





12. (a) With a neat schematic diagram, explain the balanced ring modulator of BPSK.

Or

- (b) (i) Describe the two techniques of achieving carrier recovery circuit.  
(ii) Explain in detail about 8 QAM transmitter and receiver.
13. (a) (i) Explain delta modulation with the help of transmitter and receiver diagrams.  
(ii) What is Quantizing error? Illustrate with an example.

Or

- (b) (i) Explain in detail about ISI and Eye diagram.  
(ii) What is meant by companding? Describe the concept of analog companding.
14. (a) With a neat block diagram, explain the concept of UART transceiver operation.

Or

- (b) (i) What are parallel interfaces? Describe in detail about centronics parallel interfaces.  
(ii) Describe in detail about medium and high speed modems.
15. (a) (i) Describe direct sequence spread spectrum with coherent BPSK.  
(ii) Describe Slow and Fast Frequency Hopping.

Or

- (b) Describe the structure of feedback shift register for generating PN sequences.