DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2025

ELECTRONIC CIRCUITS

[Maximum Marks: **75**]   [Time: **3** Hours]

PART-A

I. Answer *'all'* the following questions in one word or one sentence. Each question carries *'one'* mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	Define quiescent point.	M1.01	R
2.	What do you mean by amplification of a signal?	M1.02	R
3.	A tuned amplifier is used in .... application.	M2.01	R
4.	The Q point is fixed in the............region in a class A power amplifier.	M2.04	R
5.	Define feedback in amplifiers.	M3.01	R
6.	A crystal oscillator generates oscillations of constant frequency based on .... effect.	M3.04	R
7.	Name the oscillator circuit that can be used for audio frequency applications.	M3.05	R
8.	Define duty cycle.	M4.01	R
9.	Write the equation for η of an UJT.	M4.05	R

PART-B

II. Answer any *'eight'* questions from the following. Each question carries *'three'* marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	Define biasing in transistor and write the need for biasing.	M1.05	R
2.	A certain amplifier has voltage gain of 20 db. If the input signal voltage is IV, what is the output voltage?	M1.04	A
3.	Draw the impedance curve of a parallel resonant circuit and give the equation for resonant frequency.	M2.01	R
4.	Define cross over distortion.	M2.04	R
5.	Differentiate between tuned amplifier and a simple voltage amplifier.	M2.04	U
6.	What is the effect of negative feedback on gain in an amplifier?	M3.01	U
7.	Draw the circuit diagram of a Colpitts oscillator.	M3.04	R
8.	List the applications of astable multivibrator.	M4.02	R
9.	An astable multivibrator for 50% duty cycle is to be designed using timing components of C=100nF and R=33K. Find out its frequency of oscillation.	M4.02	A
10.	Define LTP and UTP of a Schmitt trigger circuit.	M4.05	R

PART-C

Answer *'all'* questions from the following. Each question carries *'seven'* marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	Draw the circuit of a single stage CE amplifier. Draw its gain Vs frequency characteristics and indicate the cut off frequency and band width.	M1.02	U
	OR		
IV.	With the help of suitable circuit explain the effect of coupling capacitors on the frequency response of RC coupled amplifier.	M1.05	U
V.	Draw the circuit of a single tuned amplifier and explain its frequency response.	M2.01	U
	OR		
VI.	Explain the working of a single ended power amplifier with circuit diagram.	M2.03	R
VII.	Distinguish between Class A, Class B, Class C operations of amplifiers.	M2.04	U
	OR		
VIII.	Explain different negative feedback amplifier topologies with block diagram.	M3.01	R
IX.	Design an RC phase shift oscillator for a frequency of 2Khz.	M3.02	A
	OR		
X.	Draw the circuit diagram and waveform of Wien bridge oscillator and explain its working.	M3.04	R
XI.	Explain the working of a crystal oscillator with neat diagram. Also mention its application.	M3.04	U
	OR		
XII.	With neat input and output waveforms explain the working of a transistor as switch.	M4.01	R
XIII.	Draw the circuit diagram of an astable multivibrator with both collector and base waveforms.	M4.01	U
	OR		
XIV.	Design a UJT relaxation oscillator for a frequency 1 K Hz.	M4.05	A

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