

School: SOE	Level: BE	Invigilator's Sign: .....
Program: BEEE	Year/Part: III/I	Superintendent's Sign: .....
Subject: Integrated Communication System (EG611EX)		Code No. ....

- i. Answers should be given by filling the Multiple-Choice Questions' Answer Sheet.  
ii. The main answer sheet can be used for rough work.

Code No.

GROUP A (Multiple-Choice Questions)	[10x1=10]	Time: 20 Minutes
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- Flicker noise is also known as:**
  - White noise
  - Pink noise
  - Brown noise
  - None of the mentioned
- Vestigial sideband (VSB) modulation is commonly used in \_\_\_\_\_.**
  - Radio broadcasting
  - Television broadcasting
  - Satellite communication
  - Mobile communication
- In PCM, the number of bits per sample is determined by:**
  - The sampling rates
  - The quantization levels
  - The modulation index
  - The bandwidth of the signal
- Shannon's channel capacity theorem helps in understanding the trade-off between:**
  - Bandwidth and power
  - Bandwidth and noise
  - Power and noise
  - All of the above
- Binary cyclic codes are designed using:**
  - Shift registers with feedback
  - Shift registers without feedback
  - Flip-flops

- None of the mentioned
- Which of the following techniques is used to extend the range of a cellular system?**
    - Repeaters
    - Cell splitting
    - Sectoring
    - Frequency reus
  - The switching system that uses a matrix of Crosspoint's to connect inputs to outputs is called:**
    - Crossbar switch
    - Time switch
    - Packet switch
    - Circuit switch
  - Frequency Division Multiplexing (FDM) is primarily used in:**
    - Optical fiber communication
    - Radio and television broadcasting
    - Satellite communication
    - Mobile communication
  - Which is of the following isn't non-destructive testing in masonry?
    - Diagonal shear test
    - Push shear test
    - Flat jack test
    - Electric wave tomography

**10. Which modulation technique is most resistant to noise?**

- ASK
- FSK
- PSK
- QAM

### Multiple Choice Questions' Answer Sheet

Marks Secured: \_\_\_\_\_

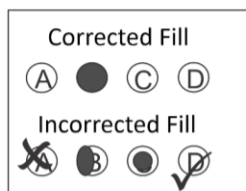
In Words: \_\_\_\_\_

Examiner's Sign: \_\_\_\_\_ Date: \_\_\_\_\_

Scrutinizer's Marks: \_\_\_\_\_

In Words: \_\_\_\_\_

Scrutinizer's Sign: \_\_\_\_\_ Date: \_\_\_\_\_



1. A B C D	6. A B C D
2. A B C D	7. A B C D
3. A B C D	8. A B C D
4. A B C D	9. A B C D
5. A B C D	10. A B C D

Manmohan Technical University  
Office of the Controller of Examinations  
Exam Year: 2081, , Mangsir (Model Question)

School: SOE	Level: BE	Time: 3 Hours
Program: BEEE	Year/Part: III/I	Full Marks: 50
<b>Subject:</b> Integrated Communication System(EG611EX)		

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ Assume suitable data if necessary.

**GROUP A** (Multiple-Choice Questions in separate paper)

[10×1=10]

**GROUP B** (Short Answer Questions - Attempt Any Eight)

[8×2=16]

1. a) Differentiate between analog and digital communications.  
b) Differentiate between IOT and M2M communications.
2. Describe the Ring type of DSB-SC generator with necessary diagrams.
3. Explain QPSK modulation technique in digital communications
4. What do you understand by entropy in communication? explain signaling rate in information theory.
5. Explain Code tree with suitable example for error controlling
6. What is the importance of Okumura -Hata model in propagation?
7. Explain the evolution of modern communication system with historic time based on innovation.
8. Draw the block diagram of Time division multiplexing
9. What causes Inter-Symbol Interference (ISI) in communication systems, and how does it impact signal transmission?

**GROUP C** (Long Answer Questions - Attempt All Question)

[6×4=24]

10. Describe the importance of **modulation in communication systems with example** ? Suppose a communication channel with a bandwidth of 3 kHz (3000 Hz) and a signal-to-noise ratio (SNR) of 30 dB. Find the maximum data rate of this channel.(2+2)
11. Draw the block diagram of superheterodyne FM receiver and illustrate the importance of each unit . A carrier signal of frequency 1 MHz and amplitude 10 V is amplitude modulated by a signal of frequency 10 kHz and amplitude 5 V. Calculate the modulation index and the total power of the modulated signal.(2+2)
12. Explain the working principle of differential PCM with appropriate block diagrams. Consider a binary sequence with a long sequence of 1 s followed by a single 0 and then a long sequence of 1100001000000000 s. Draw the waveforms for this sequence, using the follow signaling formats: i)HDB3 ii)AMI iii)B8ZS(1+1+1+1)
13. How a cellular call is set up discuss with each steps with necessary diagrams.Explain in detail with handoff procedure in cellular network.(2+2)
14. Explain the Switching mechanisms in Telecommunication Switching Systems and Networks.The generator matrix of (6,3) block code is given below. Find all the code

$$G = \left[ \begin{array}{ccc|ccc} 1 & 0 & 0 & 0 & 1 & 1 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 0 \end{array} \right]$$

vectors of this **code**

(2+2)

15. Explain in detail with diagram of STS and TST switching system. Explain the features of IMT 2020/5G (2+2)
16. Describe the different types of noises in communication. How does the signal-to-noise ratio (SNR) affect communication channel capacity? Illustrate your explanation using the Shannon-Hartley theorem.

