University of Mumbai
Online Examination 2020

Program: BE Electronics and Telecommunication Engineering

Curriculum Scheme: Revised 2016

Examination: Second Year Semester IV

Course Code: ETC ECC403 and Course Name: Linear Integrated Circuits

Time: 1hour   Max. Marks: 50

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

Q1.	Find the output voltage of the log-amplifier
Option A:	$V_O = -(kT/q) \times \ln(V_i/V_{ref})$
Option B:	$V_O = -(kT/q) \times \ln(V_{ref}/V_i)$
Option C:	$V_O = -(kT) \times \ln(V_i/V_{ref})$
Option D:	$V_O = (kT/q) \times \ln(V_i/V_{ref})$
Q2.	In the common mode,…………
Option A:	Both inputs are grounded
Option B:	The outputs are connected together
Option C:	An identical signal appears on both the inputs
Option D:	The output signal are in-phase
Q3.	In which type of amplifier, the input voltage is amplified by a scaling factor
Option A:	Summing amplifier
Option B:	Averaging amplifier
Option C:	Weighted amplifier
Option D:	Differential amplifier
Q4.	What is a key characteristic of an instrumentation amplifier?
Option A:	High CMRR
Option B:	High output offset
Option C:	High output impedance
Option D:	None of the above
Q5.	Open loop op-amp configuration has
Option A:	Direct network between output and input terminals
Option B:	No connection between output and feedback network
Option C:	No connection between input and feedback network
Option D:	connection between input and feedback network

Q6.	Which is not the internal circuit of operational amplifier?
Option A:	Differential amplifier
Option B:	Level translator
Option C:	Output driver
Option D:	Clamper
Q7.	What will be the phase shift of feedback circuit in RC phase shift oscillator?
Option A:	360^0phase shift
Option B:	90^0phase shift
Option C:	60^0phase shift
Option D:	180^0phase shift
Q8.	Which of the following is a stable sine-wave audio-generator?
Option A:	Wein-bridge oscillator
Option B:	Hartley oscillator
Option C:	Armstrong oscillator
Option D:	None of the above
Q9.	The resistor in the peak detector are used to
Option A:	To maintain proper operation
Option B:	Protect op-amp from damage
Option C:	To get shaped non-sinusoidal waveform
Option D:	None of the mentioned
Q10.	How a triangular wave generator is derived from square wave generator?
Option A:	Connect oscillator at the output
Option B:	Connect Voltage follower at the output
Option C:	Connect differential at the output
Option D:	Connect integrator at the output
Q11.	A Schmitt trigger is
Option A:	a comparator with only one trigger point
Option B:	a comparator with hysteresis
Option C:	a comparator with three trigger points
Option D:	none of the above
Q12.	What is the drawback in zero crossing detectors?
Option A:	Low frequency signal and noise at output terminal
Option B:	High frequency signal and noise at input terminal
Option C:	Low frequency signal and noise at input terminal
Option D:	High frequency signal and noise at output terminal
Q13.	The pass band voltage gain of a second order low pass butterworth filter is
Option A:	1.586
Option B:	0.707
Option C:	0.586
Option D:	8.32

Q14.	Astable multivibrator operating at 150Hz has a discharge time of 2.5m. Find the duty cycle of the circuit.
Option A:	0%
Option B:	37.5%
Option C:	75%
Option D:	95.99%
Q15.	A 555 timer in monostable application mode can be used for
Option A:	Pulse position modulation
Option B:	Frequency shift keying
Option C:	Digital phase detector
Option D:	Speed control and measurement
Q16.	In a D-A converter with binary weighted resistor, a desired step size can be obtained by
Option A:	Selecting proper value of V_{FS}
Option B:	Selecting proper value of R_p
Option C:	Selecting proper value of R_F
Option D:	Selecting proper value of R
Q17.	A series switching regulators
Option A:	Improves the efficiency of regulators
Option B:	Improves the flexibility of switching
Option C:	Enhance the response of regulators
Option D:	Improves power Consumption
Q18.	What is the conversion ratio of the phase detector in 565 PLL?
Option A:	0.14
Option B:	0.35
Option C:	0.4458
Option D:	0.7
Q19.	Voltage to frequency conversion factor for VCO is
Option A:	$Kv = \triangle Vc / \triangle fo$
Option B:	$Kv = \triangle fo / \triangle Vc$
Option C:	$Kv = \triangle fo \times \triangle Vc$
Option D:	$Kv = 1/(\triangle fo \times \triangle Vc)$
Q20.	What happens when VCO output is 90% out of phase with respect to input signal?
Option A:	Perfect lock
Option B:	Attenuation
Option C:	Shift in phase of comparator
Option D:	Error signal is removed

Q21.	In LM317 voltage regulator, what is the minimum value of voltage required between its input & output in order to supply power to an internal circuit?
Option A:	1V
Option B:	5V
Option C:	10V
Option D:	3V

Q22.	The 78XX-12 produces a regulated output voltage of
Option A:	40V
Option B:	4V
Option C:	12V
Option D:	3V

Q23.	The 'heart' of the processor which performs many different operations _____
Option A:	Arithmetic and logic unit
Option B:	Motherboard
Option C:	Control Unit
Option D:	Memory

Q24.	Reset inputs are used in IC 7490, why?
Option A:	For increment of bit by 1
Option B:	For decrement of bit by 1
Option C:	For reset the counter
Option D:	For setting the counter

Q25.	A certain non-inverting amplifier has R_i of 1 kΩ and R_f of 100 kΩ. The closed-loop voltage gain is ………
Option A:	100,000
Option B:	1000
Option C:	101
Option D:	100