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10EC81

Eighth Semester B.E. Degree Examination, June/July 2019
Wireless Communication

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Describe with a neat flow diagram, the AMPS initialization operation. (12 Marks)
b. Mention the difference between 1G, 2G and 3G cellular systems. (08 Marks)
- 2 a. With the help of neat block diagram, explain the common wireless cellular network components. (10 Marks)
b. Explain mobile – terminated call operation in a cellular network with neat diagram showing the components and steps. (10 Marks)
- 3 a. Explain the capacity expansion techniques : cell splitting, cell sectoring and over laid cells (10 Marks)
b. Explain the concept of mobility management, with a figure, explain the three basic function performed by the location management. (10 Marks)
- 4 a. With neat sketch, explain GSM network architecture. (10 Marks)
b. Explain the various logical channels used in GSM. (10 Marks)

PART – B

- 5 a. Explain with neat flow diagram the authentication and ciphering mode operation in a GSM call set up operation. (12 Marks)
b. Explain the inter-BSC-handover operation in GSM. (08 Marks)
- 6 a. Explain with neat diagram, the network nodes found in a CDMA 2000 wireless system. (10 Marks)
b. Describe the generation of the CDMA reverse access channel with neat block diagram. (10 Marks)
- 7 a. Describe the error detection and correction codes used for wireless telecommunication. (10 Marks)
b. Explain the rake receiver for a diversity technique, with a block diagram. (10 Marks)
- 8 a. Explain the Bluetooth W_{PAN} piconet and scatternet architecture. (10 Marks)
b. Describe the typical wireless MAN deployment scenario in detail. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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Eighth Semester B.E. Degree Examination, June/July 2019
Digital Switching Systems

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. With neat block diagram, explain the national telecommunication network. (06 Marks)
b. Explain the different network structures. (04 Marks)
c. Explain the principle of operation of a four wire circuit with neat diagram. (10 Marks)
- 2 a. Explain the basic functions of a switching system. (08 Marks)
b. Write short note on cross bar switch. (06 Marks)
c. Explain with diagram principle of reed relay switch. (06 Marks)
- 3 a. Define the following terms:
(i) Traffic Intensity
(ii) Congestion
(iii) Busy hour (06 Marks)
b. Derive expression for Erlang's Lost call formula with explanation of assumption made? (10 Marks)
c. A group of 5 trunks is offered 2E of traffic. Find
(i) Grade of service
(ii) Probability that only one trunk is busy
(iii) Probability that only one trunk is free
(iv) Probability that atleast one trunk is free. (04 Marks)
- 4 a. What is Grading? Explain types of grading? (10 Marks)
b. Design a strictly non blocking network for 100 incoming and 100 outgoing trunks using 3-stage network. (04 Marks)
c. Explain the two stage network with equations. (06 Marks)

PART – B

- 5 a. Explain the principle operation of T-S-T network and S-T-S network. (10 Marks)
b. Write short note on PBX switches. (04 Marks)
c. Explain frame alignment in detail. (06 Marks)
- 6 a. Explain basic software architecture of typical Digital switching system? (10 Marks)
b. Describe the feature flow diagram with flow charts. (10 Marks)
- 7 a. Explain the methodology used for reporting and correcting of field problems. (10 Marks)
b. Write short note on:
(i) Embedded patcher concept (ii) Firmware software coupling (10 Marks)
- 8 a. Explain
(i) Line to trunk inter IC OGT call (ii) Line to trunk intra IC OGT call (10 Marks)
b. Describe the characteristics of DSS? (10 Marks)

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10EC834/10TE835

Eighth Semester B.E. Degree Examination, June/July 2019
High Performance Computer Networks

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. Discuss the key innovations in computer networks with suitable diagrams. (10 Marks)
b. Explain the various networking principles. (10 Marks)
- 2 a. Discuss commonly used network applications. (07 Marks)
b. Explain with neat sketch open data network model. (06 Marks)
c. Explain link and switch. Calculate the time required to transmit a packet of size 10,000 bits with a transmission speed of 1Mbps. (07 Marks)
- 3 a. Discuss multicast IP and mobile IP. (08 Marks)
b. Explain the header format at TCP in detail. (08 Marks)
c. What is RSVP? How it provides QoS? (04 Marks)
- 4 a. Explain the SONET frame structure with a diagram. How does SONET accommodate both ATM and STM traffic? (10 Marks)
b. Describe the intelligent network architecture. What are the various functional components of INA? (10 Marks)

PART – B

- 5 a. What is ATM? what are the main features of ATM. (06 Marks)
b. Explain ATM adaptation layer with suitable diagrams. (08 Marks)
c. If the link speed of STS – 3 signal is 155Mbps, given a cell size at 53 bytes 80 percent loading and one cell per unit time as service rate calculate : (06 Marks)
i) Unit of time per bit
ii) Average number at cells in buffer
iii) Queuing delay.
- 6 a. Discuss different multiple access ad random access techniques for channel access. (08 Marks)
b. Explain the cellular system with frequency reuse concept. (06 Marks)
c. Explain mobility management in wireless networks. (06 Marks)
- 7 a. Explain the architecture of optical cross connect. (10 Marks)
b. Explain single hop and multi-hop LAN's in optical local area networks. (10 Marks)
- 8 Write short notes on : (20 Marks)
a. Mobile Ad-hoc networks
b. WDM systems
c. Queuing model
d. ATM addressing.

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Eighth Semester B.E. Degree Examination, June/July 2019

Multimedia Communication

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. With the help of a diagram, explain the following:
 - i) Data network
 - ii) Integrated services digital network (10 Marks)
- b. Explain the operational modes of multipoint conferencing. (06 Marks)
- c. Explain the principle operation of packet switching network. (04 Marks)
- 2 a. Explain the principle of operation of PCM speech codec with a block diagram. Also explain compressor and expander. (10 Marks)
- b. With a neat diagram, explain audio/sound synthesizer. (06 Marks)
- c. Find out the time taken to transmit the following digitized images at both 64 kbps and 1.5 Mbps:
 - i) 640 × 480 × 8 VGA compatible image
 - ii) 1024 × 768 × 24 SVG compatible image (04 Marks)
- 3 a. Encode the string 'went.' comprising characters with probabilities of e = 0.3, n = 0.3, t = 0.2, w = 0.1, . = 0.1 using arithmetic coding. (10 Marks)
- b. With a neat block diagram, explain JPEG. (10 Marks)
- 4 a. Explain with a neat diagram, ADPCM sub-band encoder and decoder. (10 Marks)
- b. Explain H.261 video encoder with block diagram and explain the role of FIFO buffer. (10 Marks)

PART – B

- 5 a. With the aid of a diagram, explain transparent bridge and give an example. (10 Marks)
- b. Explain the following with neat diagrams:
 - i) FDDI networking components
 - ii) Physical interface (10 Marks)
- 6 a. Explain IPv6 datagram format in detail. (10 Marks)
- b. Explain fragmentation and reassembly in the internet with an example. (10 Marks)
- 7 a. With the help of a diagram, explain broadband ATM cell formats. (10 Marks)
- b. Explain classical IP over ATM (IPOA) LAN. (10 Marks)
- 8 a. Explain TCP/IP protocol suite. (10 Marks)
- b. Explain RTP and RTCP. (10 Marks)

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