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

Course Name - Basic Electronics II: Analog Electronics
Course Code - EC201

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Answer all the questions. Each question carry one mark.

9. 1. An ideal OP AMP has

Mark only one oval.

- [ ] infinite input impedance
- [ ] zero output impedance
- [ ] infinite voltage gain
- [ ] all of the these

10. 2. The feedback element in the integrator is a

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- capacitor
- inductor
- diode
- resistance

11. 3. The common mode rejection ratio of an OP AMP is

Mark only one oval.

- much smaller than unity
- much larger than unity
- unity
- none of these

12. 4. With zero volts on both inputs, an OP-amp ideally should have an output

Mark only one oval.

- equal to the positive supply voltage
- equal to the negative supply voltage
- equal to zero
- equal to CMRR

13. 5. The use of negative feedback

Mark only one oval.

- ◯ reduces the voltage gain of an Op-amp
- ◯ makes the Op-amp oscillate
- ◯ makes linear operation possible
- ◯ both reduces the voltage gain of an Op-amp & makes the Op-amp oscillate

14. 6. A voltage follower

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- ◯ has a voltage gain of 1
- ◯ is non-inverting
- ◯ has no feedback resistor
- ◯ All of these

15. 7. A FET operates on

Mark only one oval.

- ◯ Majority carriers only
- ◯ Minority carriers
- ◯ Positive and negative ions
- ◯ Positively charged ions

16. 8. A FET is better chopper than a BJT because it has

Mark only one oval.

- Low offset voltage
- High input voltage
- High input current
- High series ON resistance

17. 9. How to improve CMRR value

Mark only one oval.

- Increase common mode gain
- Decrease common mode gain
- Increase Differential mode gain
- Decrease differential mode gain

18. 10. In which of the following configuration does a MOSFET works as an amplifier?

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- ommon Source (CS)
- Common Gate (CG)
- Common drain (CD)
- All of these

19. 11. The transistor operates in saturation region if

Mark only one oval.

- Collector junction is reverse biased and the emitter junction is forward biased
- Collector junction is forward biased and the emitter junction is reverse biased
- Both the collector junction and the emitter junction are forward biased
- Both the collector junction and the emitter junction are reverse biased

20. 12. Which of the following is not an example for non-sinusoidal oscillator?

Mark only one oval.

- Sawtooth Generators
- Blocking oscillators
- Multivibrator
- Crystal oscillators

21. 13. Which of the following oscillator is not using a feedback network for its oscillation?

Mark only one oval.

- LC oscillator
- RC oscillator
- Crystal oscillator
- Relaxation oscillators

22. 14. The operating point is also called the .....

Mark only one oval.

- Cut off point
- Quiescent point
- Saturation point
- None of these

23. 15. The voltage follower is commonly used as

Mark only one oval.

- Switch
- Isolator
- Regulator
- None of these

24. 16. A quartz crystal oscillator consists of

Mark only one oval.

- Only series resonant frequency
- Only parallel resonant frequency
- Both series and parallel frequencies
- Neither series nor parallel frequency

25. 17. The resonant frequency of a Wien-bridge oscillator is around

Mark only one oval.

- 10 Hz
- 10 KHz
- 100 KHz
- 10MHz

26. 18. The voltage gain of single-stage CE amplifier increases with

Mark only one oval.

- Increase in ac load resistance
- Decrease in ac load resistance
- Increase in source resistance
- Increase re

27. 19. The phase shift oscillator requires an external phase shift of

Mark only one oval.

- 90o
- 180o
- 270o
- 360o

28. 20. 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

Mark only one oval.

- 1/2
- 1/6
- 1/3
- 1/12

29. 21. If an amplifier with a gain of − 1000 and feedback factor β = − 0.1 had a gain change of 20% due to temperature, the change in the gain of the feedback amplifier would be

Mark only one oval.

- 10%
- 5%
- 0.2&
- 0.01%

30. 22. The maximum efficiency of a Class B push-pull amplifier is

Mark only one oval.

- 78.5%
- 50%
- 33%
- 48.5%

31. 23. Which one of the following is correct?

Mark only one oval.

- hfe= α
- hfe= β
- hfe=- α
- hfe= -β

32. 24. An operational amplifier possesses

Mark only one oval.

- 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

33. 25.An operational amplifier has an open-loop gain of 200,000. Its output exhibits saturation at 10V. The threshold differential voltage of the amplifier is

Mark only one oval.

- 25 micro V
- 50 micro-V
- 0.5 mili-V
- 10 V

34. 26. If the differential voltage gain and the common mode voltage gain of a differential amplifier are 48dB and 2 dB respectively, then its common mode rejection ratio is

Mark only one oval.

- 23dB
- 25dB
- 46dB
- 50dB

35. 27. The output of a certain op-amp circuit changes by 20 V in 4 micro-sec. Its slew rate is

Mark only one oval.

- 50 V/micro-sec
- 500 V/micro-sec
- 5 V/micro-sec
- 5 mV/micro-sec

36. 28. Inverting op-amp is

Mark only one oval.

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

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

Mark only one oval.

- Increase
- Decrease
- Remains constant
- None of these

38. 30. The zero level detector is one application of a

Mark only one oval.

- Differentiator
- Integrator
- Summing amplifier
- Comparator

39. 31. Which of the following are the non-linear applications of OP-AMP?

Mark only one oval.

- Current-to-voltage converter
- Comparator
- Peak detector
- Limiter

40. 32. Which transistor bias circuit provides good Q-point stability with a single-polarity supply voltage?

Mark only one oval.

- Base bias
- Collector-feedback bias
- Voltage-divider bias
- None of these

41. 33. Which of the following statements is true of phase-shift type and Wien-bridge-type RC oscillator?

Mark only one oval.

- Both use positive feedback.
- The phase-shift type oscillator uses positive feedback only whereas Wien-bridge oscillator uses both positive and negative feedback.
- The phase-shift-type oscillator uses both positive and negative feedback whereas the Wien-bridge oscillator uses positive feedback only
- Both use negative feedback

42. 34. The feedback element in a differentiator is a

Mark only one oval.

- Resistance
- Capacitor
- Inductor
- Diode

43. 35. The maximum rate of change of output voltage per unit time is

Mark only one oval.

- Slew rate
- CMRR
- Offset voltage
- None of these

44. 36. The slew rate of an ideal OP AMP is

Mark only one oval.

- 0
- infinity
- 10 V/micro-sec
- 1 V/micro-sec

45. 37. Which of the following electrical characteristics is not exhibited by an ideal op-amp?

Mark only one oval.

- nfinite voltage gain
- Infinite bandwidth
- Infinite output resistance
- Infinite slew rate

46. 38. Consider the inverting OP-AMP with R1 (input resistance) =1k-ohm, R2 (feedback resistance) =50k-ohm and power supply voltages ±12V. Find the output voltage for an input voltage 1V.

Mark only one oval.

- ◯ -50 V
- ◯ +50 V
- ◯ -12 V
- ◯ +12 V

47. 39. The Op-amp can amplify _____.

Mark only one oval.

- ◯ A.C. signals only
- ◯ D.C. signals only
- ◯ both A.C. and D.C. signals
- ◯ neither D.C. nor A.C. signals

48. 40. How many h-parameters are there for a transistor?

Mark only one oval.

- ◯ Four
- ◯ Two
- ◯ Five
- ◯ Three

49. 41. The dimensions of hie parameter are

Mark only one oval.

- Ohm
- Mho
- Farad
- None of these

50. 42. If the input is a rectangular pulse, the output of an integrator is

Mark only one oval.

- Sine wave
- Square wave
- Ramp wave
- Rectangular wave

51. 43.Current can not flow to ground through

Mark only one oval.

- A mechanical ground
- An AC ground
- A virtual ground
- An ordinary ground

52. 44. An ideal OP-AMP has bandwidth

Mark only one oval.

- Zero
- Small
- Large
- Infinite

53. 45. Voltage controlled oscillators are used commonly in

Mark only one oval.

- Pulse Modulators
- Frequency Modulators
- Phase Clocked loops
- All of these

54. 46. Every practical oscillator loop gain is

Mark only one oval.

- Less than unity
- Greater than unity
- Equal to unity
- None of these

55. 47. Oscillator actually does not generate energy but merely convert the energy available from

Mark only one oval.

- DC biasing source
- Active device
- Mechanical input
- None of these

56. 48. When temperature changes h parameters of a transistor

Mark only one oval.

- Also change
- Do not change
- May or may not change
- None of above

57. 49. An emitter follower has ..... input impedance

Mark only one oval.

- Low
- High
- Zero
- None of these

58. 50. Which of the following is radio frequency oscillator?

Mark only one oval.

- ◯ phase shift oscillator
- ◯ Hartley oscillator
- ◯ Wein bridge oscillator
- ◯ None of these

59. 51. The oscillator follows

Mark only one oval.

- ◯ Nyquist criteria
- ◯ Barkhausen criteria
- ◯ Coulomb' law
- ◯ None of these

60. 52. The disadvantage of crystal oscillator is

Mark only one oval.

- ◯ Not avalibity of low frequency
- ◯ Not avilibity of high frequency around MHz
- ◯ Both
- ◯ none of these

61. 53. When a large sine wave drives a Schmitt trigger, the output is a

Mark only one oval.

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

62. 54. For oscillation to start, the loop gain Aβ of the oscillator must be

Mark only one oval.

- Infinitely high
- More than one
- Exactly one
- Less than one

63. 55. Crystals have a very

Mark only one oval.

- Low Q
- High Q
- Small inductance
- Large resistance

64. 56. Wein-bridge oscillator can typically generate frequencies in the range of

Mark only one oval.

- 1 kHz – 1 MHz
- 1 MHz – 10 MHz
- 10 MHz – 100 MHz
- 100 MHz – 150 MHz

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

Mark only one oval.

- Hartley oscillator
- Colpitt oscillator
- Wein-bridge oscillator
- RC phase shift oscillator

66. 58. The advantages of negative feedback amplifier are

Mark only one oval.

- High input impedance
- Increase in gain stability
- Low output impedance
- All of these

67. 59. A certain OP-amp has input bias currents of 50 micro-A and 49.3 micro-A. The input offset current is

Mark only one oval.

- 700nA
- 99.3 micro-A
- 49.3 A
- None of these

68. 60. If a transistor is operated in such a way that output current flows for 160 degrees of the input signal, then it is _____ operation

Mark only one oval.

- Class A
- Class C
- Class B
- Class AB

69. 61. For MOSFET is to be used as a switch then it must operate in

Mark only one oval.

- Cut-off region
- Triode region
- Saturation region
- Both cut-off and triode region can be used

70. 62. Which of the following class have a theoretical efficiency of 50%?

Mark only one oval.

- Class A
- Class C
- Class AB
- Class B

71. 63. The band pass filter

Mark only one oval.

- transmit Frequencies between f1 and f2
- Blocks frequencies between f1 and f2
- Both a and b
- None of these

72. 64. The crystal oscillator frequency is very stable due to

Mark only one oval.

- Rigidity of crystal
- Size of crystal
- Structure of crystal
- High Q of the crystal

73. 65. 1 MHz sinusoidal signal can be obtained from

Mark only one oval.

- Hartley oscillator
- RC phase shift oscillator
- Wein bridge oscillator
- All of these

74. 66. The cut-off point on the dc load line is

Mark only one oval.

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

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- None of these

78. 70. Operating point represents .....

Mark only one oval.

- Values of IC and VCE when signal is applied
- The magnitude of signal
- Zero signal values of Ic and VcE
- none of these