SECTION – IV

8.   (a)   List the steps followed by CPU during the execution of an interrupt.   5

     (b)   Write the bit structure of TMOD register. List the function of each bit.   5

     (c)   Give the order of priority of all interrupts after the execution of MOV IP, # 12 H instruction.   5

9.   (a)   Write an assembly language program to generate a time delay of 15 ms. Use timer 0 in mode ↑. Assume crystal frequency of 12 MHz.   6

     (b)   What is the function of TI and RI flags of SCON register ?   2

     (c)   Write a program (assembly) to transmit the message 'YES' serially at 9600 band rate in mode 1.   7

10. (a)   Write the schematic for interfacing a DC motor to 8051 using optoisolator.   5

     (b)   Assuming DAC is connected to port 1 of 8051, write an assembly language program to generate a triangular waveform.   4

     (c)   Write the schematic for interfacing multiplexed T-segment LED display.   6

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0536

Register
Number

IV Semester Diploma Examination, May 2012

E & C BOARD

DIGITAL COMMUNICATION

Time : 3 Hours]   [Max. Marks : 100

Instructions : (1) Section – A is *compulsory*.

(2) Answer any *two* full questions from each Section – B, C and D.

SECTION – A

1. (a) Fill in the blanks :   5

(i) PWM may be generated with a _____.

(ii) In QPSK system, the possible phase shifts are _____.

(iii) Most error detection systems use some form of _____ to check whether the received data contains error.

(iv) The two most commonly used light sources in fiber optic systems are _____.

(v) Losses in optical fibers can be caused by _____.

(b) Explain the principle of operation of optical emitter – LED.   5

SECTION – B

2. (a) Explain :   6

(i) Continuous and Discrete time signals.

(ii) Periodic and Non-periodic signals.

(iii) Analog and Digital signals.

(b) Explain the operation of digital communication system with block diagram.   5

(c) Define : (i) Bit rate and baud rate   4

(ii) Entropy

EC-038   – 3 –   [Turn over

2
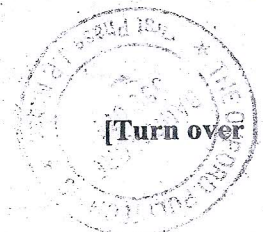
3. (a) Define Shannon capacity. Calculate the capacity of a standard telephone channel, with a band width of 3100 Hz and S/N ratio of 32 dB. 5

   (b) Explain natural sampling and flat top sampling. 4

   (c) Explain the concept of quantization. Describe Uniform quantization and Non-uniform quantization. 6

4. (a) Describe delta modulation with block diagram and waveform. 7

   (b) Write the compounding curves for PCM. 2

   (c) Describe the following line codes : 6

       (i) Polar NRZ

       (ii) Bipolar NRZ

       (iii) Split phase Manchester format.

SECTION – C

5. (a) Explain Inter symbol interference and Eye pattern. 5

   (b) Describe coherent binary FSK generation and detection with block diagram. 8

   (c) List different digital modulation techniques. 2

6. (a) Describe generation and detection of QPSK with block diagram. 8

   (b) Explain Multiplexing. 2

   (c) Describe the concept of crosstalk and guard band (guard time). 5

7. (a) Explain the working principle of TI carrier system. 6

   (b) Describe TDMA, FDMA and CDMA – multiple access methods. 9

SECTION – D

8. (a) Define redundancy. 2

   (b) Explain error detection and correction – VRC, CRC, checksum. 8

   (c) Explain the construction of Co-axial cable and Optical fiber. 5

9. (a) Describe the following :   9

     (i) Single mode step index fiber cable

     (ii) Multimode step index fiber cable

     (iii) Multimode graded index fiber cable

   (b) Explain Angle of acceptance and numerical aperture.   4

   (c) List different fiber losses.   2

10. Write a short notes on :   15

     (i) Pulse code modulation-generator and receiver

     (ii) DPSK

     (iii) PIN diode

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0545

Code : 9EC-42

Register
Number

IV Semester Diploma Examination, November 2011

E & C BOARD

DIGITAL COMMUNICATION

Time : 3 Hours]

[Max. Marks : 100

Instructions : (1) Section – **I** is *compulsory.*

(2) Answer any **two** main questions from each of the remaining Sections.

SECTION – I

1. (a) Fill in the blanks :   5
    (i)   Aliasing is also called as _____ distortion.
    (ii)   Granular noise occurs when the step size is _____ .
    (iii) The number of different phase shifts used in QPSK is _____ .
    (iv)   Avalanche photo diode is used as a _____ .
    (v)   The expansion of CODEC is _____ .

    (b) Compare digital and analog communication systems.   5

SECTION – II

2. (a) Explain digital communication system with a neat block diagram.   6
    (b) Define the following :   4
         (i)   Analog and Digital signal
         (ii) Periodic and non-periodic signals
    (c) What is Nyquist criterion ? Explain aliasing effect.   5

3. (a) Explain PCM transmitter and receiver with a neat block diagram.   6
    (b) Explain quantization technique.   6
    (c) Explain the meaning of quantization noise.   3

4. (a) With a neat block diagram, explain the operation of DM system.   9
    (b) Explain the following line coding schemes with suitable waveform :   6
         (i)   NRZ
         (ii)   RZ
         (iii) Manchester

~ 2 ~

[Turn over

2
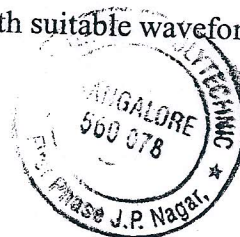
SECTION – III

5. (a) With a neat block diagram, explain the working of a coherent BASK receiver.

   (b) Write a note on eye diagram. 6

   (c) Distinguish coherent detection and non-coherent detection. 5

   4

6. (a) With block diagram, explain the working of QPSK transmitter and receiver. 9

   (b) What are errors ? Explain the types of errors.

   6

7. (a) Explain the following three types of redundancy checks :
      (i) VRC
      (ii) LRC 9
      (iii) CRC

   (b) Explain a method of generating the DPSK signal.

   6

SECTION – IV

8. (a) With a neat diagram, explain the working of a 4 channel TDM system. 6

   (b) Explain briefly about Multiple Access methods. 6

   (c) What is multiplexing ? What are its advantages ? 3

9. (a) Mention the classification of transmission media.

   (b) Write a brief note on the fibre losses. 5

   (c) Explain the following : 4
      (i) Total internal reflection
      (ii) Optical window 6

10. (a) With a neat block diagram, explain the fibre optic communication system. 7

    (b) Explain the construction and working of LED. 5

    (c) Distinguish between splices and connectors. 3

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Code : 9EC-42

Register
Number

IV Semester Diploma Examination, May 2011

ELECTRONICS & COMMUNICATION ENGG. BOARD

DIGITAL COMMUNICATION

Time : 3 Hours]   [Max. Marks : 100

Note :   (1)   Section – **I** is compulsory.

(2)   Answer any *two* main questions from each of the remaining Sections.

SECTION – I

1 × 5 = 5

1.   (a)   Fill in the blanks :

(i)   In digital communication the number of symbols per second is referred to as _____ rate.

(ii)   Distortion caused by under sampling an analog input signal is _____.

(iii) In optical fibre cable, the cladding has _____ refractive index than core.

(iv)   The modulation used to overcome slope over load and granular noise is _____.

(v)   PSK that employs four different phases is _____.

(b)   List the advantages of optical fibre cable.   5

SECTION – II

2.   (a)   Explain digital communication system with a neat block diagram.   6

(b)   Define the following :   6

(i)   Even & Odd Signals

(ii)   Periodic & Non-periodic signals

(iii) Sampling and Quantization

(c)   Explain how PAM signals are generated.   3

EC-037   [Turn over

3. (a) Describe Adaptive Delta Modulation Transmitter with a neat block diagram. 5

(b) What is pulse code modulation ? Mention its advantages. 6

(c) A channel of bandwidth 3.8 kHz with a bit rate of 32000 bits per second is used for voice transmission. Determine 4

    (i) Bits per sample

    (ii) Number of quantization levels.

4. (a) Write a note on data compression. 5

(b) Describe the following line codes : 6

    (i) Unipolar RZ

    (ii) Unipolar NRZ

    (iii) Manchester code

(c) Explain sample and hold circuit with relevant waveform. 4

SECTION – III

5. (a) Write a note on eye pattern. 5

(b) Explain Binary ASK transmitter and coherent receiver with block diagram. 6

(c) Describe Redundancy w.r.t. digital communication. 4

6. (a) Explain briefly how CRC and check sum are used to detect errors in digital communication. 8

(b) Mention the advantages of Minimum Shift Keying. 4

(c) List the methods of error detection. 3

7. (a) Give the broad classification of digital modulation techniques. 5

(b) Explain QPSK transmitter with a neat block diagram. 6

(c) Explain Block Code. 4

SECTION – IV

8. (a) Explain the working principle of PAM/TDM with a neat sketch. 6

(b) Explain briefly the 3 multiple access techniques used in communication. 6

(c) Define Multiplexing. Mention its types. 3

9. (a) Define Transmission Media. Mention various types of transmission media used in communication.   5

    (b) Explain constructional details of co-axial cable with a neat diagram.   6

    (c) Write a note on fibre losses.   4

10. (a) Compare LED & LASER.   3

    (b) Explain the block diagram of fibre optic communication system.   6

    (c) What are fibre optic splicers, connectors and couplers ?   6

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0537

Code : 9EC-43

IV Semester Diploma Examination, May 2012

E & C BOARD

DATA COMMUNICATION & NETWORKS

Time : 3 Hours]   [Max. Marks : 100

Note : (1) Section – I is *compulsory*.

   (2) Answer any *two* full questions from each of Sections – II, III & IV (Total 6 full questions).

SECTION – I

1.   (a)   Fill in the blanks with suitable word/words : $1 \times 5 = 5$

   (i)   Virtual circuit is a connection oriented _____ technique.

   (ii)   Presentation layer is responsible for _____ encryption.

   (iii)   The basic Hardware device of a Wide Area Network is called a _____ switch.

   (iv)   The fixed size packets used in Asynchronous Transfer Mode are called _____ .

   (v)   IEEE 802.3 is also called popularly as _____ protocol.

   (b)   Explain Dial up access of connecting to the Internet.   5

SECTION – II

2.   (a)   Discuss the Need for layered architecture.   5

   (b)   Explain the principle of operation of Modem.   3

   (c)   List the types of bridges and explain them.   7

3.   (a)   Describe the stop-and-wait protocol.   5

   (b)   Explain the functions of each layer of OSI Reference Model.   10

4.   (a)   Discuss the operation of a Modem. Classify it.   4

   (b)   Write a short note on Broad cast Network.   5

   (c)   Define the HTTP commands :
GET, HEAD, PUT, POST, DELETE and LINK.   6

[Turn over

3