

**TELECOMMUNICATION SYSTEMS
(ECEN 3234)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) The ratio of number of successful calls to the number of call attempts is known as
(a) Call Completion Rate (b) Call Block Rate
(c) Busy Hour Call Rate (d) None of the above.
 - (ii) In packet switching, what does the header of each short size of packet consist of?
(a) Source Address (b) Destination Address
(c) Message id (d) All of the above.
 - (iii) In Telephony, Tone dialling takes _____ time than pulse dialling
(a) less (b) more
(c) about the same (d) Can't be determined.
 - (iv) A switch in a datagram network uses a routing table that is based on which address
(a) Source (b) Destination (c) Local (d) None of the Above.
 - (v) The part of the telephone network between the telephone instrument at subscriber premises and the central office equipment is called the
(a) Inter Office Trunk (b) Tie line
(c) Subscriber Loop (d) Service Drop wire.
 - (vi) Which of the following mode is suitable for propagation of a signal having frequency between 2 MHz and 30 MHz?
(a) Ground Wave (b) Sky Wave
(c) LOS (d) None of the above.
 - (vii) A method of multiplexing where the total available frequency spectrum is shared by each channel
(a) FDM (b) TDM (c) SDM (d) GSM.

B.TECH/ECE/6TH SEM/ECEN 3234(BACKLOG)/2021

- (viii) By which name/s is the Grade of Service (GOS) well-known?
(a) Call congestion (b) Time congestion
(c) Both (a) and (b) (d) None of the above.
- (ix) Which multiplexing technique involves signals composed of the light beams?
(a) FDM (b) TDM (c) WDM (d) None of the above.
- (x) If 'n' number of users is present in a network with point-to-point links, then how many links will be required in the network?
(a) $n(n-1)$ (b) $n(n-1)/2$
(c) $n(n-1)/4$ (d) $n(n-1)/8$.

Group – B

2. (a) Explain the salient features of circuit switching and packet switching systems.
(b) What were the disadvantages of a manual exchange employing telephone operator.

6 + 6 = 12

3. (a) Why common control subsystem was introduced in telecommunication system?
(b) What is DTMF technology?

6 + 6 = 12

Group – C

4. (a) Mention the advantages and disadvantages of Satellite communication.
(b) Write the advantages of fibre-optic cable over co-axial cable.

6 + 6 = 12

5. (a) Write the differences between common channel and In-channel signalling.
(b) Draw a T1 frame.

6 + 6 = 12

Group – D

6. (a) Explain different ways to place a call in VoIP service with block diagram.
(b) Compare VoIP and PSTN service?

6 + 6 = 12

7. (a) What are the functional differences between Data Terminal Equipment (DTE) And Data Communications (or channel) Equipment (DCE)?
(b) Analyse the operation of a cordless telephone with proper diagram.

6 + 6 = 12

Group – E

8. (a) What is a blocking network?
(b) During 20 minutes 40 subscribers initiate calls with a total duration of 4800 seconds. Calculate load offered and average subscriber traffic.
4 + 8 = 12
9. (a) State about different models of Loss system.
(b) What is GOS in traffic engineering?
6 + 6 = 12

Department & Section	Submission Link
ECE	https://classroom.google.com/u/0/w/MTE30DE10DgxNTQz/tc/MzY0MzUwMTI4NTE0