SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : Analog Circuits (18EC0407) **Course & Branch**: B.Tech - ECE

Year & Sem: II-B.Tech & II-Sem **Regulation:** R18

UNIT –I

SMALL SIGNAL HIGH FREQUENCY TRANSISTOR AMPLIFIER ANALYSIS AND MULTISTAGE AMPLIFIERS

I. Two Mark Questions:

1. Why h-parameter model is not suitable for high frequencies? [L1][CO1][2M]
2. Draw the Hybrid π Common Emitter transistor model for high frequencies. [L1][CO1][2M]
3. Define the cutoff frequency f_α and write down its expression. [L2][CO1][2M]
4. What is cutoff frequency f_β and write down its expression. [L2][CO1][2M]
5. Define unity gain frequency f_T. [L1][CO1][2M]
6. Classify the different types of coupling. [L1][CO1][2M]
7. Mention the applications of transformer coupling technique. [L1][CO1][2M]
8. What is cascode amplifier? [L1][CO1][2M]
9. Mention the advantages of Darlington pair amplifier. [L1][CO1][2M]
10. If four identical amplifiers are cascaded each having f_L = 100 Hz, determine the Overall lower 3dB frequency f_L. Assume non – interacting stages. [L3][CO1][2M]

II. Part – B Questions:

1.a) Draw the Hybrid-pi model and explain the significance of each and every component in it. [L2][CO1][5M]
b) Derive the expression for Hybrid- π capacitance of CE transistor at high frequency. [L2][CO1][5M]

2. Derive the expression for the hybrid π parameters g_m, $g_{b'e}$, $g_{b'c}$, $r_{bb'}$ and g_{ce}. [L2][CO1][10M]

3. a) Describe the variation of hybrid parameters upon collector current, V_{CE} and Temperature. [L2][CO1][5M]
b) At I_c = 1mA and V_{CE}=10V, a certain transistor data shows $C_c = C_{b'c}$ = 3pF, h_{fe} = 200 and w_T = -500 M rad/sec. Calculate g_m, $r_{b'e}$, $C_e = C_{b'e}$ and w_β. [L3][CO1][5M]

4. With the help of necessary circuit diagrams and approximations obtain the expression for CE short circuit current gain and derive the relation between f_β and f_T. [L2][CO1][10M]

5. Obtain the expression for Current gain with resistive load and discuss the variation of frequency response with R_L. [L2][CO1][10M]

6. a) Short circuit CE current gain of a transistor is 25 at a frequency of 2MHz. If f_β = 200KHz Calculate (i) f_T (ii) h_{fe} (iii) Find $|A_i|$ at frequency of 10MHz and 100MHz. [L3][CO1][5M]
b) A BJT has g_m = 38 mhos, $r_{b'e}$ = 5.9kΩ, h_{ie} = 6kΩ, $r_{bb'}$ = 100Ω, $C_{b'c}$ = 12pF, $C_{b'e}$ = 63pF and h_{fe} = 224 at 1 KHz. Calculate α , β cutoff frequencies and f_T. [L3][CO1][5M]

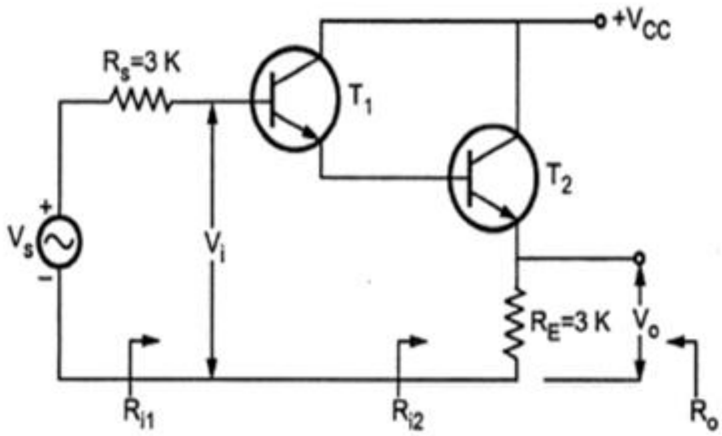
7. Describe different methods used for coupling multistage amplifiers with their frequency response. [L2][CO1][10M]

8. Draw the block diagram of n-stage cascaded amplifier and analyze its various parameters. [L4][CO1][10M]

9. With neat diagram explain cascode amplifier and derive the overall voltage gain, overall input resistance, Overall current gain and output resistance of cascode amplifier. [L2][CO1][10M]

10. a) What is Darlington Connection? [L1][CO1][2M]
b) With diagram, derive the expression for current gain and input resistance of Darlington amplifier. [L2][CO1][8M]

11. For the circuit shown in Fig. Calculate R_i, A_i, A_V and R_o if the h – parameters are h_{ie}=1.1kΩ, h_{fe}=50, h_{oe} = 25µA/V and $h_{re} = 2.5 \times 10^{-4}$. [L3][CO1][10M]



12. a) Explain the effect of cascading on bandwidth of multistage amplifier. [L2][CO1][6M]
    b) If the overall lower and higher cutoff frequencies of a two identical amplifier cascade are 600 Hz and 18 kHz respectively, compute the values of individual cutoff frequencies of both the amplifier stages. [L3][CO1][4M]

UNIT –II

FEEDBACK AMPLIFIERS AND OSCILLATORS

I. Two Mark Questions:

1. Define feedback. [L1][CO2][2M]
2. What is positive feedback and negative feedback? [L1][CO2][2M]
3. Classify the various types of basic amplifiers. [L2][CO2][2M]
4. Compare the performance of various feedback amplifiers. [L2][CO2][2M]
5. An amplifier has an open loop gain of 1000 and feedback ratio of 0.04. If the open loop gain Changes by 10% due to temperature, find the percentage change in gain of the amplifier with feedback. [L3][CO2][2M]
6. State Barkhausen criterion for oscillation. [L1][CO2][2M]
7. Mention the different types of oscillators. [L2][CO2][2M]
8. What are the applications of oscillators? [L1][CO2][2M]
9. Mention the disadvantages of RC Phase shift oscillator. [L1][CO2][2M]
10. In a Colpitts oscillator L = 40mH, C_1 = 100pF and C_2 = 500pF. Determine its frequency of oscillation. [L3][CO2][2M]

II. Part – B Questions:

1.a) Explain the concept of negative feedback with the help of a neat block diagram. [L2][CO2][6M]
   b) With neat diagram, discuss voltage amplifier and current amplifier. [L2][CO2][4M]
2. Describe the characteristics of negative feedback amplifiers. [L2][CO2][10M]
3. a) Derive the expressions of input and output resistances for Voltage Series FBA. [L2][CO2][6M]
   b) A voltage series negative feedback amplifier has a voltage gain without feedback of A = 500, input resistance R_i = 3kΩ, output resistance R_0 = 20kΩ and feedback ratio β = 0.01. Calculate the voltage gain A_f, input resistance R_{if}, and output resistance R_{of} of the amplifier with feedback. [L3][CO2][4M]
4. a) Determine the input and output resistances of Current Shunt feedback amplifier. [L2][CO2][6M]
   b) An amplifier has a voltage gain of 400, f_1 = 50 Hz, f_2 = 200kHz and a distortion of 10% without feedback. Determine the amplifier voltage gain, f_{1f}, f_{2f} and D_f when a negative feedback is applied with feedback ratio of 0.01. [L3][CO2][4M]
5. a) Derive the expressions of input and output resistances for Voltage Shunt FBA. [L2][CO2][5M]
   b) Determine the input and output resistances of Current Series feedback amplifier. [L2][CO2][5M]

6. a) Explain the analysis of negative feedback amplifier. [L2][CO2][6M]

b) An amplifier has voltage gain with feedback of 100. If the gain without feedback changes by 20% and the gain with feedback should not vary more than 2%, determine the value of open loop gain A and feedback ratio β. [L3][CO2][4M]

7. With the help of a neat circuit diagram, discuss RC phase shift oscillator using BJT and also derive the expression for its frequency of oscillation. [L2][CO2][10M]

8. Describe the working principle of Wein bridge oscillator and derive the expression for frequency of oscillations. [L2][CO2][10M]

9. a) Explain the general analysis of an LC Oscillator. [L2][CO2][8M]

b) In as RC phase shift oscillator, if $R_1 = R_2 = R_3 = 200k\Omega$ and $C_1 = C_2 = C_3 = 100pF$. Find the frequency of oscillation. [L3][CO2][2M]

10. a) With the help of a neat circuit diagram, discuss Hartley oscillator using BJT and also derive the expression for its frequency of oscillation. [L2][CO2][8M]

b) In the Hartley oscillator, $L_2 = 0.4mH$ and $C = 0.004\mu F$. If the frequency of oscillator is 120kHz, find the value of L_1. Neglect the mutual inductance. [L3][CO2][2M]

11. a) Describe the working principle of Colpitts oscillator and derive the expression for frequency of oscillations. [L2][CO2][8M]

b) In the Colpitts oscillator, $C_1 = 0.2\mu F$ and $C_2 = 0.02\ \mu F$. If the frequency of oscillation is 10kHz, find the value of inductor. [L3][CO2][2M]

12. Write notes on the following:

a) Crystal oscillators [L1][CO2][5M]

b) Frequency and amplitude stability of oscillators. [L1][CO2][5M]

UNIT III
POWER AMPLIFIERS & TUNED AMPLIFIERS

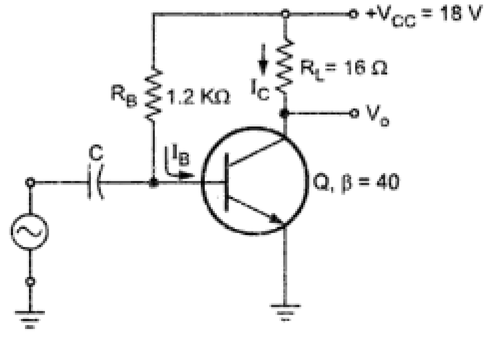
I. Two Mark Questions:

1. Classify the different types of power amplifiers. [L1][CO3][2M]
2. Compare the various types of power amplifiers. [L1][CO3][2M]
3. Mention the disadvantage of series fed direct coupled class A power amplifier. [L2][CO3][2M]
4. What are the differences between Push Pull and Complementary symmetry class B power amplifier? [L1][CO3][2M]
5. What is crossover distortion? [L1][CO3][2M]
6. What is a tuned amplifier? [L1][CO3][2M]
7. Mention the different types of tuned amplifiers. [L1][CO3][2M]
8. In a tuned amplifier $L = 100\mu H$ and $C = 100pF$. Determine its resonant frequency. [L3][CO3][2M]
9. Give the applications of tuned amplifiers. [L1][CO3][2M]
10. What is stagger tuned amplifier? [L1][CO3][2M]

II. Part – B Questions:

1.a) With neat diagram explain Series fed, Directly coupled Class A Power Amplifier and derive its maximum efficiency. [L2][CO3][5M]

b) A series fed Class A amplifier shown if the Fig, operates from dc source and applied sinusoidal input signal generates peak base current 9mA. Calculate : (i) Quiescent current I_{CQ}, (ii) Quiescent voltage V_{CEQ}, (iii) DC input power P_{DC}, (iv) AC output power P_{AC} and (v) Efficiency. [L3][CO3][5M]



2. The loudspeaker of 8Ω is connected to the secondary of the output transformer of a class A Amplifier. The quiescent collector current is 140mA. The turns ratio of transformer is 3:1. The collector supply voltage is 10V. If ac power delivered to the loudspeaker is 0.48W, assuming ideal transformer, calculate (i) AC power developed across primary, (ii) RMS value of load voltage, (iii) RMS value of primary voltage, (iv) RMS value of load current, (v) RMS value of primary current, (vi) DC power input, (vii) efficiency and (viii) power dissipation. [L3][CO3][10M]
3. a) Discuss with diagram, Transformer coupled Class A Power Amplifier and derive its Maximum efficiency. [L1][CO3][5M]
   b) A Class B push pull amplifier drives a load of 16Ω, connected to the secondary of ideal transformer. The V_{cc} is 25V. If number of turns on primary is 200 and secondary is 50. Calculate maximum power output, DC power input and efficiency. [L3][CO3][5M]
4. With neat diagram explain the working principle of Push Pull Class B Power Amplifier and derive its maximum efficiency. [L2][CO3][10M]
5. a) Describe Complementary Symmetry Class B Power Amplifier with neat diagram. [L2][CO3][5M]
   b) Write notes on crossover distortion in class B power amplifier. [L1][CO3][5M]
6. Describe the operation of a single tuned capacitive coupled amplifier with diagram and derive the expression for its centre frequency, Quality factor, Voltage gain and bandwidth. [L2][CO3][10M]
7. Discuss Double Tuned Amplifier with neat diagram and derive the expression for its bandwidth. [L2][CO3][10M]
8. a) A single tuned RF amplifier uses a transistor with an output resistance of 50 KΩ, output capacitance of 15 pF and internal resistance of next stage is 20 kΩ. The tuned circuit consists of 47 pF capacitance in parallel with series combination of 1μH inductance and 2Ω resistance. Calculate resonant frequency, effective quality factor and bandwidth of the circuit. [L3][CO3][5M]
   b) Explain the effect of cascading single tuned amplifiers on bandwidth. [L2][CO3][5M]
9. a) With circuit diagram, describe the stagger tuning operation. Give necessary graph. [L2][CO3][6M]
   b) The bandwidth for single tuned amplifier is 20kHz. Calculate the bandwidth if three such stages are cascaded. Also calculate the bandwidth for four stages. [L3][CO3][4M]
10. a) Discuss the stability considerations of a tuned amplifier. [L2][CO3][5M]
    b) Compare the different types of tuned amplifiers. [L2][CO3][5M]

UNIT IV

OPERATIONAL AMPLIFIER

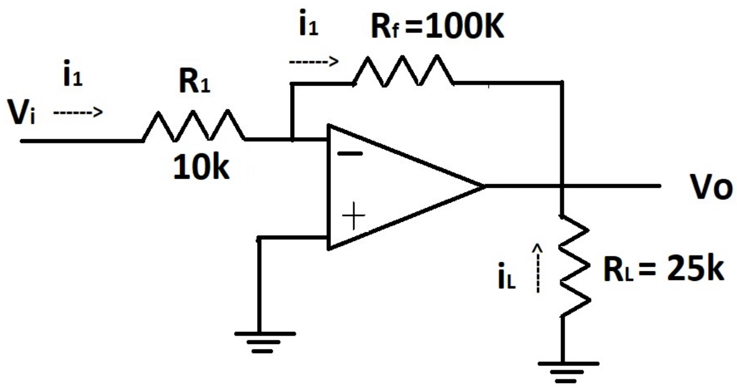
I. Two Mark Questions:

1. What is operational amplifier? [L1][CO4][2M]
2. Mention the applications of operational amplifier. [L1][CO4][2M]
3. List the characteristics of an ideal opamp. [L1][CO4][2M]
4. Design an opamp with a gain of -10 and input resistance equal to 10kΩ. [L3][CO4][2M]
5. Design an amplifier with a gain of +5 using one opamp. [L3][CO4][2M]
6. Define CMRR. [L1][CO4][2M]
7. What are the important features of an instrumentation amplifier? [L1][CO4][2M]
8. Mention the differences between differentiator and integrator. [L1][CO4][2M]
9. Draw the output waveform of a differentiator for a sine wave input and square wave input. [L1][CO4][2M]
10. What is Scmitt trigger? [L1][CO4][2M]

II. Part – B Questions:

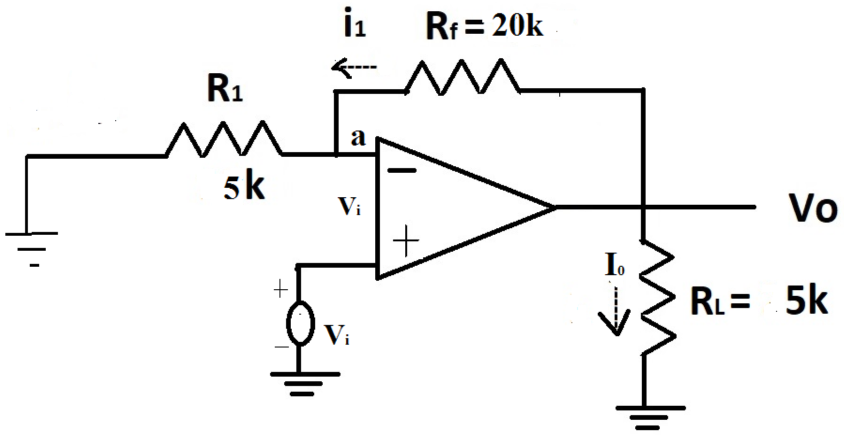
1.a) Draw an inverting amplifier using an opamp and derive the expression for its closed loop voltage gain. [L2][CO4][5M]

b) In the figure shown, R_1 = 10kΩ, R_f = 100kΩ, V_i = 1V. A load of 25kΩ is connected to the output terminal. Calculate (i) i_1 (ii) V_o (iii) i_L and (iv) total current i_o into the output pin. [L3][CO4][5M]



2. a) Draw a non inverting amplifier using an opamp and derive the expression for its closed loop voltage gain. [L2][CO4][5M]

b) In the figure shown, R_1 = 5kΩ, R_f = 20kΩ, V_i = 1V. A load of 5kΩ is connected to the output terminal. Calculate (i) V_o (ii) A_{CL} (iii) the load current i_L and (iv) the output current i_o indicating proper direction of flow. [L3][CO4][5M]



3. a) Draw the circuit diagram of a Differential Amplifier and derive the expression for its output voltage. Write about difference and common mode gains. [L2][CO4][6M]

b) Explain the block diagram of an internal circuit of an operational amplifier. [L2][CO4][4M]

4. a) Describe the transfer characteristics of a differential amplifier. [L2][CO4][6M]

b) Write notes on Scale changer with circuit diagram. [L1][CO4][4M]

5. Obtain the expression for output voltage for an non inverting summing amplifier and Subtractor. [L2][CO4][10M]

6. With neat circuit diagram, discuss instrumentation amplifier and also derive its output Voltage. [L2][CO4][10M]

7. a) What is sample and hold circuit? Mention the applications of sample and hold circuit. [L1][CO4][2M]

b) Draw the circuit diagram of sample and hold circuit and describe its operation with the help of its input and output waveforms. [L2][CO4][8M]

8. a) What are the limitations of an ordinary opamp differentiator? [L1][CO4][2M]

b) Draw the circuit diagram of ideal and practical differentiator and obtain the expression for their voltage gain. [L2][CO4][8M]

9. Draw the circuit diagram of an ideal and practical integrator. Derive the expression for their voltage gain. [L2][CO4][10M]

10. Explain the Schmitt Trigger with neat circuit diagram, input and output waveforms. [L2][CO4][10M]

UNIT V

OP-AMP APPLICATIONS

I. Two Mark Questions:

1. Define an electric filter. [L1][CO5][2M]
2. Classify active filters. [L1][CO5][2M]
3. Discuss the disadvantages of passive filters. [L1][CO5][2M]
4. Why are active filters preferred? [L2][CO5][2M]
5. What is Sallen-Key Filter? [L3][CO5][2M]
6. Mention the types of DACs. [L1][CO5][2M]
7. What are disadvantages of weighted resistor DAC? [L1][CO5][2M]
8. Why is an inverted R-2R ladder network DAC better than R-2R ladder DAC? [L2][CO5][2M]
9. List the various A/D conversion techniques. [L1][CO5][2M]
10. Define Settling time of a DAC/ADC. [L1][CO5][2M]

II. Part – B Questions:

1.a) Draw a First order low pass active filter and derive the transfer function its frequency response. [L2][CO5][5M]
   b) Design a second order Butterworth low pass filter having upper cutoff frequency of 1KHz. [L3][CO5][5M]

2. Draw a general Sallen-Key Filter and determine its transfer function and from general Sallen Key Filter obtain the transfer function of second order active low pass filter. Draw second order active low pass filter. [L2][CO5][10M]

3. a) With a neat diagram of a second order high pass active filter, derive the expression for its transfer function. [L2][CO5][5M]
   b) Design a second order Butterworth high pass filter having lower cutoff frequency of 1KHz. [L3][CO5][5M]

4. a) Classify Band pass filter. Mention the important parameters of a band pass filter. Draw a Second order narrow band pass filter and derive its transfer function. [L2][CO5][6M]
   b) Design a high pass filter with cutoff frequency of 1 KHz and a pass band gain of 2. [L3][CO5][4M]

5. a) Draw a first order wide band pass filter and determine its transfer function. [L2][CO5][5M]
   b) Design a wide band pass filter having f_L = 400Hz, F_H = 2KHz and pass band gain of 4. [L3][CO5][5M]

6. a) What is a notch filter? How do we get a notch filter from a band pass filter? Draw the circuit schematic of a second order notch filter and obtain its transfer function. [L2][CO5][5M]
   b) Design a wide band reject filter having f_H = 400 Hz and f_L = 2KHz having pass band gain of 2. [L3][CO5][5M]

7. a) Describe the operation of weighted resistor DAC with the help of circuit diagram. [L2][CO5][5M]
   b) With suitable diagram, discuss R-2R ladder DAC. [L2][CO5][5M]

8. Draw the circuit diagram of inverted R-2R ladder DAC network. Explain its working. List out the advantages over R-2R ladder network. [L2][CO5][10M]

9. With neat circuit diagram and truth table, discuss flash type ADC. [L2][CO5][10M]

10. a) Draw and explain the circuit diagram of successive approximation ADC. [L2][CO5][8M]
    b) Write the limitations of successive approximation ADC. [L1][CO5][2M]

11. a) Draw the circuit diagram of Dual Slope ADC and explain its working with neat sketches. [L2][CO5][8M]
    b) What are the disadvantages of Dual Slope ADC? [L1][CO5][2M]

12. Explain the specifications of DAC/ADC specified by the manufacturers. [L2][CO5][10M]

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UNIT –I
SMALL SIGNAL HIGH FREQUENCY TRANSISTOR AMPLIFIER ANALYSIS AND MULTISTAGE AMPLIFIERS

1. Hybrid-Pi model is also known as ________________ model. [ ]
   A) h-parameter B) Giacoletto C) Transmission D) None
2. The capacitance observed between b' and e in a Transistor at High frequencies is [ ]
   A) Coupling B) Input C) Feedback D) none
3. Transconductance, g_m is given by **(GATE 2002)** [ ]
   A) $V_T/|I_c|$ B) $|I_c|/V_T$ C) $|I_c|*V_T$ D) $V_T*|I_c|$
4. Typical value of Transconductance is [ ]
   A) 50mA/v B) 52mA/v C) 15mA/v D) 50µA/v
5. The Typical value of input conductance is [ ]
   A) 1mhos B) 1milli mhos C) 4M mhos D) none
6. Typical value of diffusion capacitance is ____________. [ ]
   A) 1pF B) 3pF C) 100pF D) none
7. The Typical value of transition capacitance is ____________. [ ]
   A) 100µF B) 100pF C) 3pF D) none
8. Typical value of Output resistance is ____________. [ ]
   A) 80KΩ B) 80MΩ C) 4MΩ D) none
9. Typical value of base spreading resistance is ____________ [ ]
   A) 80KΩ B) 100Ω C) 4MΩ D) none
10. The base spreading resistance is given by [ ]
   A) $r_{bb'} = h_{ie} * r_{b'e}$ B) $r_{bb'} = h_{ie} - r_{b'e}$ C) $r_{bb'} = h_{ie} + r_{b'e}$ D) $r_{bb'} = r_{b'e}/ h_{re}$
11. The input resistance is given by [ ]
   A) $r_{b'e} = h_{fe} * g_m$ B) $r_{b'e} = h_{re} * g_m$ C) $r_{b'e} = h_{fe} / g_m$ D) $r_{b'e} = h_{oe} * g_m$
12. The Feedback conductance, $r_{b'c}$ is given by [ ]
   A) $r_{b'c} = r_{b'e} / h_{re}$ B) $r_{b'c} = r_{b'e} * h_{re}$ C) $r_{b'c} = r_{b'e} + h_{re}$ D) none
13. Transconductance g_m is ____________ proportional to collector current. [ ]
   A) Directly B) Inversely C) linear D) None
14. The input resistance $r_{b'e}$ is ____________ proportional to Temperature. [ ]
   A) Directly B) Inversely C) linear D) None
15. f_T is the frequency at which short circuit current gain drops to __________. **(GATE 2001)** [ ]
   A) unity B) zero C) infinity D) None
16. The frequency, f_β is given by [ ]
   A) $f_\beta = h_{fe}/ f_T$ B) $f_\beta = h_{fe} * f_T$ C) $f_\beta = f_T / h_{fe}$ D) $f_\beta = h_{fe} + f_T$
17. Unity gain frequency, f_T is given by __________________. [ ]
   A) $f_T = h_{fe} * f_\beta$ B) $f_T = h_{fe}/ f_\beta$ C) $f_T = h_{fe} + f_\beta$ D) $f_T = h_{fe} - f_\beta$
18. The frequency at which short circuit current gain drops to unity is [ ]
   A) f_β B) f_T C) f_α D) None
19. The Emitter Diffusion capacitance is given by **(GATE 2000)** [ ]
   A) $g_m/2\pi f_T$ B) $g_m/2f_T$ C) $g_m * 2\pi f_T$ D) $g_m /2\pi f_\beta$
20. The Emitter Diffusion capacitance is directly proportional to [ ]
   A) g_m B) $r_{bb'}$ C) C_c D) None
21. The type of coupling used in all audio small signal amplifiers is [ ]
   A) Transformer coupling B) Direct Coupling C) RC Coupling D) None

22. The type of coupling used in amplifier where impedance matching required is **(GATE2001)** [ ]
A) Transformer coupling B) Direct Coupling C) RC Coupling D) None

23. The cascode amplifier is **(GATE 2005)** [ ]
A) CE-CE B) CC-CC C) CE-CB D) none

24. The Darlington pair has two stages of **(GATE 2005)** [ ]
A) CE and CC B) both CE C) both CC D) CE and CB

25. The frequency range of an amplifier between lower and upper 3 dB frequencies is called [ ]
A) Beamwidth B) bandwidth C) linewidth D) all of the above

26. The Darlington pair is called [ ]
A) Super alpha transistor B) Super gamma transistor C) Super beta transistor D) all the above

27. Cascading two amplifiers will **(GATE 2014)** [ ]
A) increase the overall bandwidth
B) give same bandwidth
C) decrease the overall bandwidth
D) none

28. The transformer coupled amplifier gives **(GATE 1997)** [ ]
A) Maximum voltage gain B) maximum current gain
C) Impedance matching D) larger bandwidth

29. In a multistage amplifier, direct coupling is used for amplifying [ ]
A) High frequency ac signals B) sinusoidal signals
C) High level voltages D) changes in dc voltages

30. The Darlington pair is used for [ ]
A) Reducing distortion B) wide and voltage amplification
C) Impedance matching D) power amplification

31. If the four stages of a multistage amplifier have individual gains of 5 dB, 10 dB, 15 dB and 20 dB then the total gain is [ ]
A) 30 dB B) 50 dB C) 150 dB D) 750 dB

32. The lower cutoff frequency of a multistage amplifier is **(IES 2014)** [ ]
A) f_L / sqrt($2^{1/n}$ – 1) B) f_L * sqrt($2^{1/n}$ – 1) C) f_L + sqrt($2^{1/n}$ – 1) D) none

33. The upper cutoff frequency of a multistage amplifier is [ ]
A) f_H * sqrt($2^{1/n}$ – 1) B) f_H / sqrt($2^{1/n}$ – 1) C) f_H + sqrt($2^{1/n}$ – 1) D) none

34. If four identical amplifiers are cascaded each having f_L = 100Hz, then the overall lower 3dB frequency is [ ]
A) 800KHz B) 229.9Hz C) 1MHz D) none

35. If four identical amplifiers are cascaded each having f_H = 100KHz, then the overall upper 3dB frequency is [ ]
A) 800KHz B) 43.5KHz C) 1MHz D) none

36. If eight identical amplifiers are cascaded each having f_H = 200KHz, then the overall upper 3dB frequency is [ ]
B) 60.17KHz B) 43.5KHz C) 1MHz D) none

37. If the overall lower cutoff frequency of a two identical amplifier is 600Hz, then the individual lower cutoff frequency is [ ]
A) 100Hz B) 386 Hz C) 1MHz D) none

38. If the overall upper cutoff frequency of a two identical amplifier is 18KHz, then the individual upper cutoff frequency is [ ]
B) 100Hz B) 386 Hz C) 27.97KHz D) none

39. For a four stage multistage amplifier, if the individual lower cutoff frequency is 15Hz, then the overall lower cutoff frequency is [ ]
A) 34.48Hz B) 20KHz C) 1KHz D) none

40. For a four stage multistage amplifier, if the individual upper cutoff frequency is 30KHz, then the overall lower cutoff frequency is [ ]
B) 13KHz B) 200KHz C) 1MHz D) none

UNIT –II
FEEDBACK AMPLIFIERS AND OSCILLATORS

1. The feedback network is usually a _______________ two port network. [ ]
   A) Active B) Passive C) Bilateral D) none
2. The feedback network may contain [ ]
   A) Resistor B) Capacitor C) Inductor D) All of the above
3. If the output voltage is sampled by connecting the feedback network in shunt across the output, then the sampling is called [ ]
   A) Voltage Sampling B) Current Sampling C) Power Sampling D) none
4. If the output current is sampled by connecting the feedback network in series with the output, then the sampling is called [ ]
   B) Voltage Sampling B) Current Sampling C) Power Sampling D) none
5. The basic amplifier used in voltage series feedback amplifier is [ ]
   A) Voltage Amplifier B) Current Amplifier C) Transconductance Amplifier D)Transresistance amplifier
6. The basic amplifier used in current series feedback amplifier is [ ]
   A) Voltage Amplifier B) Current Amplifier C) Transconductance Amplifier D)Transresistance amplifier
7. The basic amplifier used in current shunt feedback amplifier is [ ]
   A) Voltage Amplifier B) Current Amplifier C) Transconductance Amplifier D)Transresistance amplifier
8. The basic amplifier used in voltage shunt feedback amplifier is [ ]
   A) Voltage Amplifier B) Current Amplifier C) Transconductance Amplifier D)Transresistance amplifier
9. The expression for gain with negative feedback is **(IES 2013)** [ ]
   A) $A_f = A / (1 * \beta)$ B) $A_f = A / (1 - \beta)$ C) $A_f = A / (1 + \beta A)$ D) none
10. Gain with feedback is always ________ than gain without feedback. **(GATE 1999)** [ ]
    A) Less B) Greater C) Equal D) none of the above
11. Bandwidth with feedback is always ____ than bandwidth without feedback. **(GATE 2001)** [ ]
    A) Less B) Greater C) Equal D) none of the above
12. Noise and non linear distortion will ____ by introducing negative feedback. **(GATE 1997)** [ ]
    A) Increases B) no changes C) Decreases D) none
13. If the feedback signal is added to the input in series with the applied voltage, then the input resistance _________________. [ ]
    A) Increases B) no changes C) Decreases D) none
14. If the feedback signal is added to the input in shunt with the applied voltage, then the input resistance _________________. [ ]
    A) Increases B) no changes C) Decreases D) none
15. The negative feedback which samples output voltage, tends to _____ the output resistance. [ ]
    A) Increases B) no changes C) Decreases D) none
16. The negative feedback which samples output current, tends to _____ the output resistance. [ ]
    A) Increases B) no changes C) Decreases D) none
17. In voltage series feedback amplifier, the input resistance ______________ and the output resistance ___________.**(GATE 2013)** [ ]
    A) Increases, Decreases B) Decreases, Increases C) Increases, Increases D) Decreases, Decreases
18. In current series feedback amplifier, the input resistance ______________ and the output resistance ___________. **(GATE 1995)** [ ]
    A) Increases, Decreases B) Decreases, Increases C) Increases, Increases D) Decreases, Decreases
19. In current shunt feedback amplifier, the input resistance ______________ and the output resistance ___________. **(GATE 2007)** [ ]
    A) Increases, Decreases B) Decreases, Increases C) Increases, Increases D) Decreases, Decreases
20. In voltage shunt feedback amplifier, the input resistance ______________ and the output resistance ___________. **(IES 2014)** [ ]
    A) Increases, Decreases B) Decreases, Increases C) Increases, Increases D) Decreases, Decreases
21. The expression for gain with positive feedback is [ ]
    A) $A_f = A / (1 * \beta)$ B) $A_f = A / (1 - \beta)$ C) $A_f = A / (1 - \beta A)$ D) none
22. For oscillator, the total phase shift around the entire loop is [ ]
    A) 360^o B) 90^0 C) 180^0 D) none
23. In RC phase shift oscillator, each RC network in the feedback network produces ______ phase shift. [ ]

A) 120^0 B) 60^0 C) 360^0 D) none

24. The frequency of oscillation for RC phase shift oscillator using BJT is **(GATE 2015)** [ ]
A) 1 / 2πRL B) 1 / 2πRC C) 1 / 2πRC*sqrt(4K + 6) D) none

25. The frequency of oscillation for Wein bridge oscillator using BJT is **(GATE 2000)** [ ]
A) 1 / 2πRL B) 1 / 2πRC C) 1 / 2πRC*sqrt(4K + 6) D) none

26. |Aβ| =1 gives ________________ oscillations. [ ]
A) Damped B) Overdamped C) Sustained D) None

27. The number of inductors used in Hartley Oscillator is [ ]
A) 2 B) 1 C) 3 D) none of the above

28. The number of capacitors used in Colpitts Oscillator is [ ]
A) 2 B) 1 C) 3 D) none of the above

29. An oscillator uses [ ]
A) positive feedback B) negative feedback C) no feedback C) None of these

30. The essential conditions for sustained oscillation are [ ]
A) $|A\beta| = 1$ and angle of $A\beta = 0^0$ B) $|A\beta| < 1$ and angle of $A\beta = 0^0$
C) $|A\beta| > 1$ and angle of $A\beta = 0^0$ D) $|A\beta| < 1$ and angle of $A\beta = 180^0$

31. A phase shift oscillator feedback circuit consists of [ ]
A) R and C components B) R and L components
C) L and C components D) R, L and C components

32. For a Hartley oscillator, the frequency of oscillation f is **(GATE 2001)** [ ]
A) 1 / 2πLC B) 2π / √(LC) C) $1 / 2\pi\sqrt{[(L_1 + L_2)*C]}$ D) LC / 2π

33. In a practical oscillators |Aβ| is [ ]
A) slightly less than 1 B) 1 C) -1 D) slightly greater than 1

34. The oscillator with highest Q factor is a **(GATE 1994)** [ ]
A) crystal controlled oscillator B) tuned oscillator
C) Wien-bridge oscillator D) Colpitts oscillator

35. Name the type of material used in Crystal oscillator. [ ]
A) Quartz B) Silicon C) Germanium D) None

36. Name the Oscillator which offers high stability. [ ]
A) Wein Bridge B) Crystal C) RC phase shift D) Hartley

37. Positive feedback is same as [ ]
A) frequency synthesis B) negative feedback C) degeneration D) regeneration

38. The number of capacitor used in Hartley Oscillator is [ ]
A) 2 B) 1 C) 3 D) none of the above

39. The number of inductor used in Colpitts Oscillator is [ ]
A) 2 B) 1 C) 3 D) none of the above

40. Which of the following is a cause of frequency instability in oscillators? **(GATE 2002)** [ ]
A) temperature variation B) variation in dc power supply
C) variation in load D) all of these

UNIT –III
POWER AMPLIFIERS AND TUNED AMPLIFIERS

1. The position of quiescent point for class A power amplifier is on [ ]
A) Centre of load line B) on X-axis C) Below X-axis D) none

2. The position of quiescent point for class B power amplifier is on [ ]
A) Centre of load line B) on X-axis C) Below X-axis D) none

3. The position of quiescent point for class C power amplifier is on [ ]
A) Centre of load line B) on X-axis C) Below X-axis D) none

4. The position of quiescent point for class AB power amplifier is on [ ]
A) Above X-axis but below the centre of load line B) on X-axis C) Below X-axis D) none

5. The operating cycle for class AB power amplifier is [ ]
A) 360^0 B) 180^0 C) 180^0 to 360^0 D) none

6. A power amplifier in which the transistor is ON for full cycle (360^0) of the Signal input is [ ]
A) Class A B) Class B C) Class C D) Class AB

7. The maximum conversion efficiency for series fed direct coupled class A amplifier is [ ]
A) 78.5% B) 25% C) 100% D) 50%

8. The maximum conversion efficiency for transformer coupled class A amplifier is [ ]
A) 78.5% B) 63.33% C) 100% D) 50%
9. In a Class A amplifier, the current in the output circuit flows for **(GATE 2007)** [ ]
A) Less than 90^0 B) 90^0 C) 180^0 D) 360^0
10. The class A amplifier has [ ]
A) High efficiency and high distortion
B) Low efficiency and high distortion
C) Low efficiency and low distortion
D) High efficiency and low distortion
11. In a Class A amplifier, the circuit efficiency can be increased by using [ ]
A) Low dc power input B) transformer coupled load
C) Low rating transistor D) direct coupled load
12. The maximum conversion efficiency for a class B amplifier is [ ]
A) 78.5% B) 63.33% C) 100% D) 50%
13. The main function of the transformer used in the output of a power amplifiers is to [ ]
A) increase the output power B) increase the voltage gain
C) Match the load resistance with the output resistance D) none of these
14. When compared to a Class B amplifier, a Class A power amplifier [ ]
A) Has more efficiency B) has less distortion
C) Is not susceptible to power supply hum D) none of these
15. The amplifier that suffers mainly from the problem of crossover distortion is **(GATE 1999)** [ ]
A) Class A B) Class B C) Class AB D) Class C
16. A power amplifier in which the transistor is ON for less than one half cycle is [ ]
A) Class A B) Class B C) Class C D) Class AB
17. The efficiency of power amplifier is determined by [ ]
A) P_{ac} / P_{dc} B) P_{dc} / P_{ac} C) $P_{ac} + P_{dc}$ D) none
18. The main advantage of a Class B push pull amplifier is free from **(GATE 1993)** [ ]
A) Any circuit imbalances B) unwanted noise
C) Even order harmonic distortion D) dc magnetic saturation effects
19. In case of class A amplifiers, the ratio of efficiency of transformer coupled amplifier to efficiency of transformer less amplifier is **(GATE 1987)** [ ]
A) 2.0 B) 1.36 C) 1.0 D) 0,5
20. A class A transformer coupled, transistor power amplifier is required to deliver a power Rating of the transistor should not be less than **(GATE 1994)** [ ]
A) 5 W B) 10 W C) 20 W D) 40 W
21. A tuned amplifier uses ______________ load. [ ]
A) Resistive B) capacitive C) LC tank D) inductive
22. A tuned amplifier is generally operated in __________ operation. [ ]
A) Class A B) Class C C) Class b D) none
23. The voltage gain of a tuned amplifier is ___________ at resonant frequency. **(GATE 2013)** [ ]
A) Minimum B) Maximum C) half way between minimum and maximum D) none
24. A resonant circuit contains _________ elements. [ ]
A) R and L only B) R and C only C) only C D) L and C
25. When either L or C is increased, the resonant frequency of tank circuit [ ]
A) Remains the same B) Increases C) Decreases D) none
26. The bandwidth of a tuned circuit is [ ]
A) Q / f_r B) Lf_r / CR C) f_r / Q D) CR / f_r
27. The impedance Z_r of an LC parallel circuit at resonance is **(GATE 2014)** [ ]
A) L / CR B) CR / L C) LR / C D) R / LC
28. The Q factor of a response circuit is [ ]
A) $R / (2\pi f_r)$ B) $2\pi f_r L / R$ C) $2\pi f_r C / R$ D) $R / (2\pi f_r C)$
29. If high degree of selectivity is desired, then double tuned circuit should have _____coupling. [ ]
A) Loose B) Tight C) critical D) none
30. The bandwidth of an n-stage tuned amplifier, with each stage having a bandwidth of B is given by **(GATE 1993)** [ ]
A) B / n B) $B / n^{1/2}$ C) $B(\text{sqrt}(2^{1/n} - 1))$ D) $B / (\text{sqrt}(2^{1/n} - 1))$

31. Double tuned circuits are used in _____ stages of radio receiver. [ ]
A) IF B) Audio C) Output D) none
32. At series or parallel resonance, the circuit power factor is [ ]
A) 0 B) 5 C) 1 D) 8
33. A double tuned amplifier provides **(IES 2012)** [ ]
A) larger 3 dB bandwidth and flatter top
B) Lesser 3 dB bandwidth and flatter top
C) Larger 3 dB bandwidth and narrow top
D) Lesser 3 dB bandwidth and narrow top
34. The bandwidth of a cascading single tuned amplifier [ ]
A) Increases B) decreases C) maintains zero D) all of above
35. A stagger tuned amplifier has the resonant frequency of two tuned circuits separated by [ ]
A) Bandwidth of each stage
B) resonant frequency of one stage
C) Zero frequency
D) half the bandwidth of each stage
36. The bandwidth of single tuned amplifier is 20kHz. If three such stages are cascaded then the the bandwidth of cascaded stage is [ ]
A) 20 MHz B) 10.196 KHz C) 1 MHz D) none
37. The bandwidth of single tuned amplifier is 20kHz. If four such stages are cascaded then the the bandwidth of cascaded stage is [ ]
A) 20 MHz B) 8.7 KHz C) 1 MHz D) none
38. The technique used to eliminate oscillations in a tuned amplifier is [ ]
A) stabilization B) regulation C) Linearization D) neutralization
39. The bandwidth of a tuned circuit is **(GATE 2014)** [ ]
A) Q / f_r B) Lf_r / CR C) f_r / Q D) CR / f_r
40. A tuned circuit has a coil inductance of 120µH and capacitance of 211pF, then the resonant frequency is [ ]
A) 1 MHz B) 1 KHz C) 10 KHz D) none

UNIT IV
OPERATIONAL AMPLIFIER

1. An ideal opamp has open loop voltage gain of [ ]
A) Infinity B) zero C) unity D) none
2. An ideal opamp has input impedance of [ ]
A) Infinity B) zero C) unity D) none
3. An ideal opamp has output impedance of [ ]
A) Infinity B) zero C) unity D) none
4. An ideal opamp has bandwidth of [ ]
A) Infinity B) zero C) unity D) none
5. An ideal opamp has zero offset $V_0 = 0$ when V_1 and V_2 equal to [ ]
A) Infinity B) zero C) unity D) none
6. The closed loop gain of an inverting opamp is **(GATE 2005)** [ ]
A) $–R_1 / R_f$ B) $-R_f$ C) $–R_f / R_1$ D) $1 + (R_f / R_1)$
7. The closed loop gain of a non inverting opamp is [ ]
A) $–R_1 / R_f$ B) $-R_f$ C) $–R_f / R_1$ D) $1 + (R_f / R_1)$
8. The op-amp voltage follower circuit is also known as [ ]
A) Unity gain amplifier B) inverter C) summer D) none
9. For a non inverting opamp, if $R_f = 40k\Omega$ and $R_1 = 10\ k\Omega$, then closed loop gain is [ ]
A) 10 B) 4 C) 30 D) none
10. The common mode signal voltage V_{CM} is defined as [ ]
A) $V_1 + V_2$ B) $V_1 – V_2$ C) $(V_1 + V_2) / 2$ D) none
11. The CMRR is given by **(GATE 2001)** [ ]
A) A_C / A_D B) A_D / A_C C) $A_D + A_C$ D) none
12. The relative sensitivity of an opamp to a difference signal as compared to a common mode Signal is called [ ]

A) Common Mode Rejection Ratio B) Collector Mode Rejection Ratio
C) Difference Mode Rejection Ratio D) none

13. For better opamp, the CMRR should be [ ]
A) Zero B) high C) negative D) none
14. The first two stages of commercial opamp is [ ]
A) Differential amplifier B) Buffer and level translator C) Output Stage D) none
15. An ideal opamp is an ideal **(GATE 2004)** [ ]
A) Voltage controlled voltage source B) Voltage controlled current source
C) Current controlled voltage source D) Current controlled current source
16. The important feature of an instrumentation amplifier is [ ]
A) High gain accuracy B) high CMRR
C) High gain stability D) all of the above
17. For large CMRR, A_{CM} should be [ ]
A) High B) unity C) zero D)none
18. For large CMRR, A_{DM} should be [ ]
A) High B) negative C) zero D) none
19. If the input is a sine wave, the inverting amplifier (output) will produce _____ phase shift. [ ]
A) 360° B) 0° C) 90° D) 180°
20. If input is a sine wave, the non inverting amplifier (output) will produce _____ phase shift. [ ]
A) 360° B) 0° C) 90° D) 180°
21. The voltage gain of a voltage follower is [ ]
A) Unity B) <1 C) >1 D) variable
22. The circuit which samples an input signal and holds on its last sampled value until the input is sampled again is called [ ]
A) Integrator B) Instrumentation Amplifier C) Sample and Hold Circuit D) none
23. If input to a differentiator is a sine wave signal, then the output is [ ]
A) Triangular B) rectangular C) cosine D) none
24. If input to a differentiator is a square wave signal, then the output is [ ]
A) Spike B) rectangular C) cosine D) none
25. If input to a integrator is a sine wave signal, then the output is **(GATE 2012)** [ ]
A) Triangular B) rectangular C) cosine D) none
26. If input to a integrator is a step voltage, then the output is [ ]
A) Ramp function B) rectangular C) cosine D) none
27. If input to a integrator is a square wave, then the output is [ ]
A) Ramp function B) rectangular C) triangular D) none
28. Which of the following is not applicable to an Op Amp? [ ]
A) linear device B) active device C) dc coupled D) none of these
29. The success of op amp is due to which of the following operation? [ ]
A) open loop B) negative feedback C) positive feedback D) none of these
30. Of the following gains, which is of most significance in an Opamp operation? [ ]
A) A_V B) A_I C) A_P D) all of these
31. Which of the following is applicable in a negative feedback opamp? [ ]
A) lower input impedance B) higher output impedance
C) decreased in closed loop gain D) all of these
32. To obtain a positive gain in a non inverting op amp, what should be the phase relationship between the input and output voltage signals? [ ]
A) 180^0 out of phase B) in phase C) in phase quadrature D) any phase
33. Which oi the following is an advantage of a negative feedback loop in an opamp? [ ]
A) very bigh input impedance B) low output operation
C) stable output signal D) all of these
34. Which of the following hold for a voltage follower circuit? [ ]
A) $V_i = V_o$ B) input impedance = A_vR_i C) A_{VC} = 0 dB D) all of these
35. In an inverting opamp, if $R_f = R_1$, A_{CL} = - 1, then the circuit is called as [ ]
A) Scale changer B) Schmitt Trigger C) Integrator D) none

36. The most commonly used amplifier in sample and hold circuit is (**GATE 2000)** [ ]
A) A unity gain inverting amplifier B) a unity gain non inverting amplifier
C) an inverting amplifier with a gain of 10 D) an inverting amplifier with a gain of 100
37. Scmitt Trigger is also known as [ ]
A) Integrator B) Differentiator C) Regenerative comparator D) none of these
38. Schmitt Trigger exhibits a phenomenon called as [ ]
A) Hysteresis B) phase detection C) amplitude detection D) none of these
39. The output of Schmitt trigger is [ ]
A) square waveform B) triangular waveform C) sine waveform D) cosine waveform
40. A Scmitt Trigger is comparator with _________ feedback. (**GATE 2013)** [ ]
A) Negative B) positive C) zero D) none of these

UNIT V
OP-AMP APPLICATIONS

1. A frequency selective electric circuit that passes electric signals of specified band of frequencies and attenuates the signals of frequencies outside the band is called as_______ [ ]
A) Integrator B) Differentiator C) Electric Filter D) none of these
2. A first order filter consists of _____ RC network. [ ]
A) Two B) Single C) Four D) none
3. In active first order low pass filter, the frequency range from 0 to f_h is called_______ [ ]
A) Pass band B) Stop band C) no band D) none
4. The gain of the first order low pass filter **(GATE 2014)** [ ]
A) Increases at the rate 20dB/decade B) Increases at the rate 40dB/decade
C) Decreases at the rate 20dB/decade D) Decreases at the rate 40dB/decade
5. The roll off rate of a second order active filter is ____________ **(GATE 2015)** [ ]
A) – 20 dB/decade B) – 40 dB/decade C) -60dB/decade D) none of these
6. If the flattest pass band occurs for damping coefficient of 1.414, then this is called a______ [ ]
A) Butterworth Filter B) Chebyshev Filter C) Bessel Filter D) none of these
7. A heavily damped filter is _______ [ ]
A) Butterworth Filter B) Chebyshev Filter C) Bessel Filter D) none of these
8. The more lightly doped filter is __________ [ ]
A) Butterworth Filter B) Chebyshev Filter C) Bessel Filter D) none of these
9. A general second order filter is called as ________ [ ]
A) Sallen-Key Filter B) Notch Filter C) Bessel Filter D) none of these
10. The quality factor for a narrow band pass filter is ________**(IES 2013)** [ ]
A) Q < 10 B) Q > 10 C) Q = 0 D) none of these
11. The quality factor for a wide band pass filter is ________ [ ]
A) Q < 10 B) Q > 10 C) Q = 0 D) none of these
12. A wide band pass filter can be formed by cascading _________**(BSNL JTO 2002)** [ ]
A) Two high pass filters B) Two low pass filters C) one HPF and one LPF D) none
13. If the HPF and LPF are of the first order, then the band pass filter (BPF) will have a Roll off rate of **(GATE 2003)** [ ]
A) – 20 dB/decade B) – 40 dB/decade C) -60dB/decade D) none of these
14. The filter which is used for the rejection of a single frequency, such as 50Hz power line frequency hum is called as [ ]
A) Low pass filter B) high pass filter D) band pass filter D) narrow band reject filter
15. The filter obtained by subtracting the band pass filter output from its input is called as [ ]
A) Low pass filter B) high pass filter D) band pass filter D) notch filter
16. The quality factor for a wide band reject filter is ________ [ ]
A) Q < 10 B) Q > 10 C) Q = 0 D) none of these
17. The filter that has two stop bands is [ ]
A) Band-pass Filter B) Low pass filter C) High pass filter D) Band-reject filter
18. Which filter performs exactly the opposite to the band-pass filter? [ ]
A) Band-reject filter B) Band-stop filter C) Band-elimination filter D) All of the above
19. The largest resistor is _____ times smallest one for only 8-bit weighted resistor DAC. [ ]
A) 64 B) 128 C) 8 D) none

20. Wide range of resistors are required in _____________ type DAC. [ ]
A) Weighted resistor DAC B) R-2R ladder DAC C) Inverted R-2R Ladder DAC D) none
21. In R-2R ladder type DAC only ____ values of resistors are required. (**BSNL JTO 2002)** [ ]
A) 4 B) 2 C) 8 D) none
22. The current flowing in the resistors changes as the input data changes is the drawback in ______________ type DAC. [ ]
A) Weighted resistor DAC B) R-2R ladder DAC C) Inverted R-2R Ladder DAC D) Both (A) and (B)
23. The simplest possible ADC is [ ]
A) Flash Type ADC B) Dual Slope ADC C) Successive Approximation ADC D) none
24. The typical conversion time for Flash Type ADC is [ ]
A) 1000 ns or less B) 100ns or less C) 5000ns or less D) none
25. The number of comparators approximately doubles for each added bit in _____ type ADC. [ ]
A) Flash Type ADC B) Dual Slope ADC C) Successive Approximation ADC D) none
26. In successive approximation converter, an eight bit converter would require _______ Clock pulses to obtain a digital output. (**GATE 2012)** [ ]
A) 16 B) 8 C) 24 D) none
27. The smallest change in voltage which may be produced at the output of the converter is ___ [ ]
A) Resolution B) Linearity C) Accuracy D) none of these
28. An 8-bit DAC is said to have _______ bit resolution. [ ]
A) 16 B) 8 C) 24 D) none
29. An 8-bit DAC is said to have a resolution of ________ of full scale. **(IES 2012)** [ ]
A) 1.588 B) 0.0978 C) 0.392 D) none
30. The _________ of DAC/ADC is a measure of its accuracy and tells us how close the converter output is to its ideal transfer characteristics. [ ]
A) Resolution B) Linearity C) Accuracy D) none of these
31. In an ideal DAC, equal increment in the digital input should produce equal increment in the Analog output and the transfer curve should be _________________. [ ]
A) Logarithmic B) non linear C) linear D) none of these
32. A good converter exhibits a linearity error of less than **(GATE 2002)** [ ]
A) +/- (1/2) LSB B) +/- (1/4) LSB C) +/- (1/8) LSB D) none
33. The maximum deviation between the actual converter output and the ideal converter output is called _____________ [ ]
A) Resolution B) Linearity C) Absolute Accuracy D) none of these
34. The maximum deviation after gain and offset errors have been removed is called as [ ]
A) Relative Accuracy B) Absolute Accuracy C) Linearity D) none
35. A ____ DAC is the one whose analog output increases for an increase in digital input. [ ]
A) Resolution B) Accuracy C) monotonic D) none
36. If a DAC has to be monotonic, the error should be less than ______ at each output level. [ ]
A) +/- (1/2) LSB B) +/- (1/4) LSB C) +/- (1/8) LSB D) none
37. Dual slope converters are suitable for precise measurement of _____ varying signals. [ ]
A) Fastly B) Slowly C) Equally D) none
38. Integrating type ADCs perform conversion in _____ manner. [ ]
A) Transparent B) Direct C) Indirect D) none
39. The time DAC/ADC takes for the output to settle within a specified band +/-(1/2) LSB of its final value following a code change at the input is called________ [ ]
A) Settling time B) Rise Time C) Fall Time D) none
40. The performance of a DAC/ADC changes with [ ]
A) Temperature B) Age C) power supply variations D) All the above

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