins                      (b) set pins  
 (c) programmable I/O ports                      (d) only output ports
13. The signal, SLCT in the direction of signal flow, OUT, indicates the selection of  
 (a) Control word register                      (b) CPU                      (c) Printer                      (d) Ports
14. In 8085, this pin is said to exhibit INT0 interrupt,  
 (a) pin no 10                      (b) pin no 11                      (c) pin no 12                      (d) pin no 13A
15. In 8085 this bit of the IE register is used to enable TxD/RxD interrupt,  
 (a) IE.D5                      (b) IE.D2                      (c) IE.D3                      (d) IE.D4

**Fill in the Blanks:**

16. Microprocessor 8085 is a \_\_\_\_\_ bit processor.
17. 8085 has \_\_\_\_\_ numbers of flags.
18. Accumulator is a \_\_\_\_\_ bit register.
19. The number of general purpose registers in 8085 is \_\_\_\_\_.
20. 8085 has \_\_\_\_\_ number of input pins.

**State whether TRUE or False:**

21. The stack pointer and program counter are 8 bit registers.
22. When 8051 starts, then 0x00 is loaded to register PC.
23. For HLT instruction the microprocessor buses are in tri-state.
24. LIFO (Last In First Out) stack is used in 8085.
25. The pin that clears the control word register of 8255 when enabled is CLEAR.

**Answer Briefly:**

26. What is a flag?
27. Mention the special registers available in 8051.
28. Give the symbolic representation of RAL instruction.
29. What is an interrupt?
30. Distinguish between address bus and data bus.

**SECTION - B****II. Answer any five questions :****(5x5=25)**

31. Discuss the various flags available in 8085.
32. Explain the various interrupt systems available in 8085.
33. Explain the different logical operations performed in 8085.
34. Discuss different data transfer operations.
35. Brief on the types of interfacing devices.
36. Compare a microcontroller and a microprocessor.
37. Discuss the addressing modes of 8051.

**SECTION – C**

**III. Answer any three questions:**

**(3x15=45)**

38. Give the internal architecture of 8085 with a neat diagram.
39. Elaborate on (i) general purpose registers and (ii) program counters with their purposes.
40. Discuss various addressing modes available in 8085.
41. Write assembly language program for bubble sort.
42. Write an assembly language program to generate square wave using on-chip timer.

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