(Model Paper) **C –23, EC-304**

State Board of Technical Education and Training, A. P

Diploma in Electronics and Communication Engineering (DECE)

III Semester

Subject Name: **Analog and Digital Communication Systems**

Sub Code: **EC-304**

Time: 90 minutes **Unit Test I** Max.Marks:40

Part-A **16Marks**

Instructions: (1) Answer **all** questions.

(2) First question carries **four** marks, each question of remaining carries **three** marks

1. Write the full form for the following abbreviations

   a) DSB-SC (CO1)

   b) VSB (CO1)

   c) SSB (CO1)

   d) IMRR (CO2)

2. State the need for modulation in communication systems (CO1)
3. List any three merits of FM over AM (CO1)
4. Classify different types of noise (CO1)
5. List the specifications of transmitters. (CO2)

Part-B **3×8=24**

Instructions: (1) Answer **all** questions.

(2) Each question carries **eight** marks

(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

6. (a) Explain the basic elements of a communication system with a block diagram (CO1)

   (or)

   (b) Derive the time-domain equation for an AM signal and define the modulation index of an AM signal. (CO1)

7. (a)Draw the block diagram for low level modulated transmitter and explain its working (CO2)

   (or)

   (b)Explain the process of demodulation with Foster-Seeley discriminator in FM receivers (CO2)

8. (a)Draw the block diagram for high level modulated transmitter and explain its working (CO1)

   (or)

   (b)Explain CRC method of error detection with an example. (CO2)

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III Semester

Subject Name: **Analog and Digital Communication Systems**

Sub Code: **EC - 304**

Time: 90 minutes **Unit Test II** Max.Marks:40

Part-A **16Marks**

Instructions: (1) Answer **all** questions.
(2) First question carries **four** marks, each question of remaining carries **three** marks

1. Write the full form for the following abbreviations
   a) PCM (CO3)
   b) TDM (CO3)
   c) QAM (CO4)
   d) MODEM (CO4)
2. Define information capacity of a channel (CO3)
3. Compare the basic principle of ASK, FSK and PSK (CO4)
4. Define Overhead and Efficiency of data communication system (CO4)
5. State the need for a MODEM in data communications (CO4)

Part-B **3×8=24**

Instructions: (1) Answer **all** questions.
(2) Each question carries **eight** marks
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

6. (a)Explain PAM and Compare PAM, PWM and PPM (CO3)

(or)

(b) Describe the coding and decoding of a PCM signal

7. (a)Explain Binary ASK modulator with block diagram (CO4)

(or)

(b)Explain BPSK modulator with block diagram (CO3)

8. (a) Explain the concept of Frequency Division Multiplexing with a block diagram (CO4)

(or)

(b)Explain the concept of Time Division Multiplexing with a block diagram (CO4)

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BOARD DIPLOMA EXAMINATIONS

C-23, EC-304, ANALOG AND DIGITAL COMMUNICATION SYATEMS

III SEMESTER

MODEL PAPER - SEMESTER END EXAMINATION

TIME:3 HOURS MAX MARKS:80

Part-A **10×3=30**

Instructions: (1) Answer **all** questions.
(2) Each question carries **three** marks
(3) Answer should be brief and straight to the point and shall not exceed five simple sentences.

1. State the need for modulation in communication systems (CO1)
2. Determine the carrier power of AM transmitter radiating a power of 400kW, when modulated to a depth of 75% (CO1)
3. List any three merits of FM over AM (CO2)
4. Classify different types of noise (CO2)
5. List the specifications of transmitters (CO3)
6. Distinguish between analog and digital signals (CO3)
7. State the need for sampling while converting analog signal to into digital signal (CO4)
8. State they need for multiplexing (CO4)
9. List different error detection methods (CO5)
10. State the need for a MODEM in data communications (CO5)

Part-B **5×10=50**

Instructions: (1) Answer **any Five** questions.
(2) Each question carries **TEN** marks
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Derive the time-domain equation for an AM signal and draw its frequency spectrum (CO1)
12. Mathematically show that angle modulated signal requires infinite bandwidth (CO2)
13. Draw the block diagram for high level modulated transmitter and explain its working (CO3)
14. Explain the process of demodulation with Foster-Seeley discriminator in FM receivers (CO3)
15. Explain the block diagram Frequency division multiplexing (CO4)
16. Explain block diagram of ASK Modulator and Demodulator (CO5)
17. Explain the concept of ADSL Modem with a block diagram (CO5)
18. a) Explain the need for SSB (5Marks) (CO1)

    b) Write the need for sampling and quantization (5Marks) (CO4)

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