Code No. 3030/CORE

FACULTY OF SCIENCE

M. Sc. II – Semester Examination, May / June 2018

Subject : Physics & Applied Electronics

Paper – IV : Electronics

Time : 3 Hours **Max. Marks: 80**

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8 x 4 = 32 Marks)
(Short Answer Type)

1 Define line regulation, load regulation, temperature coefficient and ripple rejection of a stabilized power supply.

2 Explain the concept of feedback and obtain the expression for feedback gain in the case of positive and negative feedback.

3 Explain the operational amplifier as a differentiator.

4 Draw the circuit diagram counter method A/D converter and describe its operation.

5 Explain the writing of Boolean equation for a truth table using product of sums method.

6 What is a Multiplexer? Explain the working of 4-to-1 multiplexer with suitable circuit diagram.

7 Mention the various status flags provided in 8085? Discuss their role.

8 Write an assembly language program for a 8-bit subtraction.

PART – B (4 x 12 = 48 Marks)
(Essay Answer Type)

9 (a) Explain the working of Collpitts oscillator with a neat diagram and obtain the expression for frequency and condition for sustained oscillations.

OR

(b) What are relaxation oscillators? Explain the construction and working of an astable multivibrator with suitable waveforms and obtain the expression for the time period.

10 (a) Discuss the frequency response of a non-inverting amplifier with a neat diagram and deduce the expression for feedback gain, input impedance and output resistance.

OR

(b) Describe the functioning of a Successive approximation A/D converter and mention its advantages.

11 (a) Draw the NAND and NOR RS-Latches and verify their truth tables. How bubbled-latch can be converted into a clocked D-latch? Explain.

OR

(b) Distinguish asynchronous and synchronous counters. What do you mean by modulus-N-counters? Construct a Mod-10-counter using four JK flip-Flops and explain its operation.

12 (a) Draw the block diagram of inter 8085 and explain its architecture in detail.

OR

(b) What are the addressing modes used in 8085 microprocessor? Explain each one of them with two examples.

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