

University of Mumbai
Examination 2020 under cluster 5 (APSIT)

Program: SE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Second Year Semester IV

Course Code: **ECC403** and Course Name: **Linear integrated circuits**

Time: 1 hour

Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	Which circuit is used as active load for an amplifier
Option A:	Wildar Current source
Option B:	Darlington pair
Option C:	Current Mirror
Option D:	Voltage divider
Q2.	In a typical op-amp, which stage is supposed to be a dual-input unbalanced output or single-ended output differential amplifier?
Option A:	Input stage
Option B:	Intermediate stage
Option C:	Output stage
Option D:	Level shifting stage
Q3.	Which concept states that if one input terminal of an op-amp is at zero potential, then the other one also will be at zero potential?
Option A:	Virtual short
Option B:	Virtual ground
Option C:	Zero input current
Option D:	Zero input impedance
Q4.	What makes the output voltage equals to zero in practical op-amp?
Option A:	Input offset voltage
Option B:	Output offset voltage
Option C:	Offset minimizing voltage
Option D:	Error voltage
Q5.	To increase the value of CMRR, which circuit is used to replace the emitter resistance R_e in differential amplifier?
Option A:	Constant current bias
Option B:	Resistor in parallel with R_e
Option C:	Resistor in series with R_e
Option D:	Diode in parallel with R_e

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Q6.	The output of Schmitt trigger is
Option A:	triangle waveform
Option B:	sinusoidal waveform
Option C:	sawtooth waveform
Option D:	pulse waveform
Q7.	Which performance parameter of a regulator is defined as the change in regulated load voltage due to variation in line voltage in a specified range at a constant load current?
Option A:	Load regulation
Option B:	Line regulation
Option C:	Temperature stability factor
Option D:	Ripple rejection
Q8.	In which type of oscillator, the output frequency is dependent on the amplitude of input voltage?
Option A:	Quadrature oscillator
Option B:	Voltage controlled oscillator
Option C:	Wein Bridge oscillator
Option D:	Phase shift oscillator
Q9.	Which one of the following statements regarding slew rate is correct?
Option A:	It signifies how rapidly the output of an opamp can change in response to changes in the frequency of the input signal
Option B:	It does not change with change in voltage gain
Option C:	It should be smaller for high speed opamp applications
Option D:	It is not fixed for an opamp
Q10.	A oscillator that generates 2 signals that are out of phase by 90 degrees is called as
Option A:	RC phase shift oscillator
Option B:	Wein Bridge oscillator
Option C:	Quadrature oscillator
Option D:	Colpitts oscillator
Q11.	Zero crossing detector circuit plays a crucial role in conversion of input sine wave into a perfect _____ at its output.
Option A:	square wave
Option B:	triangular wave
Option C:	saw-tooth wave
Option D:	pulse wave

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Q12.	For a summing amplifier if $V_1 = -3.3 \text{ V}$, $V_2 = 0.8 \text{ V}$, $R_1 = 33 \text{ k}\Omega$, $R_2 = 10 \text{ k}\Omega$ and $R_f = 330 \text{ k}\Omega$, calculate the output voltage.
Option A:	0 V
Option B:	6.6 V
Option C:	-4 V
Option D:	2 V
Q13.	In IC 723 a series pass transistor is present at
Option A:	pin 2 and 3
Option B:	pin 10 and 11
Option C:	pin 6 and 7
Option D:	pin 4 and 5
Q14.	A monotonic DAC is one whose analog output increases for
Option A:	Decreases in digital input
Option B:	An increases in analog input
Option C:	An increases in digital input
Option D:	Decreases in analog input
Q15.	For 555 astable multivibrator, if $C = 0.01 \mu\text{F}$, $R_A = 10 \text{ k}\Omega$, $R_B = 50 \text{ k}\Omega$, the frequency and the duty cycle will be nearly
Option A:	1.6 kHz and 54.5 %
Option B:	1.3 kHz and 54.5%
Option C:	1.6 kHz and 46.5%
Option D:	1.3 kHz and 46.5 %
Q16.	How many op-amps are required to implement this equation $V_O = V_i$?
Option A:	2
Option B:	1
Option C:	3
Option D:	4
Q17.	In LT1070 monolithic switching regulator logic supply is
Option A:	5V at 5A
Option B:	2V at 5A
Option C:	2V at 10A
Option D:	5V at 10A
Q18.	A triangular-square wave generator uses
Option A:	a sinewave oscillator and a comparator
Option B:	an integrator and a comparator
Option C:	a differentiator and a comparator
Option D:	a sinewave oscillator and a clipper

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Q19.	What is the disadvantage of binary weighted type DAC?
Option A:	Require wide range of resistors
Option B:	High operating frequency
Option C:	High power consumption
Option D:	Slow switching
Q20.	How to overcome the limitation of binary weighted resistor type DAC?
Option A:	Using R-2R ladder type DAC
Option B:	Multiplying DACs
Option C:	Using monolithic DAC
Option D:	Using hybrid DAC
Q21.	In an instrumentation amplifier, the output voltage is based on the _____ times a scale factor.
Option A:	Summation of 2 inputs
Option B:	Product of 2 inputs
Option C:	Difference between 2 inputs
Option D:	Division of 2 inputs
Q22.	which of the following op-amp that improves the filter performance.
Option A:	μ A741
Option B:	LM318
Option C:	LM101A
Option D:	MC34001
Q23.	Zero crossing detectors is also called as
Option A:	Square to sine wave generator
Option B:	Sine to square wave generator
Option C:	Sine to triangular wave generator
Option D:	triangular wave generator
Q24.	The 7812 regulator IC provides
Option A:	12V
Option B:	5V
Option C:	-5V
Option D:	-12V
Q25.	In a PLL lock occurs when the
Option A:	input frequency and VCO frequency are same
Option B:	phase error is 180 degrees
Option C:	VCO frequency is double the input frequency
Option D:	phase error is 90 degrees