INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

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ELECTRONICS AND COMMUNICATION ENGINEERING

DEFINITIONS AND TERMINOLOGY

Course Name	:	**DIGITAL AND PULSE CIRCUITS**
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OBJECTIVES

I	To help students to consider in depth the terminology and nomenclature used in the syllabus.
II	To focus on the meaning of new words / terminology/nomenclature

DEFINITIONS AND TERMINOLOGYQUESTION BANK

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
UNIT - I					
1	Define POS form.	Canonical PoS form means Canonical Product of Sums form. In this form, each sum term contains all literals. So, these sum terms are nothing but the Max terms. Hence, canonical PoS form is also called as product of Max terms form.	Understand	CLO 3	CAEC019.03
2	What is binary?	Binary (or base-2) a numeric system that only uses two digits — 0 and 1. Computers operate in binary, meaning they store data and perform calculations using only zeros and ones. A single binary digit can only represent True (1) or False (0) in Boolean logic.	Understand	CLO 1	CAEC019.01
3	Define number system.	A number system is a collection of various symbols which are called digits. Different types of Number System.	Understand	CLO 1	CAEC019.01
4	Define Gray code.	A Gray code is an encoding of numbers so that adjacent numbers have a single digit differing by 1. The term Gray code is often used to refer to a "reflected" code, or more specifically still, the binary reflected Gray code.	Understand	CLO 1	CAEC019.01
4	Define Excess-3 code.	Excess-3, also called XS3, is a non-weighted code. is a self-complementary binary-coded decimal (BCD) code and numeral system. It is a self-complementing code.	Remember	CLO 3	CAEC019.03
5	What is self complementing code?	Self-Complementing Codes (Excess 3, 84-2-1, 2*421) Such codes have the property that the 9's complement of a decimal number is obtained directly by changing 1's to 0's and 0's to 1's	Remember	CLO 1	CAEC019.01
6	Define codes.	In the coding, when numbers or letters are represented by a specific group of symbols, it is said to be that number or letter is being encoded. The group of symbols is called as code. The digital data is represented, stored and transmitted as group of bits. This group of bits is also called as binary code.	Understand	CLO 1	CAEC019.01
7	Define signed numbers.	Signed numbers contain both sign and magnitude of the number. Generally, the sign is placed in front of number. So, we have to consider the positive sign for positive numbers and negative sign for negative numbers. Therefore, all numbers can be treated as signed numbers if the corresponding sign is assigned in front of the number.	Understand	CLO 1	CAEC019.01
8	What is unsigned number system?	Unsigned numbers contain only magnitude of the number. They don't have any sign. That means all unsigned binary numbers are positive. As in	Understand	CLO 1	CAEC019.01

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		decimal number system, the placing of positive sign in front of the number is optional for representing positive numbers. Therefore, all positive numbers including zero can be treated as unsigned numbers if positive sign is not assigned in front of the number.			
9	Define sign magnitude form.	The Most significant bit (MSB) is used for representing sign of the number and the remaining bits represent the magnitude of the number. So, just include sign bit at the left most side of unsigned binary number. This representation is similar to the signed decimal numbers representation.	Understand	CLO 1	CAEC019.01
10	What is hamming code?	Hamming code is useful for both detection and correction of error present in the received data. This code uses multiple parity bits and we have to place these parity bits in the positions of powers of 2.The minimum value of 'k' for which the following relation is correct (valid) is nothing but the required number of parity bits.	Remember	CLO 1	CAEC019.01
12	What is Duality theorem?	This theorem states that the dual of the Boolean function is obtained by interchanging the logical AND operator with logical OR operator and zeros with ones. For every Boolean function, there will be a corresponding Dual function	Remember	CLO 2	CAEC019.02
13	What is 8421 code?	The weights of this code are 8, 4, 2 and 1. This code has all positive weights. So, it is a positively weighted code. This code is also called as natural BCD (Binary Coded Decimal) code.	Remember	CLO 1	CAEC019.01
14	What is 2421 code?	This code has all positive weights. So, it is a positively weighted code. It is an unnatural BCD code. Sum of weights of unnatural BCD codes is equal to 9.It is a self-complementing code. Self-complementing codes provide the 9’s complement of a decimal number, just by interchanging 1’s and 0’s in its equivalent 2421 representation.	Remember	CLO 1	CAEC019.01
15	Define Binary Number.	The binary number system is a numbering system that represents numeric values using two unique digits (0 and 1). Most computing devices use binary numbering to represent electronic circuit voltage state, (i.e., on/off switch), is the base-2 number system.	Understand	CLO.1	AEC019.01
16	Define Decimal number system.	A number is expressed in base 10 by using one of the first nine integers or 0 in each place and letting each place value be a power of 10.	Understand	CLO.1	AEC019.01
17	Define octal number system.	The octal numeral system, or oct for short, is the base-8 number system, and uses the digits 0 to 7. Octal numerals can be made from binary numerals	Understand	CLO.1	AEC019.01

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
18	Define Hexa decimal number system.	The hexadecimal numeral system, also known as just hex, is a numeral system made up of 16 symbols (base 16). The standard numeral system is called decimal (base 10) and uses ten symbols: 0,1,2,3,4,5,6,7,8,9. Hexadecimal uses the decimal numbers and includes six extra symbols.	Understand	CLO.1	AEC019.01
19	What is one's compliment?	The ones' complement of a binary number is defined as the value obtained by inverting all the bits in the binary representation of the number.	Remember	CLO.1	AEC019.01
20	What is Two's compliment?	The 2's complement of a binary number is obtained by adding one to the 1's complement of signed binary number. So, 2's complement of positive number gives a negative number. Similarly, 2's complement of negative number gives a positive number.	Remember	CLO.1	AEC019.01
21	What is binary coded decimal?	Binary coded decimal (BCD) is a system of writing numerals that assigns a four-digit binary code to each digit 0 through 9 in a decimal (base-10) numeral. The four-bit BCD code for any particular single base-10 digit is its representation in binary notation.	Understand	CLO.1	AEC019.01
22	Define Unit distance code.	An un weighted code that changes at only one digit position when going from one number to the next in a consecutive sequence of numbers. Use of one of the many unit-distance codes can minimize errors at symbol transition points when converting analog quantities into digital quantities..	Understand	CLO.1	AEC019.01
23	Define parity bit.	It is easy to include one parity bit either to the left of Most significant bit (MSB) or to the right of Least significant bit (LSB) of original bit stream. There are two types of parity codes, namely even parity code and odd parity code based on the type of parity being chosen.	Understand	CLO.1	AEC019.01
24	What is error Detection?	It is used to detect the error(s) present in the received data (bit stream). These codes contain some bits, which are included to the original bit stream. These codes detect the error, if it is occurred during transmission of the original data (bit stream).Example − Parity code, Hamming code.	Remember	CLO.1	AEC019.01
25	Define Boolean algebra.	Boolean algebra or switching algebra is a system of mathematical logic to perform different mathematical operations in binary system. These are only two elements 1 and 0 by which all the mathematical operations are to be performed. There only three basis binary operations, AND, OR and NOT by which all simple as well as complex binary mathematical operations are to be done. There are many rules in Boolean algebra by which those mathematical operations are done.	Remember	CLO.2	AEC019.02

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
26	Define sop form.	Canonical Sop form means Canonical Sum of Products form. In this form, each product term contains all literals. So, these product terms are nothing but the min terms. Hence, canonical Sop form is also called as sum of min terms form.	Understand	CLO.3	AEC019.03
UNIT – II					
1	What is parallel adder?	A parallel adder is an arithmetic combinational logic circuit that is used to add more than one bit of data simultaneously.	Understand	CLO 4	CAEC019.04
2	Define 5-variable k-map.	The number of cells in 5 variable K-map is thirty-two, since the number of variables is 5. The following figure shows 5 variable K-Map. here is only one possibility of grouping 32 adjacent min terms. There are two possibilities of grouping 16 adjacent min terms. i.e., grouping of min terms from m0 to m15 and m16 to m31.	Remember	CLO 7	CAEC019.07
3	Define 4-variable k-map.	The number of cells in 4 variables K-map is sixteen, since the number of variables is four. There is only one possibility of grouping 16 adjacent min terms.	Remember	CLO 6	CAEC019.06
4	Define 3-variable k-map.	The number of cells in 3 variable K-map is eight, since the number of variables is three. The following figure shows 3 variable K-Map. There is only one possibility of grouping 8 adjacent min terms.	Remember	CLO 6	CAEC019.06
5	Define Hazards.	A dynamic hazard is the possibility of an output changing more than once as a result of a single input change.	Understand	CLO 8	CAEC019.08
6	What is static hazard?	static hazard takes place when change in an input causes the output to change momentarily before stabilizing to its correct	Understand	CLO 8	CAEC019.08
7	What is dynamic hazard?	A dynamic hazard is the possibility of an output changing more than once as a result of a single input change. Dynamic hazards often occur in larger logic circuits where there are different routes to the output (from the input).	Understand	CLO 8	CAEC019.08
8	What is select line?	A multiplexer (or mux) is a device that selects one of several analog or digital input signals and forwards the selected input into a single line. A multiplexer of 2 n inputs has n select lines, which are used to select which input line to send to the output.	Understand	CLO 8	CAEC019.08
9	Define data selector.	Data Selector take one data input and a number of selection inputs, and they have several outputs. They forward the data input to one of the outputs depending on the values of the selection inputs.	Understand	CLO 8	CAEC019.08

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
10	Define decoder.	A decoder is a circuit that changes a code into a set of signals. It is called a decoder because it does the reverse of encoding, but we will begin our study of encoders and decoders with decoders because they are simpler to design.	Understand	CLO 8	CAEC019.08
11	Define an encoder.	The n output lines generate the binary code for the possible 2n input lines. Let us take an example of an octal-to-binary encoder.	Understand	CLO 9	CAEC019.09
12	Define priority encoder.	Binary Encoders generally have a number of inputs that must be mutually exclusive, i.e. only one of the inputs can be active at any one time. The encoder then produces a binary code on the output pins, which changes in response to the input that has been activated.	Understand	CLO 9	CAEC019.09
13	What is Enable?	Enable pin in multiplexers, de multiplexer, decoder and encoder ensures the functioning of the hardware i.e. “enables” the function of the logic circuit.	Understand	CLO 9	CAEC019.09
14	Define k-map.	Karnaugh introduced a method for simplification of Boolean functions in an easy way. This method is known as Karnaugh map method or K-map method. It is a graphical method, which consists of 2^n cells for ‘n’ variables. The adjacent cells are differed only in single bit position.	Understand	CLO.6	AEC019.06
15	Define Prime implicant and Essential prime implicant.	Each grouping will give either a literal or one product term. It is known as prime implicant. The prime implicant is said to be essential prime implicant, if at least single ‘1’ is not covered with any other groupings but only that grouping covers.	Remember	CLO.7	AEC019.07
16	What is don’t care condition?	If outputs are not defined for some combination of inputs, then those output values will be represented with don’t care symbol ‘x’. That means, we can consider them as either ‘0’ or ‘1’.	Understand	CLO.7	AEC019.07
17	Define tabular method.	Quine-McClukey tabular method is a tabular method based on the concept of prime implicants. We know that prime implicant is a product (or sum) term, which can’t be further reduced by combining with any other product (or sum) terms of the given Boolean function.	Understand	CLO.7	AEC019.07
18	What is universal gate?	NAND & NOR gates are called as universal gates. Because we can implement any Boolean function, which is in sum of products form by using NAND gates alone. Similarly, we can implement any Boolean function, which is in product of sums form by using NOR gates alone.	Understand	CLO.4	AEC019.04
19	Define logic gates?	The basic digital electronic circuit that has one or more inputs and single output is known as Logic gate. Hence, the Logic gates are the building blocks of any digital system. We can classify these Logic gates into the following three categories.	Understand	CLO.4	AEC019.04

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
20	Define combinational circuit.	Combinational circuits consist of Logic gates. These circuits operate with binary values. The output(s) of combinational circuit depends on the combination of present inputs.	Understand	CLO.8	AEC019.08
21	Define half adder.	Half adder is a combinational circuit, which performs the addition of two binary numbers A and B are of single bit. It produces two outputs sum, S & carry, C.	Understand	CL0.8	AEC019.08
22	What is binary adder?	The most basic arithmetic operation is addition. The circuit, which performs the addition of two binary numbers, is known as Binary adder.	Understand	CLO.8	AEC019.08
23	Define full adder.	Full adder is a combinational circuit, which performs the addition of three bits A, B and C_{in}. Where, A & B are the two parallel significant bits and C_{in} is the carry bit, which is generated from previous stage.	Understand	CLO.8	AEC019.08
24	Define multiplexer.	Multiplexer is a combinational circuit that has maximum of 2^n data inputs, 'n' selection lines and single output line. One of these data inputs will be connected to the output based on the values of selection lines.	Understand	CLO.7	AEC019.07
	Define Demultiplexer	De-Multiplexer is a combinational circuit that performs the reverse operation of Multiplexer. It has single input, 'n' selection lines and maximum of 2^n outputs. The input will be connected to one of these outputs based on the values of selection lines.	Understand	CLO.7	AEC019.07
	Define comparator.	Digital Comparator. A magnitude digital comparator is a combinational circuit that compares two digital or binary numbers (consider A and B) and determines their relative magnitudes in order to find out whether one number is equal, less than or greater than the other digital number.	Understand	CLO.8	AEC019.08
	What is code converter?	Codes and code converters Coding is the process of translating the input information which can be understandable by the machine or a particular device. Coding can be used for security purpose to protect the information from steeling or interrupting.	Remember	CLO.8	CAEC019.08
	What is parallel adder?	A parallel adder is an arithmetic combinational logic circuit that is used to add more than one bit of data simultaneously.	Understand	CLO.8	AEC019.08
UNIT – III					
1	What is a counter?	Counts those pulses which are driven by a clock.	Remember	CLO 10	CAEC019.10
2	What are the categories Counters?	(i) Asynchronous and Synchronous counters. (ii) Single and multi mode counters. (iii) Modulus counters.	Understand	CLO 10	CAEC019.10

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
3	What is a multimode counter?	If the same counter circuit can be operated in both the UP and DOWN modes, it is called a multimode counters.	Remember	CLO 10	CAEC019.10
4	What is a asynchronous counters?	Each flip flop is triggered by the previous flip flop.	Understand	CLO 10	CAEC019.10
5	What is a Ripple Counter?	A ripple counter is an asynchronous counter where only the first flip-flop is clocked by an external clock	Remember	CLO 10	CAEC019.10
6	Where the ripple counter is used explain?	It can also be used for Frequency divider, time measurement, frequency measurement, distance measurement and also for generating square waveforms.	Understand	CLO 10	CAEC019.10
7	What is the difference between ripple counter and synchronous counter?	In a synchronous counter however, the external event is used to produce a pulse that is synchronised with the internal clock.	Remember	CLO 10	CAEC019.10
8	What is the major disadvantage of asynchronous counters?	Disadvantages of Asynchronous Counters: An extra “re-synchronizing” output flip-flop may be required.	Understand	CLO 10	CAEC019.10
9	What is a Johnson counter?	A Johnson counter is a modified ring counter, where the inverted output from the last flip flop is connected to the input to the first. The register cycles through a sequence of bit-patterns.	Remember	CLO 10	CAEC019.10
10	What is a ring counter?	A ring counter is a type of counter composed of flip-flops connected into a shift register, with the output of the last flip-flop fed to the input of the first, making a "circular" or "ring" structure.	Understand	CLO 10	CAEC019.10
12	What is the purpose of a shift register?	When a bit is input on the right, all the bits move one place to the left, and the leftmost bit disappears. Shift registers are commonly used in converters that translate parallel data to serial data, or vice-versa. Shift registers can also function as delay circuits and digital pulse extenders.	Remember	CLO 11	CAEC019.11
13	What are universal shift registers?	A Universal shift register is a register which has both the right shift and left shift with parallel load capabilities. Universal shift registers are used as memory elements in computers.	Understand	CLO 11	CAEC019.11
14	What is the difference between register and shift register?	Both shift registers and counters are made of flip-flops. A shift register is simply a chain of FFs where the Q output of one FF connects to the D input of the next. A shift register will transfer data from one FF to the next on each clock event	Remember	CLO 11	CAEC019.11
15	What is bidirectional shift register?	A bidirectional shift register is one in which the data can beshifted either left or right. It can be implemented by using gatelogic that enables the	Understand	CLO 11	CAEC019.11

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
		transfer of a data bit from one stage to thenext stage to the right or to the left, depending on the level of acontrol line.			
16	What is a dynamic shift register?	A dynamic shift register circuit comprises an input terminal and an output terminal. The logic circuit is made operative by an output signal of the signal follower circuit and produces an inverter function at the output terminal, in response to an output signal of the second transfer gate circuit.	Remember	CLO 11	CAEC019.11
17	Define Sequential circuits.	Sequential circuit has memory so output can vary based on input. This type of circuits uses previous input, output, clock and a memory element.	Understand	CLO.9	AEC019.09
18	Define flip-flop.	A flip-flop is a circuit that has two stable states and can be used to store state information. The circuit can be made to change state by signals applied to one or more control inputs and will have one or two outputs. It is the basic storage element in sequential logic. flip flop has a clock signal,	Remember	CLO.9	AEC019.09
19	Define latch.	The output of the latch depends on its input. It continuously checks its inputs and changes its output correspondingly. It is not depending on clock.	Understand	CLO.9	AEC019.09
20	What is jk flip-flop?	The JK Flip Flop is basically a gated RS flip flop with the addition of the clock input circuitry. When both the inputs S and R are equal to logic “1”, the invalid condition takes place. Thus to prevent this invalid condition, a clock circuit is introduced	Remember	CLO.9	AEC019.09
21	What is master slave jk flip-flop?	Master slave JK FF is a cascade of two S-R FF with feedback from the output of second to input of first. Master is a positive level triggered. But due to the presence of the inverter in the clock line, the slave will respond to the negative level. Master-slave flip flop is designed using two separate flip flops.	Remember	CLO.9	AEC019.09
22	Define T flip-flop.	The T or "toggle" flip-flop changes its output on each clock edge, giving an output which is half the frequency of the signal to the T input	Understand	CLO.9	AEC019.09
23	What is clock?	A clock signal is a particular type of signal that oscillates between a high and a low state	Understand	CLO.10	AEC019.10
24	What is memory cell?	The memory cell is an electronic circuit that stores one bit of binary information and it must be set to store a logic 1 (high voltage level) and reset to store a logic 0 (low voltage level). Its value is maintained/stored until it is changed by the set/reset process.	Understand	CLO.10	AEC019.10
25	What is Binary cell?	An elementary unit of computer storage that can have one or the other of two stable states and can thus store one bit of information.	Understand	CLO.10	AEC019.10

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
26	Define clock skew.	Clock skew is a phenomenon in synchronous digital circuit systems in which the same sourced clock signal arrives at different components at different times i.e. the instantaneous difference between the readings of any two clocks is called their skew.	Understand	CLO.10	AEC019.10
27	What is sequential machine?	It has inputs and outputs that can each take on any value from a finite set and are of interest only at certain instants of time, and in which the output depends on previous inputs as well as the concurrent input.	Understand	CLO.10	AEC019.10
UNIT - IV					
1	What is Current series feedback?	A fraction of the output voltage is applied in series with the input voltage through the feedback circuit. This is also known as series-driven series-fed feedback.	Remember	CLO 14	CAEC019.14
2	What is Current shunt feedback.	A fraction of the output voltage is applied in series with the input voltage through the feedback circuit. This is also known as series-driven shunt-fed feedback	Remember	CLO 14	CAEC019.14
3	Define Oscillator.	An oscillator generates output without any ac input signal. An electronic oscillator is a circuit which converts dc energy into ac at a very high frequency. An amplifier with a positive feedback can be understood as an oscillator.	Understand	CLO 15	CAEC019.15
4	Define Sinusoidal Oscillator.	The oscillators that produce an output having a sine waveform are called sinusoidal or harmonic oscillators. Such oscillators can provide output at frequencies ranging from 20 Hz to 1 GHz.	Remember	CLO 15	CAEC019.15
5	Define Non-Sinusoidal Oscillator.	The oscillators that produce an output having a square, rectangular or saw-tooth waveform are called non-sinusoidal or relaxation oscillators. Such oscillators can provide output at frequencies ranging from 0 Hz to 20 MHz.	Remember	CLO 15	CAEC019.15
6	Define Tuned Circuit Oscillators.	These oscillators use a tuned-circuit consisting of inductors (L) and capacitors (C) and are used to generate high-frequency signals. Thus they are also known as radio frequency R.F. oscillators. Such oscillators are Hartley, Colpitts, Clapp-oscillators etc.	Remember	CLO 15	CAEC019.15
7	Define RC Oscillators.	There oscillators use resistors and capacitors and are used to generate low or audio-frequency signals. Thus they are also known as audio-frequency (A.F.) oscillators. Such oscillators are Phase –shift and Wein-bridge oscillators.	Understand	CLO 15	CAEC019.15

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
8	Define Crystal Oscillators.	These oscillators use quartz crystals and are used to generate highly stabilized output signal with frequencies up to 10 MHz. The Piezo oscillator is an example of a crystal oscillator.	Remember	CLO 15	CAEC019.15
9	Define Negative-resistance Oscillator.	These oscillators use negative-resistance characteristic of the devices such as tunnel devices. A tuned diode oscillator is an example of a negative-resistance oscillator.	Remember	CLO 15	CAEC019.15
10	Define degenerative feedback.	An amplifier with positive feedback produces its output to be in phase with the input and increases the strength of the signal. Positive feedback is also called as degenerative feedback or direct feedback. This kind of feedback makes a feedback amplifier, an oscillator.	Remember	CLO 14	CAEC019.14
11	Define sensitivity.	Sensitivity is defined as the ratio of percentage change in voltage gain with feedback to the percentage change in voltage gain without feedback.	Understand	CLO 14	CAEC019.14
12	What is transfer gain?	It is the ratio of the output signal to the input signal. It is denoted by A A=Xo/Xi	Remember	CLO 15	CAEC019.15
13	Define the feedback factor β.	It is the ratio between the feedback voltages to the output voltage of the amplifier. β = Vf/ Vo	Remember	CLO 15	CAEC019.15
14	What is Barkhausan criterion?	The conditions for oscillator to produce oscillation are given by Barkhausan criterion. They are: (i). the total phase shift produced by the circuit should be 360^o or 0^o . (ii).The Magnitude of loop gain must be greater than or equal to 1.	Remember	CLO 15	CAEC019.15
15	What is piezo electric effect?	The piezo electric Crystals exhibit a property that if a mechanical stress is applied across one face the electric potential is developed across opposite face. The inverse is also live. This phenomenon is called piezo electric effect.	Understand	CLO 15	CAEC019.15
16	Define Tuned amplifiers.	Tuned amplifiers are the amplifiers that are employed for the purpose of tuning.	Remember	CLO.14	AEC019.14
17	What is Selection?	Tuning means selecting. Among a set of frequencies available, if there occurs a need to select a particular frequency, while rejecting all other frequencies, such a process is called Selection.	Understand	CLO.14	AEC019.14
18	What is resonant circuit?	The tuner circuit is nothing but a LC circuit	Remember	CLO.14	AEC019.14

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
19	What is resonant frequency?	When the reactance of the inductor balances the reactance of the capacitor, in the tuned circuit at some frequency, such a frequency can be called as resonant frequency	Understand	CLO.14	AEC019.14
20	What is resonant circuit?	The quality factor or Q factor is a dimensionless parameter that describes how under damped an oscillator or resonator is, and characterizes a resonator's bandwidth relative to its centre frequency.	Remember	CLO.14	AEC019.14
21	What is impedance of the tuned circuit?	The ratio of supply voltage to the line current is the impedance of the tuned circuit.	Understand	CLO.13	AEC019.14
22	What is a Feedback?	Feedback is basically the concept of taking output and using it as input, either to further drive the system or produce a desired output.	Remember	CLO.13	AEC019.13
23	What is Positive feedback?	The feedback in which the feedback energy i.e., either voltage or current is in phase with the input signal and thus aids it is called as Positive feedback.	Remember	CLO.13	AEC019.13
24	What is Negative feedback?	The feedback in which the feedback energy i.e., either voltage or current is out of phase with the input and thus opposes it, is called as Negative feedback.	Understand	CLO.13	AEC019.13
25	What is Voltage series feedback?.	A fraction of the output voltage is applied in series with the input voltage through the feedback circuit. This is also known as shunt-driven series-fed feedback.	Remember	CLO.14	AEC019.14
26	What is Voltage shunt feedback?	A fraction of the output voltage is applied in parallel with the input voltage through the feedback network. This is also known as shunt-driven shunt-fed feedback.	Remember	CLO.14	AEC019.14
27	What is Current series feedback?	A fraction of the output voltage is applied in series with the input voltage through the feedback circuit. This is also known as series-driven series-fed feedback.	Remember	CLO.14	AEC019.14
28	What is Current shunt feedback?	A fraction of the output voltage is applied in series with the input voltage through the feedback circuit. This is also known as series-driven shunt-fed feedback	Remember	CLO.14	AEC019.14
UNIT - V					
1	What is a Power transistor?	A transistor that is manufactured to suit the purpose of power amplification is called as a Power transistor.	Remember	CLO 16	CAEC019.16
2	Define Voltage Amplifier.	Voltage amplifier is to raise the voltage level of the signal. A voltage amplifier is designed to achieve maximum voltage amplification.	Understand	CLO 16	CAEC019.16

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
3	Define Power Amplifier.	Power amplifier is to raise the power level of input signal. It is required to deliver a large amount of power and has to handle large current.	Remember	CLO 16	CAEC019.16
4	What is Audio Power Amplifiers?	The audio power amplifiers raise the power level of signals that have audio frequency range (20 Hz to 20 KHz). They are also known as Small signal power amplifiers.	Understand	CLO 16	CAEC019.16
5	What is Radio Power Amplifiers?	Radio Power Amplifiers or tuned power amplifiers raise the power level of signals that have radio frequency range (3 KHz to 300 GHz). They are also known as large signal power amplifiers.	Remember	CLO 16	CAEC019.16
6	What is Class A Power amplifier?	When the collector current flows at all times during the full cycle of signal, the power amplifier is known as class A power amplifier.	Remember	CLO 16	CAEC019.16
7	What is Class B Power amplifier?	When the collector current flows only during the positive half cycle of the input signal, the power amplifier is known as class B power amplifier.	Understand	CLO 16	CAEC019.16
8	What is Class C Power amplifier?	When the collector current flows for less than half cycle of the input signal, the power amplifier is known as class C power amplifier.	Remember	CLO 16	CAEC019.16
9	Define Power dissipation capability.	Power dissipation capability can be defined as the ability of a power transistor to dissipate the heat developed in it. Metal cases called heat sinks are used in order to dissipate the heat produced in power transistors.	Remember	CLO 17	CAEC019.17
10	Define collector efficiency.	When the DC supply is given by the battery but no AC signal input is given, the collector output at such a condition is observed as collector efficiency.	Understand	CLO 17	CAEC019.17
11	Define Dead band.	t the zero voltage point, the transition period of switching over the transistors from one to the other, has its effect which leads to the instances where both the transistors are OFF at a time. Such instances can be called as Flat spot or Dead band on the output wave shape.	Remember	CLO 17	CAEC019.17
12	Define distortion.	Distortion is defined as the change of output wave shape from the input wave shape of the amplifier. An amplifier that has lesser distortion, produces a better output and hence considered efficient.	Understand	CLO 17	CAEC019.17
13	Define Push-Pull configuration.	the Class A amplifier by using a combinational transistor pair called as Push-Pull configuration.	Remember	CLO 17	CAEC019.17
14	Define heat sink.	A heat sink is a passive heat exchanger that transfers the heat generated by an electronic or a mechanical device to a fluid medium	Understand	CLO 17	CAEC019.17
15	Define efficiency.	The efficiency of a power amplifier is defined as ratio of average signal power delivered to load to thr average power drawn dc source.	Remember	CLO 17	CAEC019.17
16	What is Bandwidth?	The range of frequencies at which the voltage gain of the tuned amplifier falls to 70.7% of the maximum gain is called its Bandwidth.	Understand	CLO.16	AEC019.16

S No	QUESTION	ANSWER	Blooms Level	CLO	CLO Code
17	What is crossover distortion?	These are two transistors of the class B push pull amplifier. Now the base input voltage being given to the transistor is sinusoidal, i.e., base drive is sinusoidal. So because of the cut in voltage, even though input voltage is present, output will not be transmitted or there is distortion in the output current of the transistor. This is known as crossover distortion.	Remember	CLO.16	AEC019.16
18	What is Stagger Tuned Amplifier?	Stagger Tuned Amplifiers are used to improve the overall frequency response of tuned Amplifiers.	Remember	CLO.16	AEC019.16
19	What is a Power transistor?	A transistor that is manufactured to suit the purpose of power amplification is called as a Power transistor.	Remember	CLO.16	AEC019.16
20	Define Voltage Amplifier.	Voltage amplifier is to raise the voltage level of the signal. A voltage amplifier is designed to achieve maximum voltage amplification.	Understand	CLO.16	AEC019.16
21	Define Amplifier.	An amplifier is an electronic device that increases the voltage, current, or power of a signal. Amplifiers are used in wireless communications and broadcasting,	Understand	CLO.16	AEC019.16
22	Define single stage Amplifier?	When in an amplifier circuit only one transistor is used for amplifying a weak signal, the circuit is known as single stage amplifier	Understand	CLO.16	AEC019.16
23	Define multi stage Amplifier.	In Multi-stage amplifiers, the output of first stage is coupled to the input of next stage using a coupling device. These coupling devices can usually be a capacitor or a transformer. This process of joining two amplifier stages using a coupling device can be called as Cascading.	Understand	CLO.16	AEC019.16
24	Define RC coupling.	It is the most Commonly used Coupling Between the two stages of a cascaded or multistage amplifier	Understand	CLO.16	AEC019.16
25	Define common collector amplifier.	A common collector amplifier (also known as an emitter follower) is one of three basic single-stage bipolar junction transistor (BJT) amplifier topologies, typically used as a voltage buffer. In this circuit the base terminal of the transistor serves as the input, the emitter is the output.	Understand	CLO.16	AEC019.16

Signature of the Faculty **Signature of the HOD**