B.Tech. Electronics & Telecommunication Engineering
Program (Semester - VII) Examination, January - 2023
SATELLITE COMMUNICATION
Sub. Code: 83823 (PCC - ETC701)

Day and Date :Friday, 06 - 01 - 2023   **Total Marks : 70**
Time : 10.30 a.m. to 1.00 p.m.

Instructions :   1)   Use non-programmable calculator is permissible.
             2)   Figures to the right indicate full marks.
             3)   Assume suitable data if required.

Q1) Answer the following MCQ questions: **[7×2=14]**

a)   What is the reason for carrying multiple transponders in a satellite?
     i)   More number of operating channel   ii)   Better reception
     iii)   More gain   iv)   Redundancy

b)   What is the reason for shifting from c band to ku band in satellite communication?
     i)   Lesser attenuation
     ii)   Less power requirements
     iii)   More bandwidth
     iv)   Overcrowding

c)   Why are techniques like frequency reuse and spatial isolation carried out?
     i)   Reduce traffic load   ii)   More gain
     iii)   High speed   iv)   Error detection

d)   The height of the geostationary satellites above the earth's surface is approximately
     i)   36000 km   ii)   36000 miles
     iii)   63000 km   iv)   63000 miles

e)   The control and management segment in satellite network architecture does not contain _____
     i)   Network management centres (NMC)
     ii)   Network control centres (NCC)
     iii)   Mission and network management Centre (MNMC)
     iv)   Router control unit

f) What percentage of the earth can communication satellites see?
    i)   20   ii) 50
    iii) 70   iv) 40

g) Duplexer is a two-way microwave gate.
    i)   TRUE   ii) FALSE
    iii) Can be true or false   iv) Cannot say

Q2) Answer Any Two Questions: **[2×7=14]**
    a) Explain elevation angle calculation and azimuth angle calculation for antenna at receiving earth station.
    b) With the help of block diagram, explain the working of simplified double conversion transponder for 14/11 GHz band.
    c) Write short notes on Noise Temperature and Noise figure.

Q3) Answer Any Two Questions: **[2×7=14]**
    a) Explain design link for specified C/N using combination of C/N and C/I values in satellite link.
    b) Write short notes on : Satellite antennas.
    c) Derive expression for the period T of the satellite's orbit.

Q4) Answer Any Two Questions: **[2×7=14]**
    a) Draw and explain the satellite network architecture.
    b) Write a note on Teledesic.
    c) Explain Directed Energy Laser Weapons and their advantages.

Q5) Answer Any Two Questions: **[2×7=14]**
    a) With the help of a block diagram describe the working of transmit receive earth station used for telephone traffic.
    b) Explain elevation angle consideration in satellites.
    c) Write a note on satellite orbits.

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Final B.Tech. (Electronics & Telecommunication)
(Semester - VII) (CBCS) Examination, January - 2023
EMBEDDED SYSTEMS
Sub. Code : 83824

Day and Date : Monday, 09 - 01- 2023   **Total Marks : 70**
Time : 10.30 a.m. to 01.00 p.m.

Instructions :   1)   Figures to the right indicates full marks.
                              2)   Assume suitable data wherever necessary.
                              3)   Use of non-programmable Scientific Calculator is allowed.

Q1) Choose the correct option.   **[14]**

   i)   Which instruction is applicable to set any bit while performing bitwise operation settings?
       a)   bcf   b)   bsf
       c)   both a & b   d)   none of the above

   ii)   ARM 7 CPU has _____ stage pipeline.
       a)   3   b)   5
       c)   6   d)   7

   iii)   ARM supports _____ growth of stacks.
       a)   Ascending   b)   Descending
       c)   Ascending/Descending   d)   None of the above

   iv)   CPSR stands for _____
       a)   Current Program Status Register
       b)   Central Program Status Register
       c)   Current Parity Status Register
       d)   Clock Period Status Register

   v)   Which of the following instruction is used to transfer content of W register to File register in PIC?
       a)   MOVLWK   b)   MOVWFf
       c)   MOVFd   d)   None of the above

vi) When the processor is executing in thumb state, then all instructions are _____ wide?

    a)   8-Bits   b)   16-Bits

    c)   32-Bits   d)   64-Bits

vii) Which of the following is Software Architecture?

    a)   Round Robin with Interrupt

    b)   Function Queue Scheduling

    c)   Real Time Operating System

    d)   All of the above

Q2) Answer any 2 of the following. [14]

    a)   Explain STATUS register of PIC 16F877. How to select memory banks?

    b)   Explain Timer 2 Module of PIC16F877 along with FSRs

    c)   What is embedded system? Classify them based on functionality.

Q3) Answer any 2 of the following. [14]

    a)   Write a program for multiplication of two 8 bit numbers using PIC 16F877.

    b)   Explain various interrupts of PIC 16F877 along with associated FSRs.

    c)   Draw a format of CPSR register.

Q4) Answer any 2 of the following. [14]

    a)   What is barrel shifter? Explain barrel shifter operations with the help of suitable example.

    b)   Write embedded C code for keypad interface using GPIO of LPC 2148.

    c)   Explain the round robin with interrupt software system architecture.

Q5) Answer any 2 of the following. [14]

    a)   Write ASM code to enable FIQ interrupt.

    b)   Draw Fosc. Selection algorithm and explain it in brief.

    c)   Explain real time operating system (RTOS).

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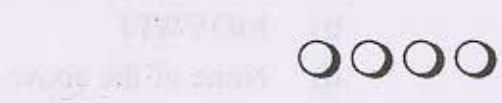
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B. Tech. (Civil Engineering) (Semester - VII) (CBCS)
Examination, January - 2023
EARTHQUAKE ENGINEERING
Sub. Code : 83733

Day and Date : Monday, 09 - 01 - 2023   Total Marks: 70

Time : 10.30 a.m. to 01.00 p.m.

Instructions: 1)   All questions are compulsory.
                2)   Assume suitable data if necessary and state them clearly.
                3)   Answer shall be supported by adequate sketches.

SECTION - I

Q1) Attempt any two questions.   [7]

    a)   Classify different types of earthquake.

    b)   What do you understand by multiple elastic forces in series and in parallel?

    c)   Explain the method of construction of design spectrum at a site?

Q2) a)   Differentiate (i) Seismograph Vs Seismogram (ii)S wave & Love wave.[7]

    b)   Write a short note on elastic rebound theory.   [7]

Q3) a)   Derive the equation of motion and its solution for forced damped vibration system.   [7]

    b)   Explain the phenomenon of resonance.   [7]

Q4) Calculate base shear for BSNL office in PUNE with following data by (a) No. of storey = 4 (b) No. of bay in x direction = 3(c) No. of bay in y direction = 3 (d) storey height = 3 m (e) Width of each bay = 5 m (f)Total DL on roof = 12 kN/m^2(g) Total DL on floor = 10 kN/m^2 (h) LL =4 kN/m^2 (i) Thickness of slab = 120mm Neglect weight of infill walls. Assume suitable data if required. Write all your assumptions & clauses of IS 1893(2016). **[14]**

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SECTION - II

Q5) Attempt any two questions. [12]

a) Explain general requirement of RCC member detailing?

b) Earthquake resisting features of unreinforced brick masonry structure.

c) Explain Friction Damper System and Mechanism?

Q6) a) Explain ductile detailing of beam as per IS 13920 - 2016. [11]

b) Simplicity and symmetry is the key to making a building earthquake resistant.

Q7) What is jacketing? Explain the jacketing of beams and column with illustrative sketches. [11]

Q8) a) Explain Tuned Mass liquid Damper us working principle? [11]

b) Explain active control system and passive control system?

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d) Which address is used to identify a process on a host by the transport layer?

   i)   physical address   ii)   logical address

   iii)   port address   iv)   specific address

e) What is the uses of subnetting?

   i)   It divides one large network into several smaller ones

   ii)   It divides network into network classes

   iii)   It speeds up the speed of network

   iv)   None of above

f) In IPV4 addressing, the number of networks allowed under class c address is?

   i)   214   ii)   27

   iii)   221   iv)   224

g) _____ provides a connection-oriented reliable service for sending messages.

   i)   IP   ii)   TCP

   iii)   UDP   iv)   All of the above

h) _____ provides user interface.

   i)   Application layer   ii)   Session layer

   iii)   Transport layer   iv)   Data Link layer

i) If 5 files are transferred from server A to client B in the same session. The number of TCP connections between A and B is _____.

   i)   5   ii)   10

   iii)   2   iv)   6

j) The port number is "ephemeral port number", if the source host is _____.

   i)   NTP   ii)   Echo

   iii)   Server   iv)   Client

k) In _____, each station sends a frame during assigned time interval.

   i)   pure ALOHA   ii)   slotted ALOHA

   iii)   CSMA   iv)   CSMA/CD

l) In cyclic redundancy checking, what is the CRC?

   i)   The quotient   ii)   The dividend

   iii)   The divisor   iv)   The remainder

m) The technique in which a congested node stops receiving data from the immediate upstream node or nodes is called as _____.

   i)   Admission policy   ii)   Backpressure

   iii)   Forward signaling   iv)   Backward signaling

n) HTTP expands?

   i)   HyperText Transfer Protocol

   ii)   HyperTerminal Transfer Protocol

   iii)   HyperText Terminal Protocol

   iv)   HyperTerminal Text Protocol

Q2) Answer any Two: **[14]**

a) What do you mean by computer network? Classify computer networks and explain them in brief.

b) What are the draw backs of stop and wait protocol? How can they overcome by sliding window protocol.

c) Explain in detail design issues of physical layer.

Seat
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B.Tech. (E & TC) (Part-II) (Semester - III)
Examination, January - 2023
ANALOG COMMUNICATION
Sub. Code : 73246

Day and Date : Monday, 23 - 01 - 2023   **Total Marks : 70**
Time : 10.30 a.m. to 1.00 p.m.

Instructions :   1)   **All questions are compulsory.**
                 2)   **Use suitable assumptions if required.**

Q1) Attempt following Multiple choice questions.   **[14×1=14]**

a)   In India,_____modulation is used for radio Transmission
     i)   Frequency   ii)   Amplitude
     iii)   Phase   iv)   None of the above

b)   Modulation is done in_____
     i)   Transmitter
     ii)   Radio receiver
     iii)   Between transmitter and radio receiver
     iv)   None of the above

c)   The process of recovering information signal from received carrier is known as
     i)   Detection   ii)   Modulation
     iii)   Demultiplexing   iv)   Sampling

d)   The major advantage of FM over AM is_____
     i)   Reception is less noisy   ii)   Higher carrier frequency
     iii)   Smaller bandwidth   iv)   Small frequency deviation

e)   Phase shift method is_____
     i)   Includes two balanced modulators
     ii)   Two phase shifting networks
     iii)   Avoids the use of filters
     iv)   All of the above

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f) If the deviation is 75 kHz and maximum modulating frequency is 5kHz, what is the bandwidth of an FM wave?

   i) 80 KHz   ii) 160 KHz

   iii) 40 KHz   iv) 320 KHz

g) The standard value for Intermediate Frequency (IF) in AM receivers is

   i) 455 KHz   ii) 580 KHz

   iii) 10.7 MHz   iv) 50 MHz

h) Sensitivity is defined as

   i) Ability of receiver to amplify weak signals

   ii) Ability to reject unwanted signals

   iii) Ability to convert incoming signal into Image Frequency

   iv) Ability to reject noise

i) Low frequency noise is

   i) Transit time noise   ii) Flicker noise

   iii) Shot noise   iv) None of the above

j) A heterodyne frequency changer is _____

   i) Mixer   ii) Demodulator

   iii) Modulator   iv) Local Oscillator

k) Pulse time modulation (PTM) includes

   i) Pulse width modulation

   ii) Pulse position modulation

   iii) Pulse amplitude modulation

   iv) Both i) and ii)

l) Noise is added to a signal _____

   i) In the channel

   ii) At receiving antenna

   iii) At transmitting antenna

   iv) During regeneration of information

m) The carrier is suppressed in_____

   i) Mixer   ii) Frequency Multiplier

   iii) Transducer   iv) balanced modulator

n) Sampling theorem finds application in _____

   i) FM   ii) PAM

   iii) AM   iv) PM

Q2) Solve any Two.   [2×7=14]

   a) Draw and Explain Block Diagram of Analog Communication System.

   b) Explain concept of angle modulation with respect to Frequency Modulation.

   c) Explain Classification of noise.

Q3) Solve Any Two.   [2×7=14]

   a) Consider an AM signal $s(t)=20[1+0.9 \cos 2\pi 10^4 t] \cos 2\pi 10^6 t$. The Signal is radiated into free space using an antenna having $R=5\Omega$. Sketch the spectrum and calculate Bandwidth, Power and modulation efficiency.

   b) Compare AM with FM.

   c) Explain Signal to Noise ratio. Noise factor. Noise figure. Noise Temperature

Q4) Solve Any Two.   [2×7=14]

   a) Draw and explain Negative peak clipping and diagonal clipping with Waveforms.

   b) Explain with block diagram double conversion FM receiver.

   c) Explain PWM and PPM generation with waveforms.

Q5) Solve Any Two.   [2×7=14]

   a) Explain super heterodyne receiver with advantages and disadvantages.

   b) Comment on pre-emphasis and de-emphasis used in FM.

   c) Compare PAM and PWM.

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Final Year B.Tech. (Electronics Engg.) (Semester - VII) Examination, January - 2023
PCE-EN-701 : JAVA SCRIPT (Elective - I)
Sub. Code : 83829

Day and Date : Monday, 16 - 01 - 2023   Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions :   1)   **All questions are compulsory.**
               2)   **Figures to the right indicate full marks.**

Q1) Answer the Following Questions.   **[14]**

   a)   What is the basic difference between JavaScript and Java?

       i)   Functions are considered as fields

       ii)   Functions are values, and there is no hard distinction between methods and fields

       iii)   Variables are specific

       iv)   There is no difference

   b)   Which function among the following lets to register a function to be invoked once?

       i)   Set Timeout ()   ii)   Set Total time ()

       iii)   Set Interval ()   iv)   Settime ()

   c)   A new web browser window can be opened using which method of the Window object?

       i)   createtab ()   ii)   Window.open ()

       iii)   open ()   iv)   create ()

   d)   The high-level events among the following events are _____.

       i)   User interface events   ii)   Device-independent events

       iii)   Device-dependent events   iv)   Stage event change

   e)   To which object does the location property belong?

       i)   Window   ii)   Position

       iii)   Element   iv)   Location

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f) The length property belongs to which of the following objects?

    i)   Window   ii)   Element

    iii)   History   iv)   Document

g) The central object in a larger API is known as _____.

    i)   Document Object Material   ii)   Document Object Model

    iii)   Binary Object Model   iv)   Data Object Model

Q2) Solve Any two Questions below.   **[14]**

    a)   Explain 'For loop' with example code in JS.

    b)   Compare decision statement, if, if...else, If...else if... with example code.

    c)   Explain Advantages and Limitation of JS in detail.

Q3) Solve Any two Questions below.   **[14]**

    a)   Explain use of Nested Functions with an example.

    b)   Explain String and Array in JavaScript with example code.

    c)   Explain History object in JavaScript with example.

Q4) Solve Any two Questions below.   **[14]**

    a)   Write a program to demonstrate the applications of Array.

    b)   Explain Properties of Documents objects.

    c)   Explain Objects methods in JavaScript with syntax.

Q5) Solve Any two Questions below.   **[14]**

    a)   Write a program to demonstrate Inheritance.

    b)   Explain Navigator object in JavaScript with example.

    c)   Explain Documents objects and DOM structure with example code.

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Q3) Answer any Two: [14]

a) Explain Header format of IPv4.

b) Write a note on DHCP.

c) Explain in detail bridge, Hub, Router and repeater.

Q4) Answer any Two: [14]

a) What are the reasons for congestion? What are the problems with congestion?

b) With an example explain the Dynamic routing algorithms used in computer networks.

c) Explain the structure of TCP Header format.

Q5) Answer any Two: [14]

a) Write short notes on Electronic Mail.

b) What is multimedia? Explain in detail about voice over IP?

c) Define UDP and discuss the different fields of the format of a used datagram.

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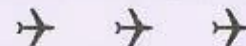
Seat No.

B.E. (Electronics & Telecommunication) (Part - IV)
(Semester - VII) Examination, January - 2023
COMPUTER NETWORKS
Sub. Code : 83825

Day and Date : Wednesday, 11 - 01 - 2023   Total Marks : 70
Time : 10.30 a.m. to 1.30 p.m.

Instructions :   1)   Attempt all questions.
                 2)   Use of non-programmable calculator is allowed.

Q1) Solve the following MCQ's (one mark each): [14]

a) Each IP packet must contain

   i)   Only Source address

   ii)   Only Destination address

   iii)   Source and Destination address

   iv)   Source or Destination address

b) What do you mean by broadcasting in Networking?

   i)   It means addressing a packet to all machine

   ii)   It means addressing a packet to some machine

   iii)   It means addressing a packet to a particular machine

   iv)   It means addressing a packet to except a particular machine

c) Data link layer protocols deals with _____.

   i)   application to application communication

   ii)   process to process communication

   iii)   node to node communication

   iv)   man to man communication

P.T.O.