



**BUDDHA INSTITUTE OF TECHNOLOGY, GIDA, GORAKHPUR**  
**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**  
**CLASS TEST-1 (EVEN SEMESTER 2022-23)**  
**MAY-2023**

Course: B. TECH. Semester: 4  
Subject: COMMUNICATION ENGG. Subject Code: KEC-401  
M.M. 30 Time: 2:00 hrs Roll No. \_\_\_\_\_

**SECTION-A**

1. Attempt all questions. Each questions carry equal marks.

Marks: 5\*1=5

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	Write the function of receiver?	L2	CO-1
b.	Draw the block diagram of TRF receiver?	L2	CO-1
c.	What the Base band & Pass band signal?	L2	CO-1
d.	Sketch the time domain of over modulated AM Signal?	L2	CO-1
e.	Determine the image frequency for a AM with IF Frequency 455KHz and station frequency 640KHz?	L2	CO-1

**SECTION-B**

Attempt ALL questions. Each questions carry equal marks.

Marks: 3\*5= 15

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	What is modulation? What is the need of modulation?	L2	CO-1
or			
a.	Prove that the baseband modulator produce an output consisting of sideband only with the carrier removed?	L2	CO-1
b.	Explain Superhetrodyne receiver?	L2	CO-1
or			
b.	Explain the generation of SSB-SC(Single Side Band Suppressed carries) modulation by frequency discrimination method?	L2	CO-1
c.	Explain the analog communication in detail?	L2	CO-1
or			
c.	Explain the AM(amplitude modulation )and drive amplitude modulated signal.	L2	CO-1

**SECTION-C**

Attempt any two questions. Each questions carry equal marks.

Marks: 2\*5=10

Q. No.	Question	Level of Taxonomy	Course Outcome
a.	An AM single is given by $X_{AM}(t) = 10\cos(2\pi \times 10^6 t) + 5\cos(2\pi \times 10^6 t)\cos(2\pi \times 10^3 t) + 2\cos(2\pi \times 10^6 t)\cos(4\pi \times 10^3 t)$ . Determine the net modulation index, percentage modulation, frequency of side band and their amplitude, total power. What will the band width of S/G and transmission efficiency?	L3	CO-1

<b>b.</b>	<p>An AM amplifier has a radio frequency of output 50W at 100% modulation. The internal loss in the modulator is 10W. (1)What is the unmodulated carrier power? (2)What power output is required from modulator? (3)If the %modulation is reduced to75% how much output needed from the modulation.</p> <p>Calculate the percentage power saving when the carrier and one of the sideband are suppressed in an AM wave modulated to a depth of (a) 100% (b) 75%</p>	<b>L3</b>	<b>CO-1</b>
<b>c.</b>	<p>A carrier <math>20 \cdot \cos(2\pi \cdot 10^4 t)</math> is modulated by a single tone modulating signal <math>m(t) = 10 \cdot \cos(2\pi \cdot 10^3 t)</math> Find (1) Total modulated power (2) Bandwidth (3) Transmission efficiency (4) frequency domain representation (5) frequency of side band and their amplitude?</p>	<b>L3</b>	<b>CO-1</b>

**Note: Revised Bloom's Taxonomy Levels-**

**L1->Remembering, L2->Understanding, L3->Applying, L4->Analyzing, L5->Evaluating, L6-> Creating.**