



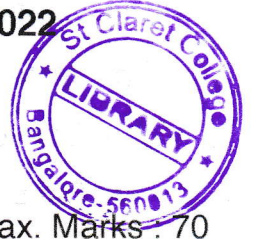
QP – 413

18  
I Semester B.C.A. Degree Examination, March/April 2022

(Y2K14) (CBCS) (R)

COMPUTER SCIENCE

BCA-104T : Digital Electronics



Time : 3 Hours

Max. Marks : 70

- Instructions :** 1) Answer **all** Sections.  
2) Section – **A** : Answer **any 10** questions.  
3) Section – **B** : Answer **any 5** questions.

SECTION – A

I. Answer **any ten** questions :

(10×2=20)

- 1) What is node and junction ?
- 2) What is electric current ? Mention the unit of current.
- 3) What is energy band ? Mention the types of band.
- 4) Define the terms waveform and time period.
- 5) Convert  $763.375_{(8)}$  to decimal.
- 6) Find 2's complement of binary number 10110010.
- 7) Mention the rules of logical addition.
- 8) Write OR gate logic symbol and its truth table.
- 9) Define combinational circuit with example.
- 10) What is half adder ? Write its logical expressions.
- 11) What is flip-flop ? Mention types of flip-flop.
- 12) What is shift register ? Mention types of shift registers.

SECTION – B

II. Answer **any five** questions :

(5×10=50)

- 13) a) Explain series-parallel circuit. 5
- b) Explain Thevenin's theorem in detail. 5
- 14) a) Differentiate intrinsic and extrinsic semiconductors. 5
- b) Explain p-n junction with a neat diagram. 5

P.T.O.



- 15) a) Briefly explain the working of full wave bridge rectifier. 5  
b) Write a note on TTL and CMOS. 5
- 16) a) Convert  $4632.51_{(8)} = ( )_2$  and  $F6.E2_{(16)} = \text{---}_{(10)}$ . 4  
b) Simplify the given minterm expression using k-map  
 $F = \sum m (1, 5, 7, 8, 9, 13) + \sum d (3, 12)$ . 6
- 17) a) State and prove Demorgan's theorem. 6  
b) Subtract  $25_{(10)} - 16_{(10)}$  using 2's complement. 4
- 18) a) What is universal gates ? Explain NOR as universal gate. 5  
b) Write a note on multiplexer and half subtractor. 5
- 19) a) With a neat circuit diagram explain the working of full adder. 5  
b) Explain the working of clocked RS flip-flop with truth table. 5
- 20) a) Explain SISO and PIPO shift register. 7  
b) Write a note on 2-to-4 decoder. 3