1) Ques1:(20 marks)
   a) what is the difference between public & personal communication?
      (2 marks)

   b) What is hybrid communication?, provide 2 examples, that you can observe today in Srilanka?
      (3 marks)

   c) All the countries in the world are now developing national Backborn networks.
      Explain the benefits that a country will gain from NBN,with respect to social, economy & environment improvements
      (5 marks)

   d) The Srilanka NBN, assume the total length as 4000 km, to provide STM64 the estimated cost as 300 m US $. How much does a TV service provider has to pay monthly to cover the capital cost to use this network for broadcasting?
      (Assume 3 E1 links necessary to broadcast)clearly explain about MIU(minimum investment unit)as applied to a transmission system

      (10 Marks)

2) Ques2
   a) Digital transmission is achieved thru' a technique of Pulse Code Modulation. With the help of a block diagram, explain how you form a basic Pcm system.
      Show that the basic Pcm will carry 2.048 mb/sec..
      (5 marks)

   b) a basic PCM network, non linear quantising is used. Explain why you don't use linear quantising for voice transmission?
      (2 marks)

      Draw in NRZ AMI waveform what you can observe, in the transmission media, for the following sample values?
      750 mv & 190 mv
      (4 marks)

3) In the higher order digital multiplexing, syncronus digital heirachchy(SDH) is widely used. Explain, Justification as applied to SDH.
   (3 marks)

4) In higher order SDH, the basic mulitiplexing unit is STM 1(syncronus transfer mode). Upto how many STM's can be muliplexed in the latest technology?. Show clearly the each step of multiplexing, with the period of the basic BiT?
   (6 marks)

Question3: (20 marks)

1) Explain what you understand by Availability & blocking in a switching network? (2 marks)
2) To a 'T' switch 32 PCM(0-31) systems are connected. 2 cutomers(A & B) are speaking in P2 TS5 & P30 TS 10 respectivily.

   a) Write the switching equation
      (2 marks)
   b) draw the timing chart to explain the switching function
      (4 marks)
   c) explain with the basic components of 'T' switch, how do you achieve the switching function?(8 marks)
   d) what is the maximum traffic in Erlang that can be carried by this 'T' switch?
      (4 marks)

All 3 questions appeared
Marking scheme

Q1 Ques1:(20 marks)

a) what is the difference between public & personal communication? (2 marks)
Any two of the fol 3 will result to get 2 marks:
Unidirectional & bydirectional
Happy to listen in a group & person to person
Pt to pt/ pt to multi pt
Interactive/ no interaction

b) What is hybrid communication?, provide 2 examples, that you can observe today in Srilanka? (3 marks)
Combination of private + personal communication. Use of latest SMS, computers
Super star etc

c) All the countries in the world are now developing national Backborn networks.
Explain the benefits that a country will gain from NBN,with respect to social, economy & environment improvements
(5 marks)

Social: e commerce, e health, e learning, e government,e home,e marketting,ebanking,better service quality,reduce digital divide
Ecconomy: increase business, new jobs,innovative business
Enviroment: reduce travelling,reduce emission

d) The Srilanka NBN, assume the total length as 4000 km, to provide STM64 the estimated cost as 300 m US $. How much does a TV service provider has to pay monthly to cover the capital cost to use this network for broadcasting? (Assume 3 E1 links necessary to broadcast)clearly explain about MIU(minimum investment unit)as applied to a transmission system

(10 Marks)

Total e1. 63x64=stm 64
E1 km= 63x64x4000=
Min in unit(E1)= 300mx130(1us$ = 130 assume)/ 4000x63x64= 2418rs
Capital cost=
Depreciation:

Ques2

1) Digital transmission is achieved thru' a technique of Pulse Code Modulation. With the help of a block diagram, explain how you form a basic Pcm system.
Show that the basic Pcm will carry 2.048 mb/sec.. (5 marks)

3 modules/ signalling/ different sync/ block diagram

2) a basic PCM network, non linear quantising is used. Explain why you don't use linear quantising for voice transmission? (2 marks)

S/n ratio gd only for high valued samples
90% practical samplles are low.

Draw in NRZ AMI waveform what you can observe, in the transmission media, for the following sample values?
750 mv & 190 mv

(4 marks)
11011111/ 11000000(seg change)

3) In the higher order digital multiplexing, syncronus digital heirachchy(SDH) is widely used. Explain, Justification as applied to SDH.
(3 marks)
+/_/0 justification
Railway compartments connection buffer + chain

4) In higher order SDH, the basic mulitiplexing unit is STM 1(syncronus transfer mode). Upto how many STM's can be muliplexed in the latest technology?. Show clearly the each step of multiplexing, with the period of the basic BiT?
(6 marks)

STM1,4,16,64,256 relevent 155,620,2.5 G/10 G relevent to 6.4Ns, 1.6Ns,400Ps,100Ps

Question3: (20 marks)

1) Explain what you understand by Availability & blocking in a switching network? (2 marks)

Any ip can reach any out put
When the switch is loaded, you can connect any free input to any free output

2) To a 'T' switch 32 PCM(0-31) systems are connected. 2 cutomers(A & B) are speaking in P2 TS5 & P30 TS 10 respectively.
   a) Write the switching equation
   (2 marks)
   P2fTs5 To P30b Ts 10
   P30f TS 10 to P2b TS 5

   b) draw the timing chart to explain the switching function
   (4 marks)
   Pict diagram

   c) explain with the basic components of 'T' switch, how do you achieve the switching function?
   (8 marks)

   Buffer meomory,Control Meomory & processor

   P2TS5 W 69/ P30 TS 10 W970(assming structuring first PCM then TS)

   d) what is the maximum traffic in Erlang that can be carried by this 'T' switch?
   (4 marks)
   32x30x2/4. 480 er