

Question Paper Code: 57243

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Third Semester

Computer Science and Engineering

CS 6304 - ANALOG AND DIGITAL COMMUNICATION

(Common to Information Technology, also common to Fourth Semester Biomedical Engineering)

(Regulations 2013)

Time: Three Hours

Maximum: 100 Marks

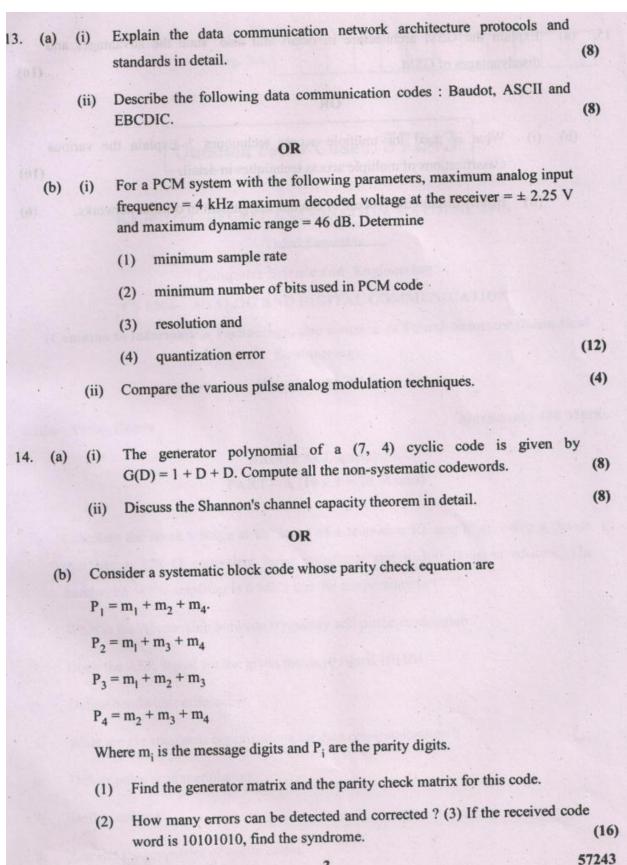
Answer ALL questions. $PART - A (10 \times 2 = 20 \text{ Marks})$

- 1. Calculate the noise voltage at the input of a television RF amplifier, using a device that has a 200 Ω equivalent noise resistance and a 300 Ω input resistor. The bandwidth of the amplifier is 6 MHz and the temperature is 17 °C.
- 2. What is the relationship between frequency and phase modulation?
- 3. Draw the ASK signal for the given message signal 101101.
- 4. Define bandwidth efficiency.
- 5. What are the standards organizations for data communications?
- Define pulse time modulation.
- 7. Define entropy.
- List out the properties of cyclic codes.

- 9. What is meant by frequency reuse? What is the coverage range of Bluetooth? 10. $PART - B (5 \times 16 = 80 Marks)$ The first stage of a two stage amplifier has a voltage gain of 10, a 600 Ω 11. (a) (i) input resistor, a 1600 Ω equivalent noise resistance and a 27 k Ω output resistor. For the second stage, these values are 25, 81 k Ω , 10 k Ω and 1 M Ω respectively. Calculate equivalent input noise resistance of this two stage amplifier and also calculate the noise figure of the amplifier if it is driven by a generator whose output impedance is 50 Ω . (8) Derive the expression for instantaneous voltage of AM wave. (8) OR Explain the nature of SSB spectrum if the modulating signal is (b) (i) $m(t) = \cos 2\pi .100t + \cos 2\pi .2000t$ and carrier is given by (8) $c(t) = \cos 2\pi .10000t$. Describe the relationship between the instantaneous carrier frequency and (8) the modulating signal for FM. Explain the working of BFSK transmitter and receiver with necessary 12. (a) (i) equations and block diagram. (8)
 - (ii) Differentiate coherent and non-coherent detection and compare the
 - various digital communication systems. tomasi. (8)

OR

(b) What is the significant of QAM? Explain the operation of 8 QAM transmitter and receiver using a block diagram and truth table. (16)



- (i) What is need for multiple access techniques? Explain the various classifications of multiple access techniques in detail. (10)
- (ii) Briefly discuss the process of channel assignment in cellular networks. (6)