

F 3243

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch: ECE/Applied Electronics and Instrumentation/Electronics and Instrumentation Engineering

COMPUTER NETWORKS (LAS)

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Part A

*Answer all questions.
Each question carries 4 marks.*

1. Explain the functions of Application Layer in ISO-OSI model.
2. What is baseband transmission ?
3. Define Polling.
4. Write the need for congestion control.
5. What is a shared memory ?
6. Explain the relevance of crash Recovery.
7. Explain Synchronisation.
8. Write the functions of Presentation layer.
9. What is a Virtual terminal ?
10. Discuss the applications of SONET.

(10 × 4 = 40 marks)

Part B

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

11. (a) Compare asynchronous and synchronous transmission. (6 marks)
- (b) Explain the concept of WAP technology. (6 marks)

Or

12. Explain, in detail, the TCP/IP protocol architecture. (12 marks)
13. (a) What is a Virtual circuit? (4 marks)
- (b) Explain the process of routing and congestion control. (8 marks)

Or

Turn over

14. (a) Explain the procedural specification of X21 connection. (6 marks)
 (b) Explain the need for Data link layer and its functions. (6 marks)
15. (a) What are carrier sense Networks? (6 marks)
 (b) Explain CSMA/CD mechanism. (6 marks)

Or

16. (a) Explain the process of Flow control. (6 marks)
 (b) Explain the design issues of Transport layer. (6 marks)
17. Discuss briefly the need for Network security. Explain how cryptography helps in ensuring network security. (12 marks)

Or

18. (a) Explain the design issues of Session layer. (6 marks)
 (b) Explain Remote procedure call. (6 marks)
19. Write technical notes on :
 (a) FTP. (6 marks)
 (b) E-mail. (6 marks)

Or

20. Explain the ATM Adaptation layer in detail and discuss the sublayer protocols and functions. (12 marks)
 [5 × 12 = 60 marks]

F 3250

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : Electronics and Communication Engineering

ADVANCED COMMUNICATION SYSTEMS (L)

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. Differentiate between geosynchronous and geostationary satellites.
2. What are the characteristics of LNA ?
3. Differentiate between reference burst and traffic burst.
4. Why is packet switching used in random multiple access technique ?
5. Define and explain frequency reuse factor.
6. What is meant by roaming ?
7. What are the characteristics of 2G cellular networks ?
8. What are the limitations of GPS ?
9. What are the advantages of spread spectrum modulation techniques ?
10. Define Jamming margin. What is its significance ?

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. (a) Explain how a satellite is placed into a geostationary orbit from earth. (6 marks)
 - (b) Explain with figures the antenna subsystem of satellite communication system. (6 marks)
- Or*
12. (a) Discuss on the monitoring and control of earth station equipments. (8 marks)
 - (b) Write a note on INSAT. (4 marks)
13. (a) What are the drawbacks of FDM/FM modulation for satellite multiple access systems ? (4 marks)

Turn over

- (b) Explain with diagrams the operation of a CDMA system. (8 marks)

Or

14. (a) Compare the characteristics of different switching techniques. (6 marks)
 (b) Write a note on packet satellite network. (6 marks)
15. (a) Describe the concepts of center excited cell, edge-excited cell and corner excited cell. (5 marks)
 (b) Explain the different interferences found in cellular telephone systems. (7 marks)

Or

16. (a) Describe the concept of cell splitting. Why is it used? (6 marks)
 (b) Discuss the principle and applications of bluetooth technology. (6 marks)
17. (a) Describe pagers and explain their operation. (6 marks)
 (b) Discuss on the radio subsystems used in GSM. (6 marks)

Or

18. (a) Explain the channel types used in GSM. (4 marks)
 (b) Draw and explain the system block diagram of a GPS. (8 marks)
19. (a) Explain the principle of time hopping spread spectrum system. (8 marks)
 (b) How is jamming reduced in time hopping spread spectrum systems. (4 marks)

Or

20. Explain with diagrams the principle of DS spread spectrum communication system. (12 marks)

[5 × 12 = 60 marks]

F 3261

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : Electronics and Communication Engineering/Applied Electronics and Instrumentation/Electronics and Instrumentation

ADVANCED MICROPROCESSORS (LAS)

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. What are the two modes of operation for 8086 processor ? Explain briefly.
2. Explain the formation of physical address in 8086 processor.
3. What is meant by relative addressing ? Explain with examples.
4. Explain the stack memory addressing mode in 8086.
5. List the salient features of 80286 processor.
6. Explain briefly the protected mode of operation in 80286 processor
7. Describe the memory segmentation in 80386 processor.
8. What are Call gates ? Explain.
9. Differentiate between RISC and CISC processors.
10. Explain the branch prediction logic in advanced processors.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Describe with a neat block diagram the internal architecture of 8086 processor.

Or

12. (a) Discuss briefly on 8087 Math Coprocessor.
(b) Describe the interrupt structure of 8086 processor.
13. List the various Data addressing modes in 8086 processor. Explain with two examples each.

Or

14. Explain with examples the program memory addressing modes in 8086.

Turn over

15. What are the advanced features of 80286 processor over 8086 processor ?

Or

16. (a) Explain the real mode of operation of 80286 processor.

(b) What are the various registers in 80286 processors.

17. Discuss the Architecture of 80386 processors.

Or

18. Explain the interrupts and exception handling in 80386.

19. Explain the superscalar architecture of Pentium processors with necessary block diagram.

Or

20. Discuss on :

(i) BIST.

(ii) MMX technology.

(5 × 12 = 60 marks)

F 3270

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : Electronics and Communication Engineering

TELEVISION ENGINEERING (L)

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. What is flicker effect ? Explain the method to overcome it.
2. What is resolution ? Explain the different types.
3. Write the advantages of negative modulation.
4. Explain the working principles of CCD camera.
5. Write the features of YAGI-UDA antenna.
6. With a circuit diagram, briefly explain the operation of a video detector.
7. Explain the need of colourkiller circuit of TV receivers.
8. What is frequency interleaving in TV transmission ? Explain.
9. Write a short note on HDTV.
10. What is DVD ? Explain.

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. What is the vertical retrace period of a 625-B line TV system ? Also explain how it is effectively utilized.

Or

12. Write short note on :

- (i) VSB transmission.
- (ii) Maximum modulating frequency.
- (iii) Effective no. of lines scanned.
- (iv) Channel band width.

Turn over

13. With a neat circuit diagram explain the operation of an image orthicon tube.

Or

14. (a) Write the features of delta gun picture tube. (6 marks)

(b) What is convergence ? Explain the different types. (6 marks)

15. (a) Draw and explain the output of a video detector when it receives a VSB signal in 625 line system. (5 marks)

(b) Explain about the VSB correction applied in the IF stages of receiver. (7 marks)

Or

16. With a neat circuit diagram explain the operation of Keyed ABC system.

17. (a) Write the main features of NTSC system. (4 marks)

(b) With a block diagram, explain the operation of a NTSC coder. (8 marks)

Or

18. Explain the following terms :—

(i) Modulation of colour difference signal.

(ii) Colours burst.

(iii) Bandwidth for colour signal.

(iv) Weighting factor.

19. With a neat block diagram explain the operation of CCTV.

Or

20. Write a short notes on :

(i) Dish antenna.

(ii) LNB.

(iii) Down converter.

(5 × 12 = 60 marks)

F 3297

(Pages : 2)

Reg. No. 2 copies

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : ECE/Applied Electronics and Instrumentation Engineering

VHDL (Elective II) [LA]

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. What is architecture in VHDL language ?
2. Define an enumeration data type. Describe the method of coding it in VHDL.
3. Write a note on the different modes of the interface port.
4. Differentiate between Concurrent and Sequential signal assignment.
5. Give the syntax of component declaration used in VHDL.
6. What is the need for using a "configuration" ?
7. Identify the different kinds of subprograms.
8. How is explicit visibility achieved in VHDL programs ?
9. What is an attribute ?
10. What are the ways of generating stimulus values in a VHDL program.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Describe "Data flow" style of modeling in VHDL.

Or

12. Write short notes on predefined operators used in VHDL.

13. Model a VHDL circuit that counts the number of leading zeros in a binary vector, starting from its most end (MSB).

Or

14. Model SR flip-flop using VHDL and to display error message if both inputs are '1.'

Turn over

15. Write a VHDL code for a 2×4 decoder using structural modeling 3 input AND gates and NOT gates are present in the library.

Or

16. An N-bit parity detector is to be designed that must produce $y = 1$ when the number of ones in the number is odd or $y = 0$ otherwise. Write a VHDL code to solve this problem, where the parity detector is entered as a COMPONENT that employs a GENERIC declaration to define N.
17. With an example, show how an AND operator can be overloaded.

Or

18. Write a procedure that receives 2 vectors, a and b of type std logic-vector whose sizes can be different and returns both vectors with the same size. Only the shortest of the received vectors should be modified until its size becomes equal to the size of the other vector. Construct this procedure in a PACKAGE.
19. Design a sequential binary 0-9 counter. The inputs are clk and rst and the output is output (3 : 0). Design this circuit using FSM approach.

Or

20. Write a test bench program for a half adder circuit.

(5 × 12 = 60 marks)

F 3298

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : Electronics and Communication Engineering/Applied Electronics and Instrumentation Engineering

ADVANCED MICROCONTROLLERS (Elective II) [LA]

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. Describe the salient features of Atmel ATtiny 15 L controller.
2. What are the reset sources of ATtiny 15 L controller ?
3. What is the function of a Watchdog timer ? How it is functioning in ATtiny 15 L controller ?
4. Discuss the alternate functions of Port B in ATtiny 15 L controller.
5. Describe the electrical characteristics of COP8 CBR9 processor..
6. What are the operating modes of the timers in COP8 CBR9 processor ?
7. Explain the power saving modes in COP8 CBR9 processor.
8. What are the interrupts in COP8 CBR9 processor ? Discuss the interrupt vector table.
9. Describe the memory organization of PIC16F873 processor.
10. Explain the features of PIC16 family of processor.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. With a neat block diagram, explain clearly the architecture of ATtiny 15 L controller.

Or

12. (a) What are the various addressing modes in ATtiny 15 L controller ?
(b) Describe the handling of interrupts in ATtiny 15 L controller.
13. Describe how to program EEPROM memory in ATtiny 15 L controller. Also discuss the prevention of data corruption.

Or

14. Describe the features of A/D converter in ATtiny 15 L controller. Explain ADC noise reductions. What is the conversion timing ?

Turn over

15. Describe the functions of the various pins associated with COP8 CBR9 processor bringing out its salient features.

Or

16. Write briefly about the following in COP8 CBR9 processor :

(i) Brownout reset ; (ii) Boot ROM ; (iii) PWM mode.

17. Explain the dual clock operation and multi input wake up in COP8 CBR9 processor.

Or

18. (a) Describe USART functioning in COP8 CBR9 processor.

(b) Explain the A/D conversion and the various operating modes.

19. Explain with neat diagram the architecture and important features of PIC16F873 processor.

Or

20. Describe the following associated with PIC16F873 processor :

(i) I/O ports ; (ii) Register file map ; (iii) SPI mode.

(5 × 12 = 60 marks)

Part B

- 11. With a neat block diagram, explain clearly the architecture of ATtiny 16 L controller.
- 12. (a) What are the various addressable modes in ATtiny 16 L controller?
(b) Describe the handling of interrupts in ATtiny 16 L controller.
- 13. Describe how to program EEPROM memory in ATtiny 16 L controller. Also discuss the prevention of data corruption.
- 14. Describe the features of A/D converter in ATtiny 16 L controller. Explain ADC noise reduction. What is the conversion timing?

Turn over

F 3299

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : Electronics and Communication Engineering/Applied Electronics and
Instrumentation Engineering

E-COMMERCE (Elective II) (LA)

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. What is audio text for information exchange ?
2. Write notes on supply chain management.
3. What are the sources of security issues in client-server networks ?
4. What is DES ?
5. What are the advantages of *e*-checks ?
6. What are the types of EFT ?
7. What are the advantages and disadvantages of MIME ?
8. What are EDI gateways ?
9. Differentiate between packet switching and frame relay.
10. Write notes on cellular communications.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Discuss the architectural frameworks for *e*-commerce.
- Or*
12. Discuss the features of various transport routes available for *e*-commerce applications.
 13. Explain public key cryptography in detail.
- Or*
14. Explain the various web based security schemes.

Turn over

15. What is a credit card ? Explain the methods normally used to process credit and payments.

Or

16. What are the potential risks in e-payment systems ? How are they addressed ?

17. Explain the various types of financial EDI.

Or

18. Explain structured documents, hyper text documents and active documents in detail.

19. Explain the features of ATM and show how it is useful for e-commerce applications.

Or

20. Explain mobile computing and wireless computing.

(5 × 12 = 60 marks)

F 3330

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : Electronics and Communication Engineering/Applied Electronics and Instrumentation Engineering

ADVANCED DIGITAL SIGNAL PROCESSING (Elective III) (LA)

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. Sketch a multirate system block diagram to reduce the sampling rate by (2/3).
2. What are the advantages of polyphase implementation ?
3. What is meant by an optimum Wiener filters ?
4. State and explain the filter weight updating equations in Wiener filter.
5. Compute the 4-point DFT of the signal $x(n) = \{1, 1, 1, 1\}$.
6. Comment on the time-frequency resolution properties of short term Fourier transform.
7. State and explain the admissibility condition for wavelets.
8. What is meant by QMF filter bank ?
9. Explain the features of Harvard architecture.
10. Compare fixed point and floating point DSP processors.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. (a) Explain any *two* applications of multirate signal processing in audio processing. (6 marks)
- (b) Explain aliasing error during sampling. (6 marks)

Or

12. (a) With the help of sketches of spectrums at different stages, explain the working of one-stage interpolator with factor 3. (6 marks)
- (b) Explain the parameters for indicating the computational effort in a multistage sampling rate converter. (6 marks)

Turn over

13. (a) Derive an equation for the error performance surface in Wiener filter. What is its significance ? (6 marks)
- (b) Show that in an optimum Wiener filter input signal vector and error vector are orthogonal to each other. (6 marks)

Or

14. (a) State and explain RLS algorithm. (8 marks)
- (b) What are the limitations of RLS algorithm ? (4 marks)
15. (a) Explain 2D Gabor transform. (6 marks)
- (b) Explain the applications of 2 D Gebor transforms. (6 marks)

Or

16. (a) Sketch the complex spectrums of the Fourier and Hilbert transforms of the signals (i) $\sin w_0 t$; (ii) $\cos w_0 t$. (6 marks)
- (b) Explain any *one* application of Hilbert transform. (6 marks)
17. (a) Explain the requirement of using CWT instead of Fourier transforms in certain applications. (6 marks)
- (b) Define Scalogram. (3 marks)
- (c) Define discrete wavelet transform. (3 marks)

Or

18. (a) Explain wavelet sub-band coding. (6 marks)
- (b) Using Haar wavelet, determine the CWT of the function

$$f(t) = \begin{cases} 1 & \text{for } 0 \leq t < 1 \\ 0 & \text{elsewhere} \end{cases}$$

- (6 marks)
19. (a) Explain the concept of pipelining used in DSP processors. (6 marks)
- (b) List some special instruction types available in DSP processors compared to convention microprocessors. (6 marks)

Or

20. With neat sketches, explain the architecture of ADSP 21 XX processor. (12 marks)

[5 × 12 = 60 marks]

F 3332

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, DECEMBER 2012

Eighth Semester

Branch : Electronics and Communication Engineering/AE and I/Electronics and Instrumentation Engineering

MULTIMEDIA SYSTEMS (Elective III) [LAS]

(Supplementary/Mercy Chance)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. What is interactive multimedia ?
2. Write notes on multimedia authoring tools.
3. Explain the difference between image compression and text compression.
4. What are wavelets ?
5. Write notes on quicktime.
6. Explain the basics of CD-Interactive format.
7. Explain what is synchronization.
8. What is the purpose of format class ?
9. What is image synthesis ? How is it useful ?
10. Write notes on full motion digital video.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Explain the various output hardware for multimedia applications.

Or

12. Explain and compare analog and digital video.

13. Write notes on (i) JPEG ; (ii) MPEG ; (iii) RLE.

Or

14. Discuss the various aspects of capturing, compressing and rendering images.

Turn over

15. Explain the major components found on a modern day multimedia PC.

Or

16. Explain the CD-DA encoding scheme. Highlight the mechanism of error control.

17. Explain the various classes for multimedia programming.

Or

18. Discuss the problems encountered in programming multimedia applications.

19. Explain, what is virtual reality. Show how virtual reality environments are created and utilized.

Or

20. Explain the video capture methods in detail.

(5 × 12 = 60 marks)