G 7009

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Reg. No.....................................

Name...

B.TECH. DEGREE EXAMINATION, APRIL 2011

Eighth Semester

Branch : ECE/Applied Electronics and Instrumentation/E.I.E.

COMPUTER NETWORKS (LAS)

(Regular/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. Write a note on the Physical layer of ISO-OSI model.

2. Discuss the need for a protocol architecture.

3. Write a note on the procedural specifications of X-21 Connection.

4. Write a note on datagrams.

5. Write a note on the basic features of a network device.

6. Write a note on the frame format in CSMA/CD ?

7. Write a note on the role of the presentation layer.

8. Write a note on Cipher codes ?

9. Write a note on the functions of AAL ?

10. Write a note on SDH ?

(10 × 4 = 40 marks)

Part B

Answer any five questions.
Each question carries 12 marks.

11. Explain the TCP/IP protocol architecture.

Or

12. Explain the different techniques for serial transmission of data in a network.

13. Explain the stop and wait flow control mechanism in the data link layer.

Or

Turn over

14. Explain the frame design considerations of a DLL.

15. Explain token paning in a ring network.

Or

16. Explain the operation of a switched virtual circuit.

17. Explain the different functional units of a session layer.

Or

18. Explain the different approaches to message authentication.

19. Explain the cell structure of an ATM layer.

Or

20. Explain SONET based ATM physical layer interface.

(5 × 12 = 60 marks)

G 7016

Reg. No..................................

Name..................................

B.TECH. DEGREE EXAMINATION, APRIL 2011

Eighth Semester

Branch : Electronics and Communication Engineering

ADVANCED COMMUNICATION SYSTEMS (L)

(Regular/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 4 marks.

1. Explain the different types of satellite orbits.

2. Distinguish between active and passive satellites.

3. What are the requirements to be satisfied by the spread spectrum signal ?

4. Distinguish between circuit switching and packet switching.

5. What is meant by reuse factor and reuse distance ?

6. Write a note on factors to be considered in cell splitting.

7. Explain the features of GSM.

8. Compare 2G and 3G mobile standards.

9. With a block diagram explain Chirp CDMA transmitter.

10. State the applications of GPS.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. (a) Sketch the block diagram of satellite transponder and explain its functions. (6 marks)

    (b) Explain power link budgeting for satellite uplink. (6 marks)

Or

12. (a) Define the following :

    (i) EIRP. (6 marks)

    (ii) Satellite antenna gain. (6 marks)

    (b) With a block diagram explain satellite front end. (6 marks)

Turn over

13. (a) Explain frame formatting in TDMA.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6 marks)

　　(b) Explain the near-far effect in mobile systems.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6 marks)

Or

14. (a) With a block diagram, explain a CDMA decoder.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6 marks)

　　(b) Distinguish between pre-assignment and demand assignment multiple access systems.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6 marks)

15. Explain the concept of frequency re-use.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(12 marks)

Or

16. Explain the different strategies involved in hand-off.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(12 marks)

17. Explain the different elements in a GSM network and their functions.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(12 marks)

Or

18. Explain the frame format in GSM.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(12 marks)

19. (a) Describe the properties of PN sequence by which they are useful in spread spectrum techniques.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6 marks)

　　(b) How is spread spectrum techniques useful for antijamming applications ? Explain.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(6 marks)

Or

20. (a) Distinguish between time hopping and frequency hopping spread spectrum methods.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(4 marks)

　　(b) With a block diagram explain any *one* type of Time hopping spread spectrum system.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(8 marks)

　　　　　　　　　　　　　　　　　　　　　　　[5 × 12 = 60 marks]

G 7027

Reg. No.................................

Name.....................................

B.TECH. DEGREE EXAMINATION, APRIL 2011

Eighth Semester

Branch : ECE, Applied Electronics and Instrumentation, Electronics and Instrumentation

ADVANCED MICROPROCESSORS (LAS)

(Regular/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each carries 4 marks.

1. Describe the Interrupt vector table of 8086.

2. Explain how physical address is generated in 8086.

3. What are the various program addressing modes in 8086 ? Give examples.

4. How stack memory is addressed in 8086 ? Give examples and explain.

5. What is meant by real addressing mode and protected mode of operation ?

6. What are descriptors and selectors ? Explain.

7. How task switching is done in 80386 processor ?

8. Describe paging mode in 8086. What are the advantages of paging ?

9. What is meant by superscalar architecture ? Explain briefly.

10. Write a short note on MMX technology.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. With a neat block diagram explain the internal architecture of 8086 microprocessor.

Or

12. (a) What are the various modes of operation of 8086 processor ? Explain.

    (b) Describe the synchronisation between 8086 and 8087 math coprocessor.

13. With suitable examples explain the various data addressing modes in 8086.

Or

14. Explain the addressing modes for control transfer instructions. Discuss intersegment and intrasegment addressing.

Turn over

15. What are the salient features of 80286 microprocessor ? Discuss the internal architecture.

Or

16. (a) Explain the physical address formation in protected virtual address mode.

   (b) Discuss the different types of descriptors supported by 80286 and their typical functions.

17. (a) Explain the following signal functions of 80386 :—

   (i) BE_0 # BE_3 #.   (ii) BS_{16}.

   (iii) NA #.   (iv) ADS #.

   (b) What are the different exceptions generated by 80386 ?

Or

18. Discuss briefly the architecture and system connections of 80386 processor.

19. (a) Explain the five stage instruction pipe line in 80486.

   (b) Enlist the major architectural advancement in 80486 over 80386.

Or

20. (a) Discuss the superscalar architecture of pentium processor.

   (b) What do you mean by branch prediction ? How does it enhance the speed of execution ?

                                                          (5 × 12 = 60 marks)

G 7036

(Pages : 2)

Reg. No...........................

Name...........................

B.TECH. DEGREE EXAMINATION, APRIL 2011

Eighth Semester

Branch : Electronics and Communication Engineering

TELEVISION ENGINEERING (L)

(Regular/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. Explain horizontal resolution and vertical resolution.

2. Why video signals are AM modulated and audio signals are FM modulated in TV system ?

3. Write the leaky capacitor concept in Vidicon tube.

4. What is purity ? How is it achieved in Colour TV ?

5. What is the need of Vestigial side band correction in TV receiver ?

6. Draw and explain the vertical deflection circuit.

7. Explain the generation of chrominance signal and Y signal in 625 line system.

8. How PAL system gets the name ? Explain.

9. What is the need of LNB ?

10. Write about any *two* Laser sources.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. With neat block diagrams, explain the operation of TV transmitter and receiver.

Or

12. Write short note on :

    (i) The importance of No : of scanning lines.

    (ii) Composite video signal.

13. Draw and explain a vidicon camera tube.

Or

Turn over

14. With a neat diagram, explain monochrome picture tube.

15. Draw and explain the Sync processing part (both horizontal and vertical) of a TV receiver.

Or

16. Draw and explain how the audio signal is separated from composite video signal in a TV receiver.

17. Define :

    (i)   Three Colour Theory.

    (ii)   Luminance.

    (iii)   Saturation.

    (iv)   Hue.

Or

18. With block diagrams, explain PAL coder and decoder.

19. Explain about satellite television.

Or

20. With block schematic, explain cable TV transmission.

(5 × 12 = 60 marks)

G 7063

Reg. No..................................

Name.....................................

B.TECH. DEGREE EXAMINATION, APRIL 2011

Eighth Semester

Branch : ECE/Applied Electronics and Instrumentation Engineering

VHDL (Elective II) (LA)

(Regular/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. Describe configuration declaration in VHDL.

2. What is enumerated data type in VHDL ?

3. Differentiate between signal assignment and variable assignment.

4. Give a description of different types of wait statements used in VHDL.

5. What is Generics ?

6. What do you mean by direct instantiation ?

7. How does a procedure differ from a function ?

8. Write a note on Package body.

9. What is the need for writing a test bench for a VHDL program ?

10. What is an alias ?

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Describe the different kinds of design units in VHDL.

Or

12. Describe the different data types available in VHDL.

13. Write a VHDL program for a 8 to 3 encoder using concurrent statement.

Or

Turn over

14. Design a 4 :1 mux using sequential statements.

15. Design a Full Adder using component Instantiation statements.

Or

16. With an example explain how generic value specification is used in architecture.

17. With an example, show how a 't' operator can be overloaded.

Or

18. Write a sub program that inputs X, L, H and Z and outputs X, 0, 1 and Z respectively.

19. Write a VHDL program to detect 1010 using mealy model. Overlapping sequences are accepted.

Or

20. Design a 4 bit shift Register using Generate Statements.

[5 × 12 = 60 marks]

G 7094　　　　　　(Pages : 2)　　　　　　Reg. No..

Name..

B.TECH. DEGREE EXAMINATION, APRIL 2011

Eighth Semester

Branch : Electronics and Communication/Applied Electronics and Instrumentation
Engineering

ADVANCED DIGITAL SIGNAL PROCESSING (Elective III) (LA)

(Regular/Supplementary)

Time : Three Hours　　　　　　　　　　　　　　　　　　　Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. With a block diagram, explain multistage decimation process. What are merits and issues related with this process ?

2. Explain the roll of sampling rate compressor in a multi-rate processing system.

3. Sketch the error performance curve in connection with the basic Weiner filter algorithm. Also express the surface mathematically.

4. What are the effects of non-stationarity in the working of LMS algorithm ?

5. What is short term Fourier Transform ? What is its significance ?

6. Explain any *one* application of Gaber transform.

7. What are the properties associated with the mother wavelet in connection with the wavelet transform ?

8. What is meant by dyadic sampling ?

9. Explain any *two* features in architecture that make the DSP chip different from a conventional microprocessor.

10. Expain any *one* type of special instruction available for a DSP processor but not for conventional processor.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. (a) Give the typical specifications of an anti-aliasing filter.

(4 marks)

(b) With sketches of relevant block diagram, explain any *one* application of multi-rate signal processing.

(8 marks)

Or　　　　　　　　　　　　　　　　　　　　　　**Turn over**

12. (a) What is meant by aliasing error ? Explain the requiremet of anti-aliasing filter.   (3 marks)

(b) For 3 stage decimator in cascade, the decimation factors for the stages are 8, 4 and 2 respectively. Also the lengths of anti-aliasing filters used in stages are N_1, N_2 and N_3 respectively. The input sampling rate is 3072 kHz. Determine :

   (i) Total number of multiplications per second.

   (ii) Total storage requirements.

   (iii) Output sampling rate.

(9 marks)

13. (a) Explain how the coefficients are updated in Widrow-Hopf LMS algorithm.   (6 marks)

(b) Sketch and explain a scheme for adaptive filtering for cancelling periodic interference without an external reference source.

(6 marks)

Or

14. (a) Explain the Widrow's LMS algorithm.   (6 marks)

(b) With a block diagram, explain a scheme for adaptive telephone echo cancellation.   (6 marks)

15. (a) Obtain the DCT of a signal given by :

$$x(n) = 1 \text{ for } n = 0, 1, 2, 3$$
$$= 0 \text{ for other } 'n'$$

(6 marks)

(b) Compare the complex spectrums of a signal and its Hilbert transformed signal.   (6 marks)

Or

16. (a) State the properties of DCT.   (6 marks)

(b) Explain the applications of DCT.   (6 marks)

17. Sketch and prove the inversion formula for CWT.   (12 marks)

Or

18. What is multi-resolution analysis ? With block diagrams, explain schemes for MRA decomposition and reconstruction of a signal by wavelet method.

(12 marks)

19. Witth a relevant diagram, explain the VLIW architecture used in a typical DSP processor.

(12 marks)

Or

20. (a) Compare fixed and floating point DSP chips.   (6 marks)

(b) Compare the features of conventional processor and DSP processor.   (6 marks)

[5 × 12 = 60 marks]

G 7096 (Pages : 2) Reg. No...............................

Name..................................

B.TECH. DEGREE EXAMINATION, APRIL 2011

Eighth Semester

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

MULTIMEDIA SYSTEMS (Elective III) (LAS)

(Regular/Supplementary)

Time : Three Hours   Maximum : 100 Marks

Answer all questions.

Part A

Each question carries 4 marks.

1. Write notes on any one storage media for multimedia systems.
2. Discuss the benefits of digital video over analog video.
3. Explain what is hypermedia.
4. Discuss any *one* audio standard in detail.
5. Write notes on Quicktime.
6. Discuss the defences against read erros in CD-DA.
7. Explain the role of component classes.
8. Write notes on database integration.
9. What is video conferencing ? Explain.
10. What is full motion video ? Explain.

(10 × 4 = 40 marks)

Part B

Each question carries 12 marks.

11. Explain the hardware input devices well suited for multimedia applications.

Or

12. Discuss the various multimedia authoring tools.

13. Explain the methods of capturing and rendering images.

Or

14. Explain what are (i) fractals ; (ii) wavelets.

15. Explain the elements of a contemporary multimedia PC.

Or

16. Discuss the encoding scheme used in CD audio recording.

17. Discuss in detail the various classes in multimedia programming.

Or

18. Discuss the problems related to multimedia programming.

19. Write notes on image synthesis methods ? Discuss the applications.

Or

20. Discuss some of the video capturing methods in detail.

(5 × 12 = 60 marks)