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B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Eighth Semester

Branch : Electronics and Communication Engineering

EC 010 801—WIRELESS COMMUNICATION (EC)

(New Scheme—2010 Admission onwards)

[Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 marks.

1. Define trunking efficiency and GOS.

2. Mention the three basic propagation mechanisms in a mobile communication system.

3. If a cellular operator is allocated 12.5 MHz for each simplex band, and if Bt is 12.5 MHz, Bguard is 10 kHz and Be is 30 kHz, find the number of channels available in a FDMA system.

4. Mention the security services of GSM system.

5. Compare CDMA and GSM.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 marks.

6. Differentiate between Soft and Hard hand-off.

7. Mention the different types of small-scale fading.

8. Discuss the different spread spectrum techniques available for wireless transmission.

9. Explain the different channels used in GSM communications.

10. Mention the features of PHS and PDC.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*
Each full question carries 12 marks.

11. (a) If a signal-to-interference ratio of 15 dB is required for satisfactory forward channel performance of a cellular system, what is the frequency reuse factor and cluster size that should be used for maximum capacity if the path loss exponent is (a) $n = 4$, (b) $n = 3$? Assume that there are six co-channel cells in the first tier, and all of them are at the same distance from the mobile. Use suitable approximations.

(8 marks)

(b) Explain the macrocell concept with a block diagram.

(4 marks)

Or

12. Explain about co-channel and adjacent channel interfernce. How are they minimized ?

13. Derive the impulse response model for multipath channel.

Or

14. With a neat block diagram, explain the operation of a RAKE receiver.

15. Explain the concept of CDMA and derive an expression for its capacity.

Or

16. Explain TDMA in detail. Also list some of its key features.

17. Explain the hand off procedure and the call procedure of GSM.

Or

18. Explain the various traffic channels and control channels of GSM.

19. Explain the forward CDMA channel modulation process with the help of a block diagram.

Or

20. Explain the architecture of DECT. Mention the functional entities of DECT.

(5 × 12 = 60 marks)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Eighth Semester

Branch : Electronics and Communication Engineering

EC 010 802—COMMUNICATION NETWORKS (EC)

(New Scheme—2010 Admission onwards)

[Supplementary]

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. List the various types of networks.

2. Distinguish between pure ALOHA and slotted ALOHA.

3. Explain subnetting with an example.

4. What is ATM adaptation layer ? Give its features.

5. What is digital signature ?

                                                         (5 × 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. Explain flow control in TCP.

7. Explain the philosophy of working of Token Ring.

8. What are classfull addressing and classless addressing in IP ?

9. Discuss the significance of ATM header.

10. What are the basic cipher manipulations of cryptography ?

                                                         (5 × 5 = 25 marks)

Part C

Answer all questions.
Each full question carries 12 marks.

11. Discuss the various timers of TCP and explain the process of the calculation of retransmission timeout.

                                        Or

12. Explain the function of each layer in the seven layer structured ISO-OSI reference model.

13. (a) Explain the principle of operation of CSMA/CD multiple access method as used in LAN.

                                                                                      (6 marks)

    (b) What is Ethernet ? Compare the performance of common standard fast ethernet and Gigabit ethernet.

                                                                                      (6 marks)

                                              Or

14. (a) Describe the IEEE standard for token ring LAN architecture.   (6 marks)

    (b) Explain token ring MAC sublayer protocol.   (6 marks)

15. With neat sketches, describe the structure of IPV4 datagram and comment on the need of IPV6. Distinguish between IPV4 and IPV6.

                                              Or

16. With an example, explain the link state routing algorithm.

17. What are the sublayers of ATM adaptation layer ? Explain. Also describe the four types of packet streams and typical applications.

                                              Or

18. (a) Explain the connection oriented services with respect to ATM networks.   (6 marks)

    (b) With respect to ATM control strategy, explain Leaky bucket.   (6 marks)

19. What is computer security ? Explain public key cryptography along with its applications.

                                              Or

20. Explain (i) Security shell ; (ii) SSL ; and (iii) PGP.   (3 × 4 = 12 marks)

                                                                          [5 × 12 = 60 marks]

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Eighth Semester

Branch : Electronics and Communication Engineering

EC 010 803—LIGHT WAVE COMMUNICATION (EC)

(New Scheme—2010 Admission onwards)

[Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all the questions.
Each question carries 4 marks.

1. What is total internal reflection ?

2. What are the uses of multiple splicers ?

3. Write a short note on intrinsic absorption.

4. Explain Mach Zender Interferometer.

5. Write a note on principle of operation of EDFA.

6. Explain different types of modes of propagation ?

7. Explain the basic working principles of the PIN photo detector with suitable diagram.

8. Define Quantum efficiency and Responsivity of a Photo diode. Deduce the expressions.

9. Explain wavelength conversion.

10. Explain power budget.

(10 × 4 = 40 marks)

Part B

Answer all the questions.
Each full question carries 12 marks.

11. Describe in detail the effects of index profile on Propagation.

Or

12. (a) Derive expression for acceptance angle and numerical aperture.

(b) Explain mode coupling.

Turn over

13. Explain the principle of any three optic fiber slicers with neat sketches.

Or

14. Explain alignment and joint losses.

15. Name different types of LEDs. Briefly explain the working principle of Surface Emitting and Edge Emitting LEDs (SLED and ELED). Also compare their characteristics.

Or

16. (a) Write short notes on different types of noise currents associated with a photo diode and give the corresponding r.m.s. values of each current. Also give S/N ratio.

    (b) Explain laser characteristics.

17. Explain *two* types of optical amplifiers in detail with necessary diagrams.

Or

18. (a) Explain wavelength conversion.

    (b) Explain optical modulation.

19. Explain in detail wavelength and switching networks.

Or

20. Write a note on : (a) Long haul systems ; (b) Network Protection.

(5 × 12 = 60 marks)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Eighth Semester

Branch : Electronics and Communication Engineering

EC 010 805 G02—E-LEARNING (Elective IV) (EC)

(New Scheme—2010 Admission onwards)

[Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. What is computer-based-training ?

2. Is *e*-learning Internet-enabled learning ? Comment.

3. Define knowledge acquisition.

4. What is Blended learning ?

5. List the major challenges around *e*-assessment.

(5 × 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. "Expert knowledge is communicated, but more importantly captured, with good e-learning and knowledge management systems". Elucidate.

7. Outline the role of interactive television in *e*-learning.

8. Why content analysis is the most critical step in the instructional design process ? Discuss.

9. Outline the services a virtual library provides to its users.

10. Comment on the future of e-learning.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*
Each question carries 12 marks.

11. How quality of distance education courses can be enhanced through e-learning ? Discuss.

Or

12. Outline the stages of developing an *e*-learning course, highlighting the roles and responsibilities of the human resources who play a major role in the stages of development.

13. What is Audio conferencing ? Present a scenario where audio conferencing can be used in an educational institution to promote learning.

Or

14. Outline how e-mail, instant messaging and file sharing promote learning.

15. "Analyzing learners' needs and learning content, and finding the appropriate mix of learning activities and technical solutions are crucial to creating an effective e-content". Elucidate.

Or

16. Outline the methods used to facilitate knowledge acquisition for developing *e*-content.

17. Present an overview of the types of interactions in the learning process.

Or

18. What is Co-operative learning ? Why use co-operative learning ? List and discuss the elements of co-operative learning.

19. Discuss with examples how to match learning activities with learner assessments.

Or

20. Present the stages in developing an *e*-learning solution and outline the costs involved in development, deployment and usage.

(5 × 12 = 60 marks)