Code No. : C-193

Annual Examination - 2019

BCA Part - I

(BCA-101)

THEORETICAL FOUNDATION

OF COMPUTER SCIENCE

Paper – III

INTRODUCTORY ELECTRONICS

Max.Marks : 50

Time : 3 Hrs. 　　　　　　　　　　　　　　　Min.Marks : 20

Note : Section 'A', containing 10 very short-answer-type questions, is compulsory. Section 'B' consists of short answer type questions and Section 'C' consists of long answer type questions. Section 'A' has to be solved first.

Section - 'A'

Answer the following very short-answer-type questions in one or two sentences : 　　　　　　　　　　$(1 \times 10=10)$

Q.1　Define "Semiconductor".

Q.2　What is P-type semiconductor?

Q.3　Draw symbol for AND and Not gate.

Q.4　Define Potential Barrier in a diode.

Q.5　What is Gray Code?

Q.6　Find $(10.22)_{10} = (?)_2$

P.T.O.

Q.7 Draw symbol for NPN and PNP transistors.

Q.8 Convert $(999)_8$ into hexadecimal number.

Q.9 Define Overflow.

Q.10 What are types of ROM?

Section - 'B'

Answer the following short-answer-type questions with word limit 150-200 :   **(3 5=15)**

Q.1 Explain the forword and reverse biasing of a PN junction diode.

OR

Explain TIL in detail.

Q.2 Define IC. What are active and passive components in any IC?

OR

Explain scale of integration in IC's in detail.

Q.3 What are ASCII codes? Why are they frequently used?

OR

Explain 1's and 2's complements with example.

Q.4 What are universal gates? Why they are called so? Explain with example.

OR

Write down basic laws of Boolean Algebra.

Q.5 Explain Binary Half Adder with suitable diagrams.

OR

What are comparators? Explain any one with example.

Section - 'C'

Answer the following long-answer-type questions with word limit 300-350 :   **(5 5=25)**

Q.1 How a transistor can be used as a switch? Explain with diagram.

OR

What are main logic families? Also write their characteristics.

Q.2 Describe the Advantages and limitations of ICs in detail.

OR

Classify the ICs on the basis of (a) Structure (b) function describe each in brief.

Q.3 (i) Subtract $(1010)_2$ form $(1101)_2$

  (ii) Multiply $(1101)_2$ by $(1100)_2$

  (iii) Perform $(11001)_2$ $(101)_2$

  (iv) $(1111000)_2 = (?)_8$

OR

Explain any one error detection code with example.

Q.4 Explain K-map with the help of examples.

OR

Describe the De-Morgan's Theorem. How it is useful? Give example.

Q.5 Compare the combinational and sequential logic circuits in detail.

OR

Compare Encoder and Decoder.

---x---