

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:2141002****Date:11-01-2024****Subject Name:Analog Circuit Design****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Define following terms. CMRR, SVRR, Slew Rate.	03
(b) List OP-AMP's ideal characteristics.	04
(c) Write and explain differential amplifier using one OP-AMP.	07
Q.2 (a) Explain Voltage Transfer Curve of OP-AMP.	03
(b) Derive gain expression for voltage shunt F/B amplifier using OP-AMP.	04
(c) Explain inverting integrator circuit using OP-AMP.	07
OR	
(c) Explain non inverting adder circuit operation using OP-AMP.	07
Q.3 (a) Explain circuit made up of OP-AMP that does scaling of inputs.	03
(b) Explain Schmitt trigger circuit using OP-AMP.	04
(c) Write short note on full wave rectifier using OP-MP with neat and clean diagram.	07
OR	
Q.3 (a) Explain peak detector using OP-AMP in short.	03
(b) Explain class A power amplifier.	04
(c) Draw and explain square wave generator using OP-AMP.	07
Q.4 (a) Explain grounded load V to I converter using OP-AMP.	03
(b) Explain oscillator's fundamental in general.	04
(c) Explain and derive Hybrid – II CE short circuit current gain derivation.	07
OR	
Q.4 (a) Explain class C power amplifier.	03
(b) Draw and explain full wave rectifier using OP-AMP.	04
(c) Derive expression for trans-conductance gm in Hybrid – II model.	07
Q.5 (a) Design Monstable multivibrator using timer IC for $T_P = 11.1$ millisecond, take $C = 0.1$ microferad.	03
(b) Write short note on voltage regulator IC 7805.	04
(c) Explain A-stable multivibrator using timer IC.	07
OR	
Q.5 (a) Explain voltage limiter circuit using OP-AMP.	03
(b) Design A-stable multivibrator using IC 555 for $T_{on} = 75\%$ of T, take $F = 10$ KHz, $C = 0.1$ microferad.	04
(c) Explain application of monostable multivibrator using IC 555.	07
