# Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021

Course Name - - Analog Circuits Course Code - PCC-EC402

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Answer all the questions. Each question carry one mark.

9. 1. Which of the following is not true in the circuit for digital-to- analog voltage converter?

- Some logic circuitry
- A resistor network
- A reference voltage
- A resonant circuit

10. 2. What is the value of LSB of an 8-bit DAC for 0-12.8 V range?

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1.6 V
 50mV
 0.625
 1.28V

11. 3. Stability can be improved in an op-amp by

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- Pole zero compensation
- Dominant pole compensatio
- Leads compensation
- All of these
- 12. 4. For an active integrator , the overall gain

- Increase with frequency of input
- Decrease with input frequency
- Constant with frequency
- None of these

13. 5.The resonant frequency of a Wien-bridge oscillator is around

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10 Hz
 10 KHz
 100 KHz
 100 KHz

14. 6.Voltage regulator normally uses.....

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- Positive feedback
- Negative feedback
- 📃 No feedback
- Phase limiting
- 15. 7.R-C coupling is proper in low-level AF amplifier because it

- Is inexpensive and needs no adjustment
- Has better low frequency response
- Needs low voltage battery
- Provides an output signal in phase with input signal

16. 8.An OPAMP has

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- Equal input and output resistance
- Low input resistance and a large output resistance
- Large input resistance and low output resistance
- None of these
- 17. 9.The cut-in point of a capacitor filter is\_\_\_\_\_

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- The instant at which the conduction starts
- The instant at which the conduction stops
- The time after which the output is not filtered
- The time during which the output is perfectly filtered
- 18. 10.The inductor is placed in the L section filter because\_\_\_\_\_

- It offers zero resistance to DC component
- It offers infinite resistance to DC component
- It bypasses the DC component
- It bypasses the AC component

19. 11. The output waveform of CLC filter is superimposed by a waveform referred to as\_\_\_\_\_

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Square wave

- Triangular wave
- Saw tooth wave
- Sine wave
- 20. 12.A common mode signal is applied to

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- The non-inverting input
- The inverting input
- Top of tail resistor
- Both inputs
- 21. 13.Wein bridge oscillator has the following disadvantage

- It can generate frequency up to 1 MHz only
- It requires large number of components
- Output is constant
- There is a loading effect

22. 14.An Wein bridge oscillator uses

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- Positive feedback
- Negative feedback
- Both types of feedback
- An LC tank circuit
- 23. 15. We use crystal oscillator because

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- It gives high output voltage
- It works at high frequency
- Frequency of oscillation remains substantially constant
- It requires very low dc supply voltge
- 24. 16. Which topology of feedback amplifier has very high input and output impedances?

- Voltage series feedback
- Voltage shunt feedback
- Current series feedback
- Current shunt feedback

25. 17. Voltage shunt feedback amplifier is a

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- Transconductance amplifier
- Transresistive amplifier
- 📃 Voltage amplifier
- Current amplifier
- 26. 18.How many h-parameters are there for a transistor?

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- Four Two Five
- 27. 19. The parameter hie stands for input impedance in

- CB arrangement with output shorted
- CC arrangement with output shorted
- CE arrangement with output shorted
- None of these

### 28. 20.The magnitude of voltage output of Schmitt trigger

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Always low

- Always high
- Either a low or a high
- A sine wave
- 29. 21. The voltage gain of single-stage CE amplifier increases with

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- Increase in ac load resistance
- Decrease in ac load resistance
- Increase in source resistance
- 📃 Increase re
- 30. 22. an integrator circuit value of RC=1, the output voltage t=4 sec for Vi= 2v is *Mark only one oval.*

-8 V
-2 V

- \_\_\_\_\_-4 V
- \_\_\_\_\_--6 V

31. 23. The input resistance of 741 OPAMP is

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100 Ω
 Approx. 20 kΩ
 Approx. 2 MΩ
 20 MΩ

32. 24. An ideal OP-AMP has bandwidth

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- Zero
- Small
- 🔵 Large
- 🔵 Infinite
- 33. 25.Voltage controlled oscillators are used commonly in

- Pulse Modulators
- Frequency Modulators
- Phase Clocked loops
- All of the above

#### 34. 26.The resolution of a DAC depends on which of the following?

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The number of bits
 Monotonocity
 Reference voltage
 The values of resistances

35. 27. How many bits will a D/A converter use so that its full-scale output voltage is 5 V and its resolution is at the most 10mV?

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- 5 7 9 11
- 36. 28. An 8-bit D/A converter has a full scale output voltage of 20V. The output voltage when the input is 11011011, is

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160 V
78 V
20 V
17 V

37. 29.If the input to the ideal comparator is a sinusoidal signal of 8 V (peak to peak) without any DC component, then the output of the comparator has a duty cycle of

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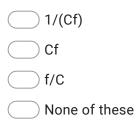


38. 30.A 12 bit A/D converter has range of 0-10 V. What is the approximate resolution of the converter

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39. 31.The equivalent resistance provided by the switched capacitor circuit is



## 40. 32. For a CE amplifier, dc load line is which one of the following plots?

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IC versus VCE for a given value of RC and VCC

IB versus VBE for a given value of RC and VCC

IB versus VCE for a given value of IB

IC versus VCB for a given value of IE for a given value VCC and RC

41. 33. The point of intersection of the dc load with VCE active

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- VCE=VCC, IC = 0
- VCE=0, IC= 0
- **VBE=0, IB=0**

#### 42. 34. An operational amplifier possesses

- Very large input resistance and very large output resistance
- Very large input resistance and very small output resistance
- Very small input resistance and very small output resistance
- Very small input resistance and very large output resistance.

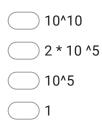
43. 35. The common mode rejection ratio (CMRR) of a differential amplifier (where Ad = differential gain , Ac = common mode gain) is defined as

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44. 36.For a given op-amp , CMRR = 10^5 and differential gain = 10^5 . What is the common mode gain of the op-amp ?

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45. 37. An op-amp IC should have

- 741
- 742
- 743
- 740

#### 46. 38. The output voltage of an op-amp is V sin $\omega$ t. Slew rate is

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$\bigcirc$	V cos ωt
$\bigcirc$	ω
$\bigcirc$	Vω
$\bigcirc$	V/w

47. 39. The voltage gain of an ideal voltage follower is

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48. 40.Instrumentation amplifiers are used primarily in

- High noise environment
- Medical equipment
- Test instruments
- Filter circuits.

49. 41. In case of active integrator if the output voltage is larger than VCC, overall gain

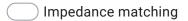
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Increase
 Decrease
 Remains constant
 None of the above

50. 42.Common-emitter amplifier circuit with emitter feedback, the input impedance is equal to

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- hfe
- RE
- hfe/RE
- hfeRE
- 51. 43. The main application of a common-collector or emitter follower circuit is



- Low impedance circuit
- Power amplifier
- None of these

52. 44.If the emitter bypass capacitor is removed from a CE amplifier circuit ,..... is decreased significantly.

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- Current gain
- Voltage gain
- Input impedance
- Output impedance
- 53. 45.A quartz crystal oscillator consists of

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- Only series resonant frequency
- Only parallel resonant frequency
- Both series and parallel frequencies
- Neither series nor parallel frequency.
- 54. 46. Which of the following oscillators is used for generating low frequencies?

- RC phase shift oscillator
- 🔵 LC oscillato
- Wien-bridge oscillator
- Blocking oscillator

55. 47. Which of the following is not an essential element of d.c. power supply

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Rectifier

🔵 Filter

- Voltage Regulator
- Voltage Amplifier
- 56. 48. A voltage regulator is a circuit which

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Converts the dc voltage into ac voltage.

Smoothens the ac variations in dc output voltage

Maintains a constant dc output voltage in spite of the fluctuations in ac input voltage or load current

None of the above.

57. 49.The main function of a voltage regulator is to provide a nearly...... output voltage.

- Sinusoidal
- Constant
- Smooth
- Fluctuating

58. 50.Voltage regulator normally use.....

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Positive feedback

- Negative feedback
- No feedback
- Phase limiting
- 59. 51.If the output of voltage regulator varies from 15 to 14.7V between the minimum & maximum load current, the load regulation is ......

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$\square$	0 (
$\square$	) 1%
$\square$	2%
$\square$	) 5%

60. 52. A 78XX series of voltage regulator produces an output voltage that is

- Positive
- Negative
- Unregulated
- Either positive or negative

61. 53.A series regulator is more efficient than a shunt regulator because

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📃 It has series resistor

- It can boost the voltage
- The pass transistor replaces the series resistor
- It switches the pass transistor on & off
- 62. 54. The voltage gain of an OP AMP non-inverting amplifier is

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- Less than unity
- Greater than unity
- Equal to unity
- None of these
- 63. 55.An ideal OP AMP has

- Infinite input impedance
- Zero output impedance
- 📃 Infinite voltage gain
- All of the these

64. 56. Which of the following electrical characteristics is not exhibited by an ideal opamp?

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- Infinite voltage gain
- 🔵 Infinite bandwidth
- Infinite output resistance
- Infinite slew rate
- 65. 57.In a shunt capacitor filter, the mechanism that helps the removal of ripples is

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- The current passing through the capacitor
- The property of capacitor to store electrical energy
- The voltage variations produced by shunting the capacitor
- Uniform charge flow through the rectifier
- 66. 58. Consider the non-inverting OP-AMP with R1 (input resistance) =1k $\Omega$ , R2 (feedback resistance) =10k $\Omega$  and power supply voltages ±12V. Find the output voltage for an input voltage 0.05V

- -0.50V +0.50V +0.55V
- -0.55V

67. 59.The Op-amp can amplify \_\_\_\_\_

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A.C. signals only

- D.C. signals only
- both A.C. and D.C. signals
- \_\_\_\_\_ neither D.C. nor A.C. signals
- 68. 60. Major part of the filtering is done by the first capacitor in a CLC filter because

- The capacitor offers a very low reactance to the ripple frequency
- The capacitor offers a very high reactance to the ripple frequency
- The inductor offers a very low reactance to the ripple frequency
- The inductor offers a very high reactance to the ripple frequency
- 69. 61. The phase shift oscillator requires an external phase shift of *Mark only one oval.* 
  - \_\_\_\_\_ 90°
  - \_\_\_\_ 180°
  - \_\_\_\_ 270°

#### 70. 62.1 MHz sinusoidal signal can be obtained from

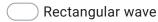
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Hartley oscillator

- 🔵 RC phase shift oscillator
- Wein bridge oscillator
- All of these
- 71. 63. An electronic oscillator is

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- An amplifier
- An amplifier with feedback
- Conversion of ac to dc
- Just like an alternator
- 72. 64. When a large sine wave drives a Schmitt trigger, the output is a



- 🔵 Triangular wave
- Rectified sine wave
- Series of ramps

#### 73. 65. An oscillator of LC type that has a split capacitor in the circuit is

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Hartley oscillator

- Colpitts oscillator
- Wein-bridge oscillator
- RC phase shift oscillator
- 74. 66. The advantages of negative feedback amplifier are

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- High input impedance
- Increase in gain stability
- Low output impedance
- All of these
- 75. 67. A certain OP-amp has input bias currents of 50  $\mu A$  and 49.3  $\mu A.$  The input offset current is

- \_\_\_\_\_ 700nA
- 99.3μA
- \_\_\_\_\_ 49.3μA
- None of these

76. 68. Negative feedback involves

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Less phase distortion

- Less noise
- Less non linear distortion
- All of these
- 77. 69. When temperature changes h parameters of a transistor

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$\bigcirc$	Also change
$\bigcirc$	Do not change
$\frown$	

- May or may not change
- None of these
- 78. 70. An emitter follower has ..... input impedance

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Low

🕖 High

- \_\_\_\_ Zero
- None of these

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