

PDFZilla – Unregistered

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Total No. of printed pages = 4

EC 131704

Roll No. of candidate

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2017

B.Tech. 7th Semester End-Term Examination

Electronics and Communication

**TELECOMMUNICATION SWITCHING AND
TRANSMISSION SYSTEM**

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Answer Question No. 1 and any six from the rest of the
questions.

1. Answer the following : (10 × 1 = 10)
- (a) Alexander Graham Bell demonstrated his telephone set and possibility of telephony in the year _____.
- (b) Name the mode of centralised SPC in which Hardware coupling is provided between the two processors.
- (c) Which transmission mode of Optical Fibre Cable is mostly used for long distance applications?

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- (d) A period of one hour which corresponds to the peak traffic load is called as the _____.
- (e) The address space of IPv4 is _____.
- (f) Asymmetric DSL provides _____ speed in downstream then in upstream direction.
- (g) The size of an ATM cell is _____.
- (h) What is the function of twisting in twisted pair cable?
- (i) The Unit of Traffic is _____.
- (j) When all the trunks in a group of trunks are busy and it cannot accept any further calls, the state is known as _____.
2. (a) What is Stored Program Control (SPC)? Illustrate the difference between trunks and subscriber lines with a suitable diagram. (2 + 3 = 5)
- (b) Explain the operation of a Load sharing mode of a centralized SPC with relevant figure. (5)
- (c) What are Guided and Unguided media? List few applications of Optical fibre cable. (2 + 3 = 5)

3. (a) List some major disadvantages of a microwave transmission. Why must a satellite have distinct uplink and downlink frequencies? (3 + 2 = 5)
- (b) During the busy hour, 1200 calls were offered to a group of trunks and six calls were lost. The average call duration was 3 minutes. Find (5)
- (i) The traffic offered
- (ii) The traffic carried
- (iii) The traffic lost
- (iv) The grade of service
- (v) The total duration of the periods of congestion.
- (c) Draw the TCP/IP protocol stack. What is the function of ARP? (2 + 3 = 5)
4. (a) What are circuit switched and packet switched networks? Explain the significance of routing table in a datagram network approach. (2 + 3 = 5)
- (b) Explain the concept of a Time Slot Interchange (TSI) in a Time division switch with proper diagram. (5)
- (c) Explain in brief about the various design factors that determines the data rates and distance of the transmission media. (5)
5. (a) On average, one call arrives every 5 seconds. During a period of 10 seconds, what is the probability that :
- (i) No call arrives
- (ii) One call arrives
- (iii) Two calls arrive
- (iv) More than two call arrive. (4)

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- (b) Write in brief about Layered Architecture. What are the advantages of layering? (3 + 3 = 6)
- (c) With a neat diagram, explain about the concept of delay in Virtual Circuit network. (5)
6. (a) Draw the OSI Model and explain briefly each layer. (10)
- (b) List the advantages of ATM LANs that makes it an ideal LAN for communication. (5)
7. (a) List the different types of DSL technologies. Explain Discrete Multitone Technique (DMT) with respect to ADSL. (2 + 6 = 8)
- (b) Write a brief note on architecture of a cellular network. (7)
8. (a) Why optical fiber communication system is the preferred form of communication system? Draw a block diagram showing the components of optical communication system and explain the function of each block. (2 + 8 = 10)
- (b) Write in brief about the advantages of IPv6 over IPv4. (5)
9. (a) Explain the working of a WDM system with suitable diagram. (10)
- (b) Write a brief note on the four versions of Application Adaptive Layer (AAL) in ATM layers. (5)
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