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Subject Code :EC8353	**Subject Name** : Electronic Devices & Circuits	Rev. No.	02
Unit No : IV	**Unit Name** : Multistage Amplifier & Differential Amplifier	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1	For any cascaded amplifier network, which of these are incorrect? A) Cascading Increases Gain B) Overall Input Resistance Is Equal To The Input Resistance Of The First Amplifier **C) The Overall Output Resistance Is Less Than The Lowest Output Resistance In All Amplifiers Used** D) Loading Effect Occurs	L4
2	Loading effect occurs when _____ **A) R2 Is Small** B) A1 Is Small C) R2 Is Large D) A2 Is Large	L4
3	Cascading increases lower cut-off frequencies. **A) True** B) False	L4
4	6 similar amplifiers are cascaded, with lower cut-off frequency 100Hz. Bandwidth is B1=10 kHz. What is the higher cut-off frequency of the cascaded network? A) 4000 Hz B) 1667 Hz **C) 3642 Hz** D) 3000 Hz	L4
5	It is provided that the lower cut-off frequency of an individual amplifier is 25Hz, find the net cut-off frequency of a cascaded network of 8 similar amplifiers. A) 200 Hz **B) 83 Hz** C) 100 Hz D) 25 Hz	L4
6	Given that the higher cut-off frequency of the cascaded network of 6 amplifiers is 2Mhz, find the higher cut-off frequency of one amplifier, if all amplifiers are similar. **A) 5.7 MHZ** B) 0.33 MHZ	L4

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	C) 12 MHZ D) 64 MHZ	
7	The lower and upper cutoff frequencies of an amplifier are unknown. If originally, individual BW of such an amplifier is B1, and now the bandwidth of the cascaded network of 10 such amplifiers is B2, find B2/B1. **A) 0.26** B) 3.84 C) Insufficient Data D) 5	L4
8	Provided a cascade multistage amplifier network, their pole frequencies obtained are f1=10Mhz, f2=12Mhz, f3=20Mhz, f4=16Mhz. What is the approximate higher cutoff frequency of the cascaded network? **A) 3.4 Mhz** B) 8 Mhz C) 5 Mhz D) 6 Mhz	L4
9	It is given that h_{fe}=55, h_{ie}=1kΩ, h_{oe}=25μΩ^{-1}. Calculate the net current gain and the voltage gain of the network. A) A_I=192.6, A_v=220 B) A_I=1, A_V=220 **C) A_I=192.6, A_V=1** D) A_I=192.6, A_V=55	L4
10	What is a cascode amplifier? A) A Cascade Of Two CE Amplifiers B) A Cascade Of Two CB Amplifiers **C) A Cascade Of CE And CB Amplifiers** D) A Cascade Of CB And CC Amplifiers	L4
11	A Differential Amplifier should have collector resistor's value (RC1 & RC2) as **A) 5KΩ, 5KΩ** B) 5Ω, 10KΩ C) 5Ω, 5KΩ D) 5KΩ, 10KΩ	L4

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12	A Differential Amplifier amplifies A) Input Signal With Higher Voltage B) Input Voltage With Smaller Voltage **C) Sum Of The Input Voltage** D) None Of The Mentioned	L4
13	The value of emitter resistance in Emitter Biased circuit are RE1=25kΩ & RE2=16kΩ. Find RE **A) 9.756KΩ** B) 41KΩ C) 9.723KΩ D) 10KΩ	L4
14	If output is measured between two collectors of transistors, then the Differential amplifier with two input signal is said to be configured as **A) Dual Input Balanced Output** B) Dual Input Unbalanced Output C) Single Input Balanced Output D) Dual Input Unbalanced Output	L4
15	A differential amplifier is capable of amplifying A) DC Input Signal Only B) AC Input Signal Only **C) AC & DC Input Signal** D) None Of The Mentioned	L4
16	In ideal Differential Amplifier, if same signal is given to both inputs, then output will be A) Same As Input B) Double The Input C) Not Equal To Zero **D) Zero**	L4
17	An emitter bias Dual Input Balanced Output differential amplifier has VCC=20v, β=100, VBE=0.7v, RE=1.3kΩ. Find IE **A) 7.42mA** B) 9.8mA C) 10mA	L4

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	D) 8.6mA	
18	Find IC, given VCE=0.77v, VCC=10v, VBE=0.37v and RC=2.4kΩ in Dual Input Balanced Output differential amplifier A) 0.4mA B) 0.4A **C) 4mA** D) 4A	L4
19	Obtain the collector voltage, for collector resistor (RC) =5.6kΩ, IE=1.664mA and VCC=10v for single input unbalanced output differential amplifier A) 0.987v **B) 0.682v** C) 0.555v D) None Of The Mentioned	L4
20	Why differential amplifiers are preferred for instrumentation and industrial applications? A) Input Resistance Is Low B) Produce Amplified Output C) Amplify Individual Input Voltage **D) Reject Common Mode Voltage**	L4
21	Which of the following is a combination of inverting and non-inverting amplifier? **A) Differential Amplifier With One Op-Amp** B) Differential Amplifier With Two Op-Amps C) Differential Amplifier With Three Op-Amps D) Differential Amplifier With Four Op-Amps	L4
22	What will be the output voltage when V_x =0v? (Where V_x –> inverting input terminal of differential amplifier with one op-amp) A) $V_o = -(1+R_F/R_1)*V_1$ B) $V_o = -(1- R_F/ R_1)*V_1$ **C) $V_o = (1+ R_F/ R_1)*V_1$** D) $V_o = (R_F/ R_1)*V_1$	L4
23	Compute the output voltage if the input voltage is reduced to zero in differential amplifier with one op-amp? A) Inverted Voltage	L4

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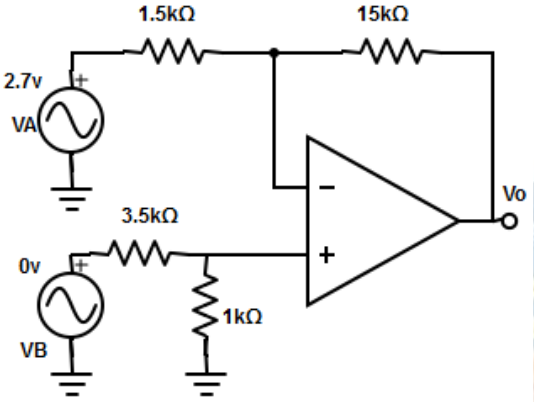
	B) Same As The Input Voltage C) Amplified Inverted Voltage **D) Cannot Be Determined**	
24	Compute the output voltage from the following circuit diagram?  A) -17v **B) -27v** C) -39v D) -15v	L4
25	The difference between the input and output voltage are -1v and 17v. Calculate the closed loop voltage gain of differential amplifier with one op-amp? A) -51 B) 34 **C) -17** D) 14	L4
26	The gain of differential amplifier with one op-amp is same as that of **A) The Inverting Amplifier** B) The Non-Inverting Amplifier C) Both Inverting And Non-Inverting Amplifier D) None Of The Mentioned	L4
27	Find the value of input resistance for differential amplifier with one op-amp. If $R_1 = R_2 = 100\Omega$ and $R_F = R_3 = 5k\Omega$. A) $R_{IFX} = 110\Omega$; $R_{IFY} = 6.7K\Omega$ **B) $R_{IFX} = 100\Omega$; $R_{IFY} = 5.1K\Omega$** C) $R_{IFX} = 150\Omega$; $R_{IFY} = 7.2K\Omega$ D) $R_{IFX} = 190\Omega$; $R_{IFY} = 9.0K\Omega$	L4

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28	What is the net output voltage for differential amplifier with one op-amp A) $V_o = -(R_F / R_1)*V_x$ **B) $V_o = -(R_F / R_1)*(V_x - V_y)$** C) $V_o = (1+R_F / R_1)*(V_x - V_y)$ D) None Of The Mentioned	L4
29	What happens to the voltage when it passes through an inductor/coil? **A) Phase Of Voltage Leads The Current** B) Phase Of Current Leads The Voltage C) Phase Of Current And Voltage Cancel Out Each Other D) Phase Of Current And Voltage Gets Added	L4
30	What happens to capacitative reactance when operating frequency is increased? A) Increases **B) Decreases** C) Remains Constant D) Goes To Infinite	L4
31	Which one of the following is false with respect to stray capacitance? A) Reduces With Decrease In Size Of Lead Wires B) Reduces When Chip Capacitors Are Used C) Increases When Lead Wires A Are Lengthy **D) Increases With Less Capacitance Value**	L4
32	The use of amplifier in a circuit is to _____ for input signal. A) Provide A Phase Shift **B) Provide Strength** C) Provide Frequency Enhancement D) Make Circuit Compatible	L4
33	The unwanted characteristics of amplifier output apart from the desired output is collectively termed as _____ A) Inefficiency B) Damage C) Fault **D) Distortion**	L4

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34	Unit of power rating of a transistor is expressed in _____ **A) Watts** B) Kwh C) W/S D) Wh	L4
35	Which device was used for the amplification of audio signals before the invention of power amplifiers? A) Diode B) Op-Amp **C) Vacuum Tubes** D) SCR	L4
36	Power amplifier directly amplifies _____ A) Voltage Of Signal B) Current Of The Signal C) Power Of The Signal **D) All Of The Mentioned**	L4
37	Input stage of power amplifier is also called _____ A) First Op B) Beginning Stage **C) Front End** D) Normal Stage	L4
38	Transistor in power amplifier is _____ **A) An Active Device** B) A Passive Device C) A Op-Amp D) A Voltage Generating Device	L4
39	For a perfect power amplifier output power rating will be _____ if the output impedance is halved. A) Halved B) Squared **C) Doubled** D) Square Rooted	L4

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40	Which of the following audio speaker will be hard to be driven by a power amplifier? A) 4ohm B) 8ohm C) 12ohm **D) 2ohm**	L4
41	The power rating of the amplifier is 100watts then the transistor can only operate at _____ A) Power Higher Than 100w **B) Power Lower Than 100w** C) Power Near To 100w D) Power Lower Than 200W	L4
42	What happens to inductive resistance when operating frequency is increased? **A) Increases** B) Decreases C) Remains Constant D) Goes To Infinite	L4
43	What is the inductive reactance of a 40-μH coil at 18 MHz? A) 4000Ω **B) 4522Ω** C) 4522H D) 0	L4
44	What is the Q factor for a 3-μH inductor with a total resistance of 45Ω at 90 MHz? **A) 37.68** B) 37.68Ω C) 29.22Ω D) 32.75Ω	L4