

**ET804M-I - Programme Elective-IV : High Speed Electronics**

P. Pages : 2

Time : Three Hours



**GUG/S/25/14357**

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) What are the different types of crosstalk? 8
- b) Write about key components of PCB transmission line. Also give its importance and design considerations. 8

**OR**

2. a) Explain the transmission line reflections for open circuit line and short circuit line., 8
- b) Explain the key aspects of interconnect design? Also explain the importance of interconnect design. 8
3. a) Write a note on Simultaneous switching noise (SSO/SSN). 8
- b) Write a short note: Mitigating Transmission Line Losses. 8

**OR**

4. a) Write a note on device level interconnects and board level interconnects in high speed circuits. 8
- b) Explain the Inter Symbol interference (ISI) Mitigation techniques in high-speed electronics? 8
5. a) Write a note: Mitigation Techniques for 90-degree bends in PCB traces. 8
- b) What are Challenges of Vias in High-Speed Design? 8

**OR**

6. a) Write a note on Radiated emissions in high speed electronic Circuits. 8
- b) Write a note on "driver" or "tapered buffer." 8
7. a) Write a note on Thermal noise and its impact on high-speed electronics. 8
- b) Explain the common Low-Noise Amplifier (LNA) Topologies and their features. 8

**OR**

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|-----------|----|--|----------|
| <b>8.</b> | a) | Write a note on Popcorn noise and its impact on high-speed electronics | <b>8</b> |
|           | b) | Which factors are important in designing a high-frequency amplifier?   | <b>8</b> |
| <b>9.</b> | a) | Explain how the mixers facilitate for down-conversion of signals.      | <b>8</b> |
|           | b) | Explain types of mixers used in high speed electronic circuits.        | <b>8</b> |

**OR**

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|------------|----|--|----------|
| <b>10.</b> | a) | Explain the important characteristics to be considered in designing power amplifier. | <b>8</b> |
|            | b) | Write a note on High-Speed Operational Amplifiers (Op Amps).                         | <b>8</b> |

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