Bharati Vidyapeeth's College Of Engineering For Women
Department of Electronics & Telecommunication Engineering

VOICE NETWORK

CLASS TEST-I

[2009- 10]

Max. Marks-30 **Time- 1Hrs**

Q.1 Solve any two of the followings

1] List & explain various measurement units that are used in traffic Engineering. How they are related to each other? **[10-Marks]**

2] Draw & explain the detailed organization of "Distributed LPC" **[10-Marks]**

3] Explain the " basic Time division space switching" with neat diagram **[10- Marks]**

Q.2 Solve any two of the followings

1] Given that MTBF=3000Hrs & MTTR=4Hrs. Calculate the unavailability for single and dual processor system for 30yrs **[5-Marks]**

2] During a 2Hrs busy period 2400calls arrive at an exchange. Avg holding time per call is 3min. calculate the traffic load in Earlangs, CCS, CS, and CM. **[5-Marks]**

3] If there are 60 radio channels in a cell to handle all the call and avg call holding time is 120sec, how many calls are handled in this cell with a GOS of 2%. [Note-For 60channels, offered load is 56E at 2% GOS] **[5-Marks]**

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CLASS TEST-II

[2009- 10]

Max. Marks-30 **Time- 1Hrs**

Q.1 Solve any two of the followings

1] Draw the reference model of GSM architecture and explain its various elements

[10-Marks]

2] Explain the forword & reverse link channels structure of IS-95 CDMA air interface **[10-Marks]**

3]Explain the GSM frame structure and various bursts used **[10-Marks]**

Q.2 Solve any one of the followings

1] Write a short note on "Walsh code" **[10-Marks]**

2] Explain the following terms in detail **[10-Marks]**

A] Spectral Efficiency

B] Frequency reuse in cellular structure

Bharati Vidyapeeth's College of Engineering for Women, Pune-43
Department of Electronics and Telecommunication Engineering

Subject: Voice Networks
Unit Test I -- B.E(E &TC) Div I & II

Duration: 1 hour **Max Marks: 30**

Instructions:
1. Assume Suitable data, wherever necessary.
2. Bold numbers to the right indicate maximum marks.

Q.1 a) Compare single stage and multistage switching network (05)
b) List out various 'Enhanced Services' offered by telephone exchange? (05)
c) Compare key characteristics of ISDN & PSTN (05)

OR

Q.2 a) Given that MTBF=3000 hrs and MTTR=6 hrs, calculate the Availability and Unavailability of Single and Dual processor system. The life of exchange is 20 years. (10)
b) Draw neat labeled diagrams for different modes of configuration of Dual Processor architecture. (05)

Q.3 a) Draw the frame format for BRI and PRI frames, specifying their data rates (07)
b) What is 2B1Q coding? Which interface of the ISDN uses 2B1Q coding? (04)
d) Classify following technologies as Narrowband and Broadband
X.25, T1, PRI, T3, FR, ATM, PSTN, BRI (04)

OR

Q.4 a) Draw the diagram of ISDN functional Grouping (connections between TE1, TE2, TA, NT1, NT2 etc) and define TE1, TE2, NT1, NT2 and TA (10)
b) What are the Voice, Non-Voice and Value Added Services provided by ISDN? (05)

********** ***Best of Luck*** **********

Bharati Vidyapeeth's C.O.E for Women, Pune-43
Dept of Electronics & Telecommunication

UNIT TEST II

Sub:- VOICE NETWORK

CLASS-B.E I & II

Max^m Marks: 30

Duration: 1 Hour

Q.1 a) In a group of 10 servers, each is occupied for 30 minutes in an interval of 2 hours. Calculate the traffic carried by the group. (5 marks)

b) Define Birth-Death process & explain its state transitions. (5 marks)

c) Define Erlang B formula & explain the various quantities / variables involved in the formula (5 marks)

Or

Q.2 a) Define Grade of service, Busy Hour Call Attempts, Busy Hour Call rate & Call Completion rate (10 marks)

b) Explain a typical Hour-by-Hour traffic pattern of a voice network during a working day (5 marks)

Q.3 a) Draw the cluster of cells for reuse factor $N = 3, 4 \& 7$ (9 marks)

b) What is meant by "Spectral Efficiency" of modulation? Explain any one formula (6 marks)

Or

Q.4 a) Draw only neat diagrams for FDMA / FDD, TDMA / FDD & TDMA frame. (9 marks)

b) What is "Multiple Access Spectral Efficiency"? Define formula for FDMA Spectral Efficiency. (6 marks)

BEST OF LUCK