

(6 pages)

Reg. No. :

Code No. : 41305 E Sub. Code : JACA 11/
SACA 11

B.C.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2018.

First Semester

Computer Application — Allied

DIGITAL DESIGN

(For those who joined in July 2016 and afterwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Output of AND gates in SOP is Connected to
(a) NOT gates (b) OR gates
(c) AND gates (d) XOR gates
2. If 1's represents minterms then 0's represents
(a) maxterms (b) minterms
(c) midterms (d) medians

3. Enable input of shift register is called a
(a) load (b) store
(c) reset (d) strobe
4. Control of shift register labeled as SH/LD = 0 will
(a) shift (b) store
(c) load (d) add
5. In a map values are picked having
(a) 1's (b) 0's
(c) 2's (d) 9's
6. A circuit that converts n inputs to 2^n outputs is called
(a) encoder (b) decoder
(c) comparator (d) carry look ahead
7. Exclusive-OR is an
(a) prime function (b) undefined function
(c) even function (d) odd function
8. Decimal number system represent decimal number in form of
(a) hexadecimal (b) binary coded
(c) octal (d) decimal

Page 2 Code No. : 41305 E



9. BCD counter is also known as

- (a) parallel counter
- (b) decade counter
- (c) synchronous counter
- (d) VLSI counter

10. $X + y = z$ represents operation that is

- (a) AND (b) OR
- (c) NOT (d) XOR

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Distinguish between diminished Radix complement and Radix complement.

Or

(b) Subtract with 10's complement

- (i) 98342-1271
- (ii) 3412-10525 and describe the steps involved in detail.

Page 3 Code No. : 41305 E

12. (a) Explain the evolution of integrated circuits in three stages.

Or

(b) Simplify the boolean functions

(i) $F(x, y, z) = \sum (2, 3, 4, 5)$

(ii) $F(x, y, z) = \sum (3, 4, 6, 7)$.

13. (a) Define wired logic with AND-OR-INVERT and OR-AND-INVERT.

Or

(b) Show how Exclusive-OR is implemented in odd functions uses of Exclusive OR in error detection and correction codes.

14. (a) Describe the implementation of boolean function with a multiplexer.

Or

(b) Explain the construction and working of multiplexers with three state gates.

15. (a) Describe the characteristics of universal shift register.

Or

(b) Define binary ripple counter with block diagram.

Page 4 Code No. : 41305 E

[P.T.O.]



PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Elaborate the basic theorems and properties of boolean algebra.

Or

- (b) What are the boolean functions and explain the two types of boolean function and their properties?

17. (a) Describe the following:-

- (i) Map-method
- (ii) Two variables Map
- (iii) Three variable Map
- (iv) $F = A'C + A'B + AB'C + BC$ express it in sum of minterms.

Or

- (b) Simplify the boolean function

- (i) $F(w,x,y,z) = \sum(0,1,2,4,5,6,8,9,12,13,14)$
- (ii) $F = A'B'C' + B'CD' + A'BCD' + AB'C'$

18. (a) Explain implementing Exclusive -OR in odd functions and parity generation and error checking.

Or

- (b) Explain in detail the methods to perform arithmetic operations in binary-adder-subtractor.

19. (a) Define the circuit that takes one or many input lines and directs to a single output line.

Or

- (b) Explain the latches as a storage element and its types.

20. (a) Describe the four different synchronous counters in flipflops.

Or

- (b) Define Random access memory its write and read operations and types of memories.

