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DEPARTMENT OF IT

Faculty of Engineering and Technology, SRM University

SRM Nagar, Kattankulathur – 603203, Kancheepuram District, Tamilnadu

Test: CYCLE TEST-II **Date :** 24-10-2017

Course: 15EC252 Principles of Communication Systems **Duration: 2.15 Hours**

Class: III SEM B.Tech (IT)-set A **Max. Marks:** 80

Instructional Objectives

3. Understand the concept of Pulse and data communication system.
4. Gain knowledge on different digital communication techniques.
5. Understand the fundamentals of various radio communication systems

Student Outcomes

a) an ability to apply knowledge of mathematics, science, and engineering.
b) an ability to design and conduct experiments, as well as to analyze and interpret data.
e) an ability to identify, formulate, and solve engineering problems.

Part B (5x4=20 Marks)-Answer any Five

21. What is the role of holding circuit in pulse modulation system?
22. Derive the expression of PAM signal obtained at the output of multiplier?
23. Write short note on forward error correction method in data communication.
24. Explain Digital amplitude modulation scheme with waveform.
25. Draw & explain the structural of a single fiber in an optical communication?
26. List the difference between cell and cluster in cellular concept.
27. Define the principles of cellular frequency re-use.

Part C (5x12=60 Marks)

28.(a) Explain the generation & demodulation of PPM signal with help of diagram?

(OR)

(b)(i) Compare the various pulse modulation techniques. (6)

(ii)Draw the block diagram of PCM systems and explain its operation. (6)

29.(a)What are the different types of Error detection techniques in data communication. Explain them.

(OR)

(b) Use 12 bit data string 101100111000 to generate hamming bit and prove that single bit error can be detected and corrected using Error correction technique.

30.(a) Describe with the neat diagram, the operation of a binary PSK modulator and demodulator. Draw its phasor and constellation diagram

(OR)

(b) Explain the operation of the binary FSK modulation and demodulation process with the help of relevant diagrams.

31.(a) With the suitable block diagram explain the function of element of an Optical fiber transmission link and its modes of operation.

(OR)

(b) Describe the following terms in mobile communications: GPRS & UMTS

32.(a) Explain the different types of Data Communication Codes.

(OR)

(b) Draw the block diagram of a Basic cellular network and explain its operation.

Reg. No.	RA												B1/B

DEPARTMENT OF ECE

Faculty of Engineering and Technology, SRM University

SRM Nagar, Kattankulathur – 603203, Kancheepuram District, Tamilnadu

Test: Cycle Test-2 **Date** : 24-10-2017

Course: 15EC252 Principles of Communication Systems **Duration: 45 min**

Class: III SEM B.Tech (IT) **Max. Marks: 20**

Part A-(20 X 1=20 Marks)

1. Microwave frequency ranges from
   a) 500 KHz-300 MHz **b) 500 MHz-300GHz**
   c) 88MHz-108MHz d) 400KHz-1600 KHz

2. If the number of bits per sample in a Pulse Coded Modulation system is increased from 5 bits to 6 bits, the improvement in signal to quantization noise ratio will be
   a) 3 dB b) 6 dB c) 2 dB d) 0 dB

3. Light travels along the optical fibres by which mechanism?
   a) Refraction b) Reflection
   c) Scattering d) Total internal reflection

4. The QPSK modulated signal has a bit rate of 4000bps; the baud rate is
   a) 1000bps b) 2000bps c) 4000bps d) 8000bps

5. ---------- is assigned for logic 1 in FSK
   a) High frequency b) Low frequency c) frequency of the message signal
   d) Half the frequency of message signal

6. Which error detection method uses one's complement arithmetic?
   a) Simple parity check b) Two-dimensional parity check c) CRC d) Checksum

7. Which of the following technique is also called as message parity?
   a) VRC b) LRC c) CRC d) Checksum

8. The main objective of CELL in a cellular mobile system is
   a)frequency re-use b)higher bandwidth
   c) simple modulation techniques d)hand-off

9. Which code set is used to BiSync when using VRC/LRC but not operating in transparency mode
   a) EBCDIC b) ASCII c) SBT d) Fieldata

10. The possible number of output conditions in the 'N' input bits can be expressed as
    a) $M=\log 2^N$ b) $M=2^N$ c) $M=2^{N+1}$ d) $M=\log 2^{N+1}$

11. GSM is based on
a) TDMA b) FDMA c) CDMA d) SDMA

12. ------- involves sample and hold operation
a) ASK b) PPM c) FSK d) PCM

13. Which of the following has more bandwidth requirement?
a) QPSK b) 8-PSK c) 8-QAM d) BPSK

14. ------- standardizes the internet activities
a) IAB b) IEEE c) ITU-T d) ISO

15. PPM and PWM are superior to PAM systems in
a) Noise characteristics b) Band width characteristics c) Simplicity in design
d) Frequency response of the intelligence signal

16. 8-QAM uses ---------- as input
a) Dibits b) Tribits c) Four bits d) Eight bits

17. If the bit rate for an ASK signal is 2400bps, then, the baud rate is ---------.
a) 3000bps b) 600bps c) 1200bps d) 2400bps

18. ASK is also called as ----------
a) Half Keying b) OFF Keying c) ON-OFF Keying d) ON Keying

19. Demodulation technique uses ---------
a) HPF b) BPF c) LPF d) BSF

20. Minimum bandwidth for digital modulation technique can be calculated by
a) $B=f_b/N$ b) $B=f_bN$ c) $B=f_b/(N+1)$ d) $B=f_b(N+1)$