International Islamic University Chittagong (IIUC)

Department of Electronic and Telecommunication Engineering

Midterm Exam

Program: B.Sc (Engg.) | **Semester: Autumn2024**
Course Code: ETE-2341 | **Course Title: Analog Electronics**
Total Marks: 30 | **Time: 1.5Hours**

[(i) Answer all the questions. The figures in the right-hand margin indicate full marks.]

[(ii) Course Learning Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.]

Course Outcomes (COs) of the Questions	
CLO1	Acquire profound knowledge of operational amplifier, oscillator, multi-vibrator and power amplifier related theory and application.
CLO2	Construct and test different types of operational amplifier circuits and measure their gain and frequency response in a group.
CLO3	Design basic electronics project based on amplifier
CLO4	Apply the necessary learning skills in Electronics industries

Bloom's Levels of the Questions						
Letter Symbols	**R**	**U**	**Ap**	**An**	**E**	**C**
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

Q1.	(a)	What is feedback circuit?explain the types of feedback circuit.	03	CLO1	U
	(b)	Explain the operation of Emitter circuit follower.	04	CLO1	An
	(c)	With a negative voltage feedback, an amplifier gives an output of 10 V with an input of 0.5 V. When feedback is removed, it requires 0.25 V input for the same output. Calculate (i) gain without feedback (ii) feedback fraction mv.	03	CLO1	E
Q2.	(a)	Discuss how get the undamped oscillation from a tank circuit .	03	CLO1	An
	(b)	Write the operation of Tuned Collector circuit	04	CLO1	R
	(c)	In the phase shift oscillator shown in Fig. 14.17, R1 = R2 = R3 = 1MΩ and C1 = C2 = C3 = 68 pF. At what frequency does the circuit oscillate ?	03	CLO1	E
		OR			
Q2.	(a)	Briefly discuss about Oscillatory circuit .	03	CLO1	U
	(b)	Write short notes : (i) Wein Bridge Oscillator (ii) RC Oscillator	04	CLO1	R
	(c)	The ac equivalent circuit of a crystal has these values: L = 1H, C = 0.01 pF, R = 1000 Ω and Cm = 20 pF. Calculate fs and fp of the crystal.	03	CLO1	Ap
Q3.	(a)	Write the circuit and operation of Collector Coupled Astable multivibrator.	05	CLO1	An
	(b)	Draw 555 Timer IC block diagram and write important features.	05	CLO1	Ap