DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE –APRIL -2022.

ANALOG CIRCUITS

(Maximum Marks : 100)   [Time : 3 hours]

PART–A
(Max. Marks:10)   Marks

I. Answer **all** the questions in one or two sentences. Each question carries 2 marks.

1. Define Bandwidth of an amplifier.

2. State Barkhausen criterion for oscillation.

3. Define the term Clamping.

4. What is slew rate of an Opamp?

5. List any two advantages of Crystal oscillators.

(5x2=10)

PART - B
(Max. Marks: 30)

II   Answer **any five** of the following questions . Each question carries 6 marks.

1. Compare the performance characteristics of RC coupled and direct coupled
    amplifier.

2. Explain the basic principle of RC Oscillators.

3. State the conditions for proper integration and differentiation.

4. Draw the circuit of positive shunt clipper clipping at 0V and explain its operation.

5. Derive the expression for the gain of negative feedback amplifier.

6. List the ideal characteristics of Operational amplifier.

7. Explain Current to Voltage converter using Opamp.

(5x6 =30)

PART - C
(Max. Marks: 60)

(Answer **one full** question from each unit. Each question carries 15 marks)

UNIT I

III a) Draw the circuit diagram of CE amplifier and explain the functions of each

component. (9)

b) List the characteristics and applications of Emitter follower. (6)

OR

IV a) Draw the circuit diagram of Transformer coupled amplifier and explain its working. (9)

b) Explain the frequency response curve of RC coupled amplifiers. (6)

UNIT- II

V a) Draw the circuit diagram of Hartley oscillator and explain its operation. (9)

b) List the features of 555 Timer IC. (6)

OR

VI a) Draw the circuit of Astable multivibrator using transistor and explain its working. (9)

b) Explain the basic principle of LC oscillators. (6)

UNIT- III

VII a) Explain RC differentiator circuit and draw its response to a square wave input. (9)

b) Define rise time, fall time and tilt with respect to a pulse wave form. (6)

OR

VIII a) Explain RC Integrator circuit and draw its response to a square wave input. (9)

b) Draw the circuit of a negative clamper clamping at 0V and explain its operation. (6)

UNIT – IV

IX a) Draw and explain the internal block diagram of an Opamp. (8)

b) Draw the circuit diagram of an inverting amplifier using Opamp and derive its gain. (7)

OR

X a) Describe the working of Schmitt trigger using Opamp with a neat circuit diagram. (9)

b) List the features of Instrumentation amplifiers. (6)

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