



K18P 1393

Reg. No. : .....

Name : .....

**First Semester M.C.A. Degree (Reg./Supple./Imp.)  
Examination, December 2018  
(2014 Admn. Onwards)  
MCA 1C02 : DIGITAL SYSTEMS AND INTRODUCTION TO  
MICROPROCESSORS**

Time : 3 Hours

Max. Marks : 80

SECTION - A

Answer any ten questions. Each question carries three marks.

(10×3=30)

1. What is product of sum ?
2. What are the uses of gates ?
3. Discuss the points related to the de-multiplexer.
4. What is PLA ? Give example.
5. Mention the functions of binary adders.
6. Explain the importance PISO.
7. What is up down counter ?
8. Discuss the uses of flip flop.
9. What is section counter technique is ADC and how is it useful ?
10. What are the merits of RTL ?
11. Explain the complete functioning of the following instructions in 8085 processor.
  - i) ADD B
  - ii) RST 1
12. Comparison between subroutine and Interrupts in a system.

P.T.O.



## SECTION – B

Answer **all** questions. **Each** question carries **ten** marks.

13. a) i) State De Morgan's theorem and illustrate it with examples. 5  
 ii) Convert the following expression in Sum of Min terms and Product of Max terms :  $F(A, B, C, D) = B'D + A'D + BD$ . 5  
 OR
- b) State and explain Boolean algebra briefly. 10
14. a) i) With the help of a neat diagram explain the design of a BCD adder circuit. 5  
 ii) Simplify the following function using K-Map and draw the final circuit.  
 $F = A'B'CE' + A'B'C'D' + B'D'E' + B'CD' + CDE' + BDE'$  5  
 OR
- b) Write a note on ROM and PLA. 10
15. a) Design a counter with the following repeated binary sequence 0, 1, 3, 7, 6, 4 using T flip flops. Treat the unused states as don't care condition. Analyze the final circuit for self-correction. 10  
 OR
- b) What are the design procedures for shift register ? Explain. 10
16. a) i) With the help of a circuit diagram explain the function of a TTL inverter totem-pole circuit and compare this with CMOS circuit. 5  
 ii) With the help of a block diagram explain the principle of successive approximation technique of ADC. 5  
 OR
- b) Write a note on DAC, RTL and ECL. 10
17. a) With the help of a neat internal block diagram explain the architecture of 8085 Microprocessor. 10  
 OR
- b) What are the uses of addressing modes and subroutines ? 10