

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****1154 B.Tech. CBCS****Sub. Name: Analog Communication****Sub. Code: 73246/77808****Day and Date: Thursday ,18-12-2025****Total Marks: 70****Time: 02:30 PM To 05:00 PM**

- Instructions:**
1. All questions are compulsory
 2. Figures to the right indicate full marks
 3. Use of Scientific calculator is allowed

- Q1)** Attempt following Multiple Choice Questions.[14*1] **[14]**
- a. In India_____ Modulation is used for radio transmission.
A) Frequency B) Amplitude C) Phase D) None of the above
 - b. The Process of recovering information signal from received carrier is known as_____.
A) Detection B) Modulation C) Demultiplexing D) Sampling
 - c. A carrier is simultaneously modulated by two sine waves with modulation indices of 0.4 and 0.3. The resultant modulation index will be_____.
A) 1 B) 0.5 C) 0.7 D) 0.35
 - d. Sensitivity is defined as _____.
A) Ability of receiver to amplify weak signals
B) Ability to reject unwanted signals
C) Ability to convert incoming signal into Image Frequency
D) Ability to reject noise
 - e. The standard value for Intermediate frequency (IF) in double conversion FM receivers is_____.
A) 455 KHz B) 580 KHz C) 10.7 MHz D) 50 MHz
 - f. Sampling theorem finds application in _____.
A) FM B) PAM C) AM D) PM
 - g. The modulation index of FM is given by_____.
A) $\mu = \text{frequency deviation} / \text{modulating frequency}$
B) $\mu = \text{modulating frequency} / \text{frequency deviation}$
C) $\mu = \text{modulating frequency} / \text{carrier frequency}$
D) $\mu = \text{carrier frequency} / \text{modulating frequency}$
 - h. In an AM Wave useful power is carried by _____.
A) Carrier B) Sidebands C) Sidebands and Carrier D) None of the above
 - i. The Amplitude modulation spectrum consists of _____sideband frequencies and also a carrier frequency.
A) Upper B) Lower C) Both Upper and Lower D) None of the above
 - j. Over modulation (Amplitude) occurs when signal amplitude is_____than carrier

amplitude.

A) Equal to B) Greater than C) Less than D) None of the above

k. As the modulation level is increased, the carrier power _____.

A) is increased B) is decreased C) Remains the same D) None of the above

l. In amplitude modulation, bandwidth is _____ the audio signal frequency

A) Thrice B) Four times C) Twice D) None of the above

m. Quantization noise can be reduced by _____ the number of levels.

A) Decreasing B) Increasing C) Doubling D) Squaring

n. The techniques used for sampling are _____.

A) Instantaneous sampling B) Natural Sampling C) Flat top Sampling D) All of the above

Q2) Attempt any two ($7 \times 2 = 14$) **[14]**

a. Derive an expression for time domain representation of AM wave.

b. Explain Narrowband FM.

c. Explain thermal noise and partition noise.

Q3) Attempt any two ($7 \times 2 = 14$) **[14]**

a. Draw and Explain block diagram of High level DSBFC.

b. How FM generation is done with indirect method.

c. Explain different types of noise.

Q4) Attempt any two ($7 \times 2 = 14$) **[14]**

a. Describe TRF receiver. comment on limitations.

b. Describe with neat block diagram Foster seeley discriminator.

c. Compare PAM and PWM.

Q5) Attempt any two ($7 \times 2 = 14$) **[14]**

a. Explain applications of PAM.

b. Explain double conversion FM receiver.

c. Explain demodulation of SSB.

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (77808) Analog Communication Part 2 SEM 3

2] (1154) B.Tech. CBCS (73246) Analog Communication Part 2 SEM 3