Major CORE Topics to Prepare – ECE Core Interviews

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1.	Transistors, Resistors, Inductor, capacitor, Diodes (PN junction, Zener)
2.	Digital IC's, Analog IC's, timer IC's, Controllers (8086,8085),etc…
3.	Amplifiers, Oscillators, Rectifiers, Registers, Schmidt trigger.
4.	OPAMP, Logical and Universal gates, ideal characteristics of OPAMP, BJT, UJT, FET, MOSFET, JFET, XOR, DMA
5.	Timers, Counters, Flip-flops(SR, JK, D, T), Boolean algebra
6.	Shift register, Synchronous and Asynchronous circuits
7.	Combinational and sequential circuits, Examples for them
8.	K-map and Queen mclusky tabulation methods
9.	**Theorems:** Thevinen's, nortans's Maximum power transfer, Tellengen's theorem, superposition theorem, millman's theorem, reciprocity theorem, compensation theorem, De-moragn's theorem
10.	Operating voltages, regions of various electronic components
11.	**Laws:** Ohm's law, coulomb's law, kirchoff's law(KCL & KVL), Faraday's 2 laws, Lenz law, gauss law, maxwell's equations, gauss divergence theorem's, DC crcuit laws, Fleming's Right and Left and rules, watt's law, voltage divider rule, joule's law, current and voltage division rules,
12.	**Terms:** resistance, conductance, admittance, impedance, capacitance, dielectric materials, q-point, pinch off voltage, operating regions(active, cut-off, saturation), permittivity, permeability, current density, Voltage leads current in an inductor(VCI), current leads voltage in an capacitor(ICE), Zener and Avalanche break down, negative resistance, peak point, valley point, resonance, attenuation, Early effect, modes of BJT(CE,CB,CC).
13.	Passive circuit, active circuit, passive & active components, mesh analysis, loop analysis, node analysis, series and parallel circuits.

14.	Start – delta transformation, delta-start transformation
15.	Memory management, memory types, RAM, SRAM, DRAM, ROM, masked ROM, register, Cache memory, PROM, EPROM, EEPROM, FLASH, Programmable logic circuits (TTL, RTL, etc… logics)
16.	Definitions on MUX, DEMUX, ENCODER, DECODER, ADDER(half-adder, full-adder), SUBTRACTER(half-subtracter, full-subtracter), PLD's, ALU, CPU, Clocks
17.	**Difference between:** ADC & DAC, Combinational and sequential, RAM & ROM, start & Delta, Flip-flop & Registers, etc..
18.	**Code Conversion:** Binary to Gray code, BCD, Gray code to Binary, BCD to Excess3, Excess3 to BCD, Gray code to Excess3, etc..
19.	**Circuits to be seen:** Instrumentation amplifier, SMPS, buck convertor, boost convertor, buck-boost convertor, clipper, clamper, wheat stone bridge, R2R ladder, inverting amp, non-inverting amp, summing amp, differential amp, voltage-follower amp, class A, class B, class C, class AB, chopper amp, isolation amp, voltage amp, power amp, current amp, PGA, types of generators (saw tooth, pulsated, triangular), Half-wave rectifier, full-wave rectifier, bridge rectifier, schottky diode, frenkel didode, LED, varactor diode, voltage multiplier, multi vibrator, darlington pair, multistage amplifier, voltage divider bias, types of MOSFET, comparator, oscillator, feedback network, ADC, DAC
20.	**Networking Concepts:** OSI layers, protocols, CRC algorithm, protocols in various layers, IP address, MAC address, TCP/IP, Network security, IMAP, POP3, SMTP, MIME, size of various IP, Classes of IP, DHCP, CSMA-CA, CSMA-CD, hub, bridges, switches, router, linkers, TCP, UDP, Mobile IP, firewall, DNS and its working, proxy server, NIC, types of network, IP-congif, SNMP, Beaconing, Piggy banking, VPN, pipelining, Ethernet, Encryption & Decryption, P2P networks, SLIP, how we differentiate secured and non-secured websites etc...

21.	**Micro Controller Concepts:** difference between microprocessor and micro controller, program counter, stack pointer, types of BUS, registers, bits used in various controller, 555 timer IC, Tri-State logic, flags, interrupts, 8086, 8085, 8051, Timers, RTOS, deadlocks, semaphore, DMA controller, watchdog timer, etc..

Reference Links

Topics	Reference Links
Networking	https://www.indiabix.com/networking/questions-and-answers/ (very good standard questions)
	https://www.javatpoint.com/networking-interview-questions
	https://www.guru99.com/networking-interview-questions.html
	https://www.softwaretestinghelp.com/networking-interview-questions-2/
	https://www.edureka.co/blog/interview-questions/networking-interview-questions/
	https://instrumentationtools.com/top-100-networking-interview-questions-answers/
	https://placement.freshersworld.com/networking-interview-questions/33121835176
Micro Processor	https://www.wisdomjobs.com/e-university/microprocessor-8085-interview-questions.html (very good standard questions)
	https://www.careerride.com/microprocessor-interview-questions.aspx
	https://www.interviewgig.com/8085-microprocessor-interview-questions-and-answers/
	https://www.onlineinterviewquestions.com/microprocessor-interview-questions/
	https://www.javatpoint.com/digital-electronics-interview-questions

Digital Electronics	https://www.wisdomjobs.com/e-university/digital-electronics-interview-questions.html (very good standard questions)
	https://www.indiabix.com/digital-electronics/questions-and-answers/ (very good standard questions)
	https://www.geeksforgeeks.org/category/computer-subject/digital-electronics-logic-design/
Circuit Analysis	https://www.latestinterviewquestions.com/network-analysis-interview-questions-answers
	https://www.wisdomjobs.com/e-university/network-analysis-interview-questions.html
	https://www.indiabix.com/electrical-engineering/questions-and-answers/
Theorems	https://www.elprocus.com/basics-of-network-theorems-in-electrical-engineering/#:~:text=Electric%20circuit%20theorems%20are%20always,currents%20in%20multi%2Dloop%20circuits.&text=These%20fundamental%20theorems%20include%20the,transfer%20theorem%2C%20and%20Thevenin's%20theorems.
	https://electrical-engineering-portal.com/download-center/books-and-guides/electrical-engineering/circuit-theorems
YouTube Links	https://www.youtube.com/playlist?list=PLBlnK6fEyqRg41HzkHScol5bdRebCDOAZ (networking theorems)
	https://www.youtube.com/playlist?list=PLwjK_iyK4LLC-tRT_Uml3T-ifdcmuykjV (JFET & MOSFET)
	https://www.youtube.com/playlist?list=PLwjK_iyK4LLBVM18VZ7JKW-q88FAtnr8_ (Analog circuits)
	https://www.youtube.com/playlist?list=PLwjK_iyK4LLCVdgBR30pSFVj-17TI_8ou (Oscillators and Multivibrators)
	https://www.youtube.com/playlist?list=PLwjK_iyK4LLDoFG8FeiKAr3IStRkPSxqq (BJT)
	https://www.youtube.com/playlist?list=PLwjK_iyK4LLBj2yTYPYKFKdF6kIg0ccP2 (Diode & Diode Amplifiers)
	https://www.youtube.com/playlist?list=PLwjK_iyK4LLCnW-df-_53d-6yYrGb9zZc (ADC & DAC)

	https://www.youtube.com/playlist?list=PLwjK_iyK4LLDBB1E9MFbxGCEnmMMOAXOH (OPAMP)
	https://www.youtube.com/playlist?list=PLwjK_iyK4LLBN9RIDQfl9YB4caBYyD_uo (Network Analysis)
	https://youtu.be/vv4y_uOneC0 (OSI layers)
	https://youtu.be/mpQZVYPuDGU (How DNS works)
	https://youtu.be/x28ciavQ4mI (How Email works)
	https://www.youtube.com/playlist?list=PLBlnK6fEyqRgMCUAG0XRw78UA8qnv6jEx (Networking Concepts)
	https://youtu.be/e6-TaH5bkjo (DHCP)
	https://www.youtube.com/playlist?list=PL3uLubnzL2TnOKnKylv4ZBUI6OCDwskL2 (Microprocessor & Microcontroller Concepts)

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