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Question Paper Code: 50408

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Fourth Semester

Electronics and Instrumentation Engineering

15UEC423 - COMMUNICATION ENGINEERING

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- Carson's rule gives the appropriate minimum bandwidth required for angle modulated wave and is given by
 - $BW=2(f_m * n)Hz$
 - $BW=2\Delta f$
 - $BW=2f_m$
 - $BW= 2(f_m\Delta + f_m)Hz$
- The digits of the binary representation of the code number are transmitted as pulses. Hence the system of transmission is called
 - PAM
 - PCM
 - PWM
 - DM
- If the minimum Hamming distance defining the error control capability of the code is 5, then the error control capability provides
 - Double error correction
 - Single error detection
 - Single error correction
 - Error cannot be detected
- Latency is low in
 - TDM
 - TDM and FDM
 - FDM
 - None of these
- MEO satellites operate at
 - 1.2GHz -1.66GHz
 - 2GHz-18GHz
 - Greater than 10 GHz
 - Greater than 20 GHz

PART - B (5 x 3 = 15 Marks)

- Draw the spectrum of AM signal and write its expressions.

7. Compare PAM, PWM and PPM.
8. State information capacity theorem.
9. Describe the efficiency of TDMA.
10. A Silica optical fibre with a core diameter of $80\mu\text{ m}$ large enough has a core refractive index of 1.5 and cladding refractive index of 1.47. Determine the critical angle of incidence, NA and the acceptance angle of the fibre in air.

PART - C (5 x 16 = 80 Marks)

11. (a) Explain in detail the Armstrong method of FM generation and compare NBFM and WBFM. (16)

Or

- (b) Give details on AM transmitter and AM receiver. (16)

12. (a) Explain the working of Delta modulation signals with neat diagrams. Give suggestions to correct the limitations of DM techniques. (16)

Or

- (b) Explain MSK and GMSK with block diagrams. (16)

13. (a) With neat block diagrams and example describe in detail about linear block codes and convolutional codes. (16)

Or

- (b) Explain source coding techniques types with example. What are different types of codes? Give details. (16)

14. (a) With neat diagrams explain CDMA techniques and give its applications. (16)

Or

- (b) Explain TDMA along with its features. (16)

15. (a) Briefly describe optical sources and detectors. (16)

Or

- (b) Explain the multiple access techniques used in satellite communications. (16)