Course Code: **18EE5T09**

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE::ODALAREVU
(AUTONOMOUS)
III-B.Tech I-Semester Supplementary Examinations (BR18), NOV-2025
POWER SYSTEMS-II (EEE)

Time: 3 hours Max. Marks: 60

Question Paper consists of Part-A and Part-B
*Answer **ALL** the question in **Part-A***
*Answer any **FOUR** Questions from **Part-B***

PART–A (6X2 = 12M)

1. a)	What are the advantages of bundledconductor?	(2M)
b)	How do you classify the transmission line into short, medium and long lines?	(2M)
c)	What is the significance of the characteristic impedance?	(2M)
d)	What is atravellingwave?	(2M)
e)	Write about the parameters that the skin effect will depend?	(2M)
f)	Write the differences between porcelain and glass insulators?	(2M)

PART–B (4X12 = 48M)

2.a)	Derive the expression for inductance of three phase transmission line single circuit symmetrical spacing?	**(12M)**
3.a)	Analyze the medium transmission line by assuming the capacitor is connected at the midpoint of the line?	**(12M)**
4.a)	Explain starting from first principles deduce expressions for ABCD constants of a long line in terms of its parameters?	(6M)
b)	A 3-phase transmission line has the following constants. Resistance/ ph/ km = 0.16 ohm; reactance/ ph/km = 0.25 ohm. Shunt admittance/ph/km = $1.5X10^{-6}$ mho. Calculate by rigorous method the sending end voltage and current when the line is delivering a load P-20MW at 0.8 p.f lagging. The receiving end voltage is kept constant at 110kV.	(6M)
5.a)	Explain in detail about the effects of power system transients.	(6M)
b)	Prove that the velocity of propagation of travelling waves is equal to the velocity of light	(6M)
6.a)	Discuss the effect of charging current in the Ferranti effect using the necessary expressions.	(4M)
b)	Discuss in detail about effect of the corona on the communication lines.	(8M)
7.a)	Derive the expression for the String efficiency.	(6M)
b)	A transmission line conductor having a diameter of 19.5 mm weighs 0.85 kg/m. The span is 275 meters. The wind pressure is 40 kg/m^2 of projected area with ice coating 13 mm. The ultimate strength of the conductor is 8000 kg. Calculate the maximum sag, if the factor of safety is 2 and ice weighs $910kg/m^3$?	(6M)

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Course Code: BR18EC5T13

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE::ODALAREVU
(AUTONOMOUS)

III-B.TechI-Semester Supplementary Examinations (BR18), Nov - 2025

DIGITAL SYSTEM DESIGN-II (ECE)

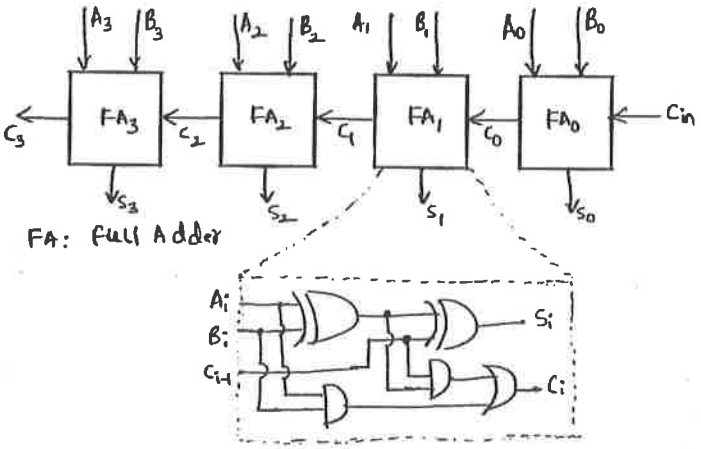
Time: 3 hours | Max. Marks: 60

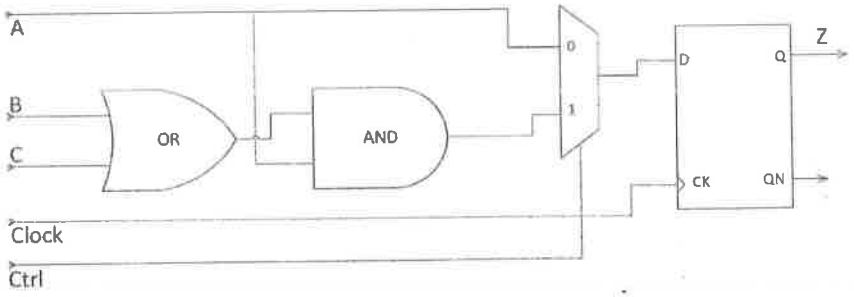
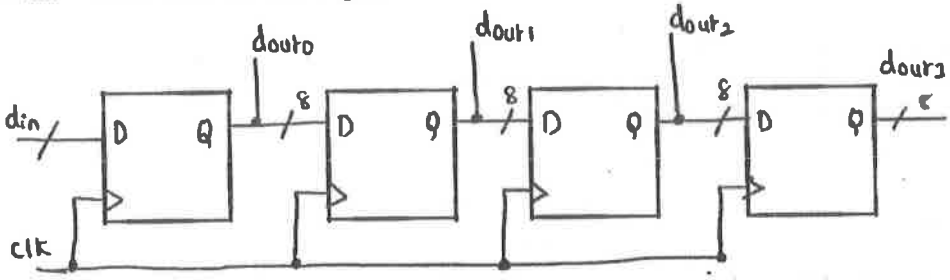
Question Paper consists of Part-A and Part-B
*Answer **ALL** the questions in **Part-A***
*Answer any **FOUR** Questions from **Part-B***

PART–A (6X2 = 12M)

1. a)	Draw the Voltage Transfer Curve (VTC) for a CMOS inverter.	(2M)
b)	Differentiate Hardware Description Languages (HDLs) such as VHDL/Verilog from software programming languages such as C.	(2M)
c)	Write a VHDL code for 2x1 multiplexer.	(2M)
d)	List out the different relational operators available in VHDL.	(2M)
e)	Differentiate "asynchronous reset" and "synchronous reset."	(2M)
f)	List out the different abstraction levels available in Verilog.	(2M)

PART–B (4X12 = 48M)

2.a)	Describe the operation of an open-collector TTL NAND gate. Please draw the circuit diagram.	(6M)
b)	Construct CMOS transistor circuit for Boolean function $F(A,B,C,D) = \overline{(A+B)(C+D)}$.	(6M)
3.a)	State the delay of the 4-bit ripple carry adder shown in Figure 1 if each gate has a delay of 3ns.  *Figure 1: 4-bit Full Adder*	(6M)
b)	Write the VHDL code for the 4-bit full adder shown in Figure 1.	(6M)
4.	Write the VHDL code that will synthesize the circuit shown in Figure 2.	(12M)

	 *Figure 2: Exemplary Synthesized Circuit*	
5.a)	Design a sequence detector (non-overlapping) for 101 using the Moore machine.	(6M)
b)	Write the VHDL code for the above sequence detector.	(6M)
6.	Write the VHDL code for the sequential circuit shown in Figure 3.  *Figure 3: Exemplary Sequential Circuit*	(12M)
7.a)	Differentiate a latch from a flip-flop. Draw the circuit/logic diagrams for both latch/flip-flops.	(6M)
b)	Write the Verilog code for D-latch as well as D-flip-flop.	(6M)

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