

B.E. Electronics & Communication / Telecommunication Engineering  
(Model Curriculum) Semester-VIII  
**ET804M-I - High Speed Electronics**

P. Pages : 2

Time : Three Hours



**GUG/W/24/14357**

Max. Marks : 80

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- Notes :
1. All questions carry marks as indicated.
  2. Assume suitable data wherever necessary.
  3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) How is crosstalk induced in a differential pair? 8
- b) Explain the transmission line reflections for open circuit line and short circuit line. 8

**OR**

2. a) What are the different types of crosstalk? 8
- b) What are the different parameters of transmission line on which its performance depends? 8
3. a) Give details of the different characteristics of end terminators to be considered when designing high frequency circuits. 8
- b) Draw and explain Equivalent circuit of RC interconnects. Also explain the inductive effects in interconnects used in high speed circuits. 8

**OR**

4. a) Write a note on device level interconnects and board level interconnects in high speed circuits. 8
- b) Write a note on Simultaneous Switching Noise (SSO/SSN). 8
5. a) Draw and explain basic CMOS output buffer stage. 8
- b) Elaborate on the delay adjustments that are made in the clock distribution of high speed ICs. 8

**OR**

6. a) Write a note on radiated emissions and minimization of system noise in high speed circuits. 8
- b) With neat sketches explain the timing margins of high speed circuits. 8

7. a) Explain Thermal noise, Shot noise, Flicker noise and Popcorn noise in detail. 8
- b) What aspects should be considered in EMC, and EMI rules when designers do high-speed PCB design? 8

**OR**

8. a) Elaborate on the different kinds of powers that arise when logic gates work at high speeds. 8
- b) Explain in detail LNA topology. 8
9. a) Explain the class A and Class B power amplifiers in detail. 8
- b) In the power system of high frequency digital circuits, why for a stable reference voltage is needed? 8

**OR**

10. a) How do rise time and bandwidth affect the performance of oscilloscope probes? 8
- b) Explain the concept of down conversion in high speed network. 8

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