



- 1. Symmetrically saturated amplifiers operating in clipping mode can be used to convert a sine wave to a**
  - a) Square wave
  - b) Pseudo Square wave**
  - c) Sawtooth wave
  - d) Triangular wave
  
- 2. The voltage gain of the amplifier is 8 and the current gain is 7. The power gain of the amplifier is**
  - a) 56 db
  - b) 17.481 db**
  - c) 34.963 db
  - d) 1 db
  
- 3. Which of the following isn't true?**
  - a) Both transformer and amplifier can provide voltage gain
  - b) Both transformer and amplifier can provide current gain
  - c) Both transformer and amplifier can provide power gain**
  - d) None of the mentioned
  
- 4. What is meant by stability of the an amplified signal?**
  - a) The amplified signal must have a finite amplitude
  - b) The amplified signal should not have self oscillation**
  - c) The input and the output signal must be proportional
  - d) The ratio of the input and the output signal must be finite
  
- 5. If  $A_v$ ,  $A_i$  and  $A_p$  represents the voltage gain, current gain and power gain ratio of an amplifier which of the below is not the correct expression for the corresponding values in decibel?**
  - a) Current gain:  $20 \log A_i$  db
  - b) Voltage gain:  $20 \log A_v$  db

**c) Power gain:  $20 \log A_p$  db**

d) Power gain:  $10 \log A_p$

**6. An amplifier has a voltage gain of 100 V/V and a current gain of 1000A/A. the value of the power gain decibel is**

a) 30 db

b) 40 db

**c) 50 db**

d) 60 db

**7. The units of voltage gain is**

**a) It has no units, it is a ratio**

b) Decibels (db)

c) All of the mentioned

d) None of the mentioned

**8. Sampling rate conversion by the rational factor I/D is accomplished by what connection of interpolator and decimator?**

a) Parallel

**b) Cascade**

c) Convolution

d) None of the mentioned

**9. Which of the following has to be performed in sampling rate conversion by rational factor?**

**a) Interpolation**

b) Decimation

c) Either interpolation or decimation

d) None of the mentioned

**10. Which of the following should be done in order to convert a continuous-time signal to a discrete-time signal?**

**a) Sampling**

b) Differentiating

c) Integrating

d) None of the mentioned

**11. The process of converting discrete-time continuous valued signal into discrete-time discrete valued (digital) signal is known as \_\_\_\_\_**

a) Sampling

**b) Quantization**

- c) Coding
- d) None of the mentioned

**12. The difference between the unquantized  $x(n)$  and quantized  $x_q(n)$  is known as**

- 
- a) Quantization coefficient
  - b) Quantization ratio
  - c) Quantization factor
  - d) Quantization error**

**13. Which of the following is a digital-to-analog conversion process?**

- a) Staircase approximation
- b) Linear interpolation
- c) Quadratic interpolation
- d) All of the mentioned**

**14. The relation between analog frequency 'F' and digital frequency 'f' is?**

- a)  $F=f*T$ (where T is sampling period)
- b)  $f=F*T$**
- c) No relation
- d) None of the mentioned

**15. If 'F' is the frequency of the analog signal, then what is the minimum sampling rate required to avoid aliasing?**

- a) F**
- b) 2F
- c) 3F
- d) 4F

**16. If the sampling rate  $F_s$  satisfies the sampling theorem, then the relation between quantization errors of analog signal( $e_q(t)$ ) and discrete-time signal( $e_q(n)$ ) is?**

- a)  $e_q(t)=e_q(n)$**
- b)  $e_q(t)<e_q(n)$
- c)  $e_q(t)>e_q(n)$
- d) not related

**17. Which bit coder is required to code a signal with 16 levels?**

- a) 8 bit
- b) 4 bit**
- c) 2 bit
- d) 1 bit

**18. What is the main function of (A/D) or ADC converter?**

- a) Converts Digital to Analog Signal
- b) Converts Analog to Digital signal**
- c) All of the mentioned
- d) None of the mentioned

**19. What is the main function of (D/A) or DAC converter?**

- a) Converts Digital to Analog Signal**
- b) Converts Analog to Digital signal
- c) All of the mentioned
- d) None of the mentioned

**20. The time required to complete the conversion of Analog to Digital is \_\_\_\_\_ the duration of the hold mode of S/H.**

- a) Greater than
- b) Equals to
- c) Less than**
- d) Greater than or Equals to

**21. In A/D converter, what is the time relation between sampling period T and the duration of the sample mode and the hold mode?**

- a) Should be larger than the duration of sample mode and hold mode**
- b) Should be smaller than the duration of sample mode and hold mode
- c) Should be equal to the duration of sample mode and hold mode
- d) Should be larger than or equals to the duration of sample mode and hold mode

**22. In the practical A/D converters, what are the distortions and time-related degradations occur during the conversion process?**

- a) Jitter errors
- b) Droops
- c) Nonlinear variations in the duration of the sampling aperture
- d) All of the mentioned**

**23. What is the process of down sampling called?**

- a) Decimation**
- b) Fornication
- c) Both Decimation & Fornication
- d) None of the mentioned

**24. A/D converter is used for \_\_\_\_\_**

- a) converting analog to digital**
- b) converting digital to analog

- c) converting digital to mixed signal mode
- d) converting analog to mixed signal mode

**25. Output of A/D converter is \_\_\_\_\_**

- a) given to an analog display
- b) given to a digital display**
- c) given to a CRO
- d) given to a voltmeter

**26. What are auxiliary equipments?**

- a) equipment
- b) guard rings
- c) devices**
- d) voltage source

**27. What is a digital recorder?**

- a) records digital data**
- b) records analog data
- c) does not record data
- d) records both analog and digital data

**28. For lower accuracies \_\_\_\_\_**

- a) digital acquisition system is used
- b) both digital and analog acquisition systems are used
- c) analog acquisition system is used**
- d) mechanical data acquisition system is used

**29. Digital acquisition systems are used when \_\_\_\_\_**

- a) bandwidth is high
- b) bandwidth is medium
- c) bandwidth is zero
- d) bandwidth is low**

**30. Transducer is used to convert a \_\_\_\_\_**

- a) physical quantity into an electrical signal**
- b) electrical signal into a physical quantity
- c) physical quantity into a mechanical quantity
- d) physical quantity into a chemical quantity

**31. Transducer produces a \_\_\_\_\_**

- a) proportional current
- b) proportional voltage**

- c) proportional resistance
- d) proportional power

**32. Sensors produce frequency which is counted by \_\_\_\_\_**

- a) a chemical counter
- b) a mechanical counter
- c) an electronic counter**
- d) a basic counter

**33. Signal conditioner is used for \_\_\_\_\_**

- a) attenuating the voltage
- b) maintaining a constant voltage
- c) keeping the voltage zero
- d) boosting the voltage**

**34. A multiplexer is used for \_\_\_\_\_**

- a) accepting multiple inputs**
- b) accepting single input
- c) accepting multiple outputs
- d) accepting single output

**35. Before and after each test, calibration is carried out.**

- a) True**
- b) False

**36. Which of the following is the knock sensor?**

- a) Flap type sensor
- b) Thermocouples
- c) Thermistors
- d) Piezoelectric pickup**

**37. Where are the electro-optical sensors used?**

- a) Position and speed measurement**
- b) Piston temperature measurement
- c) Cooling water flow measurement
- d) Lubricating oil flow measurement

**38. What is the use of the hot-wire sensor?**

- a) To measure temperature
- b) To measure the smoke intensity
- c) To measure the mass flow rate**
- d) To measure pressure

**39. What is LVDT used to measure?**

- a) Gas temperature
- b) Engine speed
- c) Crank angle
- d) Large displacement**

**40. What is the disadvantage of the piezoelectric pressure sensor?**

- a) It has too much sensitivity
- b) It can measure only low pressure
- c) It is not suitable for dynamic measurement
- d) It can only give pressure difference**

**41. In which of the following Seebeck effect is used?**

- a) Hot-wire sensors
- b) Resistance temperature detectors
- c) Thermocouples**
- d) Thermistors

**42. Which of the following is used by the Hall Effect pickup?**

- a) Thermistors
- b) Potentiometers
- c) Inductive transducers
- d) Semiconductors**

**43. Change in output of sensor with change in input is \_\_\_\_\_**

- a) Threshold
- b) Slew rate
- c) Sensitivity**
- d) None of the mentioned

**44. Which of the following can be cause for non-zero output when zero input?**

- a) Bias
- b) Slew
- c) Offset
- d) Offset or bias**

**45. Sensitivity of a sensor can be depicted by \_\_\_\_\_**

- a) Niquist plot
- b) Pole- zero plot
- c) Bode plot**
- d) None of the mentioned

**46. Smallest change which a sensor can detect is \_\_\_\_\_**

**a) Resolution**

b) Accuracy

c) Precision

d) Scale

**47. Which of the following is correct for tactile sensors?**

**a) Touch sensitive**

b) Pressure sensitive

c) Input voltage sensitive

d) Humidity sensitive

**48. Which of the following error is caused by a reversal of measured property?**

**a) Hysteresis**

b) Noise

c) Digitization error

d) Quantization error

**49. Sensor is a type of transducer.**

**a) True**

b) False

**50. Which of the following is not an analog sensor?**

a) Potentiometer

b) Force-sensing resistors

c) Accelerometers

**d) None of the mentioned**