

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Explain the conversion of (i) octal number into binary number and (ii) Binary number into octal number.

Or

- (b) Explain binary subtraction by 2's complement method with an example.
17. (a) Explain the postulate and theorems of Boolean algebra.

Or

- (b) Explain the universality of NAND gate.
18. (a) Explain the working of Full adder.

Or

- (b) Explain the working of monostable multivibrator.
19. (a) Explain encoder and decoder with neat diagram.

Or

- (b) Using Karnaugh map simplify $Y = F(A, B, C, D) = \sum m(1, 2, 7, 9, 10, 11, 12, 13, 14, 15)$.
20. (a) Explain the working Synchronous counter.

Or

- (b) Explain the working of Mod — 10 counter.

Reg. No. :

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B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2019.

Sixth Semester

Physics — Main

DIGITAL ELECTRONICS

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The binary equivalent for the decimal number 9 is _____.
- (a) 1111 (b) 1001
(c) 1000 (d) none
2. The one's complement of 10010 is _____.
- (a) 01101 (b) 011100
(c) 11111 (d) none
3. According to De Morgan's second theorem, $\overline{A \cdot B} =$
- (a) $\overline{A} + \overline{B}$ (b) $\overline{A} + \overline{B}$
(c) $\overline{A} \cdot \overline{B}$ (d) none



4. The AND gate is equivalent to _____ of inputs.
 (a) Product (b) Sum
 (c) Subtraction (d) none
5. In a full adder the condition for sum is _____.
 (a) $S = Cin \oplus (A \oplus B)$
 (b) $S = Cin \oplus (A + B)$
 (c) $S = Cin - (A \oplus B)$
 (d) none
6. A flip flop is a bistable electronic device that has _____ stable states.
 (a) three (b) one
 (c) two (d) none
7. For a n-variable problem there can be _____ minterms.
 (a) $2n$ (b) $2/n$
 (c) 2^n (d) none
8. The encoder converts a _____ number into _____ number.
 (a) binary, decimal (b) decimal, binary
 (c) binary, binary (d) none
9. A ripple counter is an _____ counter.
 (a) Asynchronous (b) Synchronous
 (c) Ring (d) none
10. The D/A converter, converts _____ into _____.
 (a) analog, digital (b) digital, analog
 (c) decimal, binary (d) none

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PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Convert the hexadecimal numbers 2F59 and AB10 into binary numbers.
 Or
 (b) Explain the usage of Gray-code with an example.
12. (a) State and prove De Morgan's theorems.
 Or
 (b) Draw the symbols and truth tables for NOT, AND, OR gates.
13. (a) Explain the working of half adder.
 Or
 (b) Explain the working of frequency divider.
14. (a) Explain three variable karnaugh map.
 Or
 (b) Explain working of Demultiplexer.
15. (a) What are the types of registers?
 Or
 (b) Explain the working of binary counter.

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