

PC-371-CV-19
(523) M.Sc. Physics (Third Semester)

Examination, Dec-2020
Compulsory/Optional
Paper-IV

Name/Title of Paper- Electronics-III
Time : Three Hours]

[Maximum Marks : 80
[Minimum Pass Marks : 29

नोट : दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

Section-A

- 1- Answer the following question: 1X10
- (a) Is zero false or true in Boolean algebra?
 - (b) The SOP form is a method of simplifying the Boolean expressions of-----.
 - (c) What is the Excess 3 code for the binary equivalent 8?
 - (d) The half subtractor is a combinational circuit which is uses to perform subtraction of two-----.
 - (e) RTL is a class of digital circuit built using resistors as the input network. (True or False)
 - (f) Give the symbol of Ex-NOR gate.
 - (g) What is the demultiplexer?
 - (h) The decade counter has----- flip-flops and sixteen potential states.
 - (i) Define shift register.
 - (j) Analog to digital conversion is the process of what?
- 2- Answer the following questions: 2X5
- (a) What is gray to binary code conversion?
 - (b) How many universal gates are there in digital logic design?
 - (c) What is a 2 to 4 line decoder?
 - (d) Why NAND gate is used in flip-flop?
 - (e) What are the applications of DAC?

Section-B

Answer all the question:

Unit-I

- 3- (a) Define positive and negative logic. 8
(b) Why NAND and NOR are said to be universal gate? 7
- OR
- (a) What is called universal building block? Explain. 8
(b) Why BCD code is called 8421 Code? 7

Unit-II

- 4- (a) Explain half adder and full adder. 8
(b) What is the difference between binary parallel adder and serial adder 7
- OR
- (a) Discuss the basic concepts of ECL and CMOS logic. 8
(b) What are the major advantages of ECL logic and why ECL logic is faster than TTL. 7

Unit-III

- 5- (a) Discuss the working of RS flip-flop using NAND gate. 8
(b) How to you change up counter to down counter? 7
- OR
- (a) What is the difference between PIPO and SIPO shift registers? 8
(b) Which shift register is faster and why? 7

Unit-IV

- 6- (a) How does a dual slope A/D converter work? 8
(b) Explain the main draw backs of a dual slope converters. 7
- OR
- (c) What is an integrated circuit? How is a monolithic IC Fabricated? 8