



EEEN 464 – DIGITAL COMMUNICATION

TEST YOUR KNOWLEDGE

ON

INTRODUCTION TO TELEPHONY

Introduction to Telephony Test

Instructions: Answer all 40 questions. Time: 75 minutes.

Total Points: 100 (2.5 points per question).

MULTIPLE CHOICE QUESTIONS

1. **The first practical telephone was invented by**
 - a) Thomas Edison
 - b) **Alexander Graham Bell**
 - c) Guglielmo Marconi
 - d) Nikola Tesla

2. **In analogue telephony, the human voice frequency range is typically**
 - a) 20 Hz – 20 kHz
 - b) **300 Hz – 3.4 kHz**
 - c) 0 – 4 kHz
 - d) 1 kHz – 10 kHz

3. **DTMF (Dual-Tone Multi-Frequency) is used for**
 - a) Transmitting voice
 - b) **Dialing and signaling**
 - c) Error correction
 - d) Call encryption

4. **The "local loop" refers to**
 - a) Trunk lines between cities
 - b) **Subscriber line to the central office**
 - c) Fiber-optic backbone
 - d) Satellite uplink

5. **PSTN stands for**
 - a) Public Satellite Telephone Network
 - b) **Public Switched Telephone Network**

- c) Primary Synchronized Telephony Node
 - d) Packet-Switched Telephony Network
6. **Which switching method uses dedicated paths?**
- a) Packet switching
 - b) **Circuit switching**
 - c) Message switching
 - d) IP switching
7. **SS7 (Signaling System 7) is critical for**
- a) Voice transmission
 - b) **Out-of-band call control**
 - c) Subscriber billing
 - d) Line amplification
8. **E1 lines carry**
- a) 12 voice channels
 - b) 24 voice channels (1.544 Mbps)
 - c) **30 voice channels**
 - d) 32 voice channels
9. **Erlang is a unit of**
- a) Signal-to-noise ratio
 - b) **Telecommunications traffic intensity**
 - c) Bandwidth efficiency
 - d) Bit error rate
10. **ISDN (Integrated Services Digital Network) provides**
- a) Analog voice only
 - b) **Digital voice/data on the same line**
 - c) Wireless connectivity
 - d) Satellite communication
11. **VoIP converts voice into**
- a) Analog FM signals
 - b) **Digital packets**
 - c) SS7 messages
 - d) DTMF tones
12. **The primary function of a PBX is to**
- a) Connect to satellites
 - b) **Switch calls within an organization**
 - c) Amplify long-distance signals
 - d) Generate billing records
13. **E.164 defines**
- a) Email protocols
 - b) **International telephone numbering**
 - c) Fiber-optic standards
 - d) Modulation schemes

14. **CDMA in cellular networks stands for**
- a) **Code Division Multiple Access**
 - b) Carrier Division Multiplexing Algorithm
 - c) Cellular Digital Modulation Architecture
 - d) Compressed Digital Mobile Access
15. **The "last mile" problem in telecommunications refers to**
- a) International call latency
 - b) **High cost of connecting end-users to the network**
 - c) Satellite delay
 - d) Trunk line congestion

TRUE/FALSE QUESTIONS

16. **POTS (Plain Old Telephone Service) uses digital signalling.**
- **False** (Analog)
17. **Fiber-optic cables are immune to electromagnetic interference.**
- **True**
18. **In circuit switching, resources are shared dynamically.**
- **False** (Dedicated path)
19. **SIP (Session Initiation Protocol) is used for VoIP call setup.**
- **True**
20. **ADSL provides symmetric upload/download speeds.**
- **False** (Asymmetric)
21. **The microphone converts sound waves to electrical signals.**
- **True**
22. **Telegraph systems were a precursor to telephony.**
- **True**
23. **MPLS prioritizes voice packets to reduce latency.**
- **True**
24. **H.323 is a legacy protocol for video conferencing, not VoIP.**
- **False** (Used for VoIP)
25. **Landline wired telephones require external power to operate.**
- **False** (Powered by the line)

SHORT ANSWER QUESTIONS

26. Why is echo cancellation needed?

- *Answer:* Eliminates feedback caused by impedance mismatches.

27. List two components of a cellular network.

- *Answer:* Base Station (BTS), Mobile Switching Centre (MSC).

28. What is "number portability"?

- *Answer:* Keeping your number when switching telephone operators.

29. How does a digital phone differ from analogue?

- *Answer:* Converts voice to digital samples (e.g., PCM) before transmission.

30. Define "grade of service" (GoS).

- *Answer:* Probability of call blockage during peak hours (e.g., P01 = 1% blocking).