Jabalpur Engineering College, Jabalpur

Semester V Credit Based Grading System (CBGS) w.e.f. July 2017

Scheme of Examination

Bachelor of Engineering B.E. (Electronics & Telecommunication Engineering)

Subject wise distribution of marks and corresponding credits

Scheme of Examination w.e.f. July-2017 Academic Session-2017-18

S. No.	Subject Code	Subject Name & Title	Maximum Marks Allotted						Hours / week.			Total Credits	Total Marks
			Theory			Practical		Total Marks					
			End Sem	Mid Sem. MST	Quiz, Assign ment	End Sem.	Lab Work		L	T	P		
1	**EC5001**	Computer System Organization	70	20	10	-	-	100	3	1	-	4	
2	**EC5002**	Linear Control Theory	70	20	10	30	20	150	3	1	2	6	
3	**EC5003**	Microwave Engineering	70	20	10	30	20	150	3	1	2	6	
4	**EC5004**	Digital Communication	70	20	10	30	20	150	3	1	2	6	
5	**EC5005**	Elective-I	70	20	10	-	-	100	3	1	-	4	
6	**EC5006**	Departmental Lab-II (Departmental Choice) Simulation Lab	-	-	-	30	20	50	-	-	2	2	
7	**EC5007**	Management Skill Development	-	-	-	-	50	50	-	-	2	2	
8	**EC5008**	Evaluation of Industrial Training (Internal Assessment)	-	-	-	-	50	50	-	-	2	2	
Total			**350**	**100**	**50**	**120**	**180**	**800**	**15**	**5**	**12**	**32**	**800**

MST: Minimum of two mid semester tests to be conducted.

L: Lecture T: Tutorial P: Practical

Elective-I	
Subject Code	**Subject Name**
EC5005A	Energy, Environment, Ecology & Society
EC5005B	Data Structure
EC5005C	Communication Network & Transmission Line
EC5005D	Bio Medical Instrumentation

B.E.CBGS V SEMESTER
COMPUTER SYSTEM ORGANIZATION

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Computer System Organization	EC5001	Min. "D"	Min. "D"	5.0

Unit - I:

Von Newman model-CPU, Memory, I/O, System Bus, Memory address register, Memory data register, program Counter, Accumulator, Instruction register, Micro operations, Register Transfer Language, Instruction Fetch, decode and execution, Instruction formats and addressing modes.

Unit - II:

Control Unit Organization, Hardwired control Unit, Micro programmed Control Unit, Control Memory, Address Sequencing, Micro instruction formats, Micro program sequencer, Microprogramming

Unit – III:

Introduction to 8 bit microprocessor, 8085 microprocessor, architecture and instruction set, 8085 assembly language programming.

Unit - IV:

Input Output Organization, I/O interface, Asynchronous data transfer, Programmed I/O, Interrupt initiated I/O, DMA, I/O processor.

Unit - V:

Memory Organization – RAM, ROM, Memory Maps, Memory Hierarchy, Cache Memory – Organization and mapping. Associative memory, Virtual memory, Memory Management Hardware. Introduction to parallel processing, Instruction and Arithmetic Pipeline.

Books References:

1. Morris Mano, Computer System Architecture, PHI.
2. William Stalling, Computer Organization and Architecture, PHI.
3. Kain, Advance Computer Architecture a system design approach, Prentice Hall of India ,New Delhi

B.E.CBGS V SEMESTER
LINEAR CONTROL THEORY

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Linear Control Theory	EC5002	Min. "D"	Min. "D"	5.0

Unit –I:

Basic Control System Introduction and Classification of control System, open and closed loop systems Linear Control System, Mathematical models of physical systems, Transfer function, Block Diagram Representation, Signal flow Graph, MIMO, Mason's gain formula, Linearization.

Unit –II:

Error Analysis -Effects of Feedback on gain and time constant, pole location, bandwidth, Sensitivity, Disturbance signal, Control over System .Standard Test Signals, Time Response of 1st Order System, Design of Higher order system, Steady-State Errors and Error coefficients, error Constants, Effects of Additions of Poles and Zeros to Open Loop and Closed Loop System, Design Specification of Dynamic first and higher order system, Performance Indices.

Unit –III:

Time Domain Stability Analysis- Concept of Stability of Linear Systems, Effects of Location of Poles on Stability, Necessary Conditions for Stability, Rout-Hurwitz Stability Criteria, Relative Stability Analysis, Root Locus technique, Experimental determination of transfer function.

Frequency Domain Stability Analysis- Performance Specification in Frequency Domain, Co-relation between frequency Domain and Time Domain, Bode Plot, Minimum-Phase and Non-Minimum Phase System, Polar Plots, Inverse Polar Plot, Ny quist Stability Criterion, Assessment of Relative Stability (Phase Margin, Gain Margin and Stability), Constant-M and N Circle, Nichols Chart.

Unit – IV:

Approaches to System Design, Types of Compensation, Design of Phase-Lag, Phase Leadand Phase Lead-Lag Compensators in Time and Frequency Domain, Proportional, Derivative, Integral and PID Compensation. Modeling of discrete -time systems -sampling -mathematical derivations for sampling sample and hold -Z-transforms-properties -solution of difference equations using Z transforms -examples of sampled data systems -mapping between s plane and z plane

Unit –V:

State variables Analysis and Design- Concept of State Variables and State Model, State Space Representation of Systems, Solution of State Equation, Transfer Function Decomposition, Discrete time system.

Book References:

1. Ziemer R.E., Tranter W.H. & Fannin D.R., "Signals and Systems", Pearson Education Asia
2. Ogata K., "Modern Control Engineering", Prentice Hall India
3. Nagarath I.J. & Gopal M., "Control System Engineering", Wiley Eastern Ltd.
4. Kuo B.C., "Digital Control Systems", Oxford University Press

LINEAR CONTROL LAB

List of Experiments (Expandable) :

1. To Study and calculate time Response of a second order system .
2. To draw root locus for a given transfer function.
3. To draw Bode plot for a given transfer function.
4. To draw Nyquiest plot for a given transfer function.
5. To derive state model from transfer function.
6. To study and design lag compensator.
7. To study and design lead compensator.
8. To study and design lead lag compensator.
9. To study PID controller.
10. To Design using Bode plot based loop shaping technique.

B.E.CBGS V SEMESTER
MICROWAVE ENGINEERING

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Microwave Engineering	EC5003	Min. "D"	Min. "D"	5.0

Unit –I: Introduction to Microwaves and Mathematical model of Microwave Transmission.

History of Microwaves, Microwave Frequency bands. Applications of Microwaves: Civil and Military, Medical, EMI/ EMC, Concept of Mode ,Characteristics of TEM, TE and TM Modes, Losses associated with microwave transmission, Concept of Impedance in Microwave transmission .

Unit –II: Analysis of RF and Microwave Transmission Lines.

Coaxial Line, Rectangular Waveguide, Circular waveguide, Strip line, Micro strip Line,**Microwave Network Analysis:** Equivalent Voltages and currents for non-TEM lines, Network parameters for microwave Circuits, Scattering Parameters.

Unit–III: Passive and Active microwave Devices:

Microwave Passive components: Directional Coupler, Power Divider, Microwave Passive components: Magic Tee, attenuator, resonator, Microwave Active components: Diodes, Transistors, Microwave Active components: oscillators, mixers. Microwave Semiconductor Devices: Gunn Diodes, IMPATT diodes, Schottky Barrier diodes, PIN diodes. Microwave tubes: Klystron, TWT, Magnetron.

Unit–IV: Microwave Design Principles.

Impedance transformation, Impedance Matching, Microwave Filter Design, RF and Microwave Amplifier Design, Microwave Power amplifier Design. Low Noise Amplifier Design, Microwave Mixer Design, Microwave Oscillator Design.

Unit–V: Microwave Measurements and Modern Trends in Microwaves Engineering :

Power, Frequency and impedance measurement at microwave frequency. Network Analyzer and measurement of scattering parameters. Spectrum Analyzer and measurement of spectrum of a microwave signal. Noise at microwave frequency and measurement of noise figure. Measurement of Microwave antenna parameters. Effect of Microwaves on human body. Medical and Civil applications of microwaves. Electromagnetic interference / Electromagnetic Compatibility (EMI / EMC). Monolithic Microwave IC fabrication. RFMEMS for microwave components. Microwave Imaging.

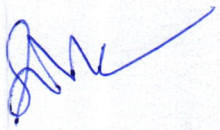
Books References:

1. David M. Pozar, "Microwave Engineering", Third Edition, Wiley India.
2. Samuel Y.Lio, "Microwave Devices andCircuits" ,PHI India
3. S. Ramo, J.R.Whinnery and T.V.Duzer, "Fields and Waves in CommunicationElectronics", Third Edition, Wiley India.
4. R.E.Collin, "Foundations for Microwave Engineering", Second edition, IEEE Press.

MICROWAVE ENGINEERING LAB

List of Experiments:

1. Study of Microwave Test Bench
2. Study of Gunn Power supply.
3. Study of Klystron Power supply.
4. Study of Microwave VSWR meter.
5. Study of Two cavity Klystron.
6. Study of Magic Tee.
7. Calculation of parameter for a Given microwave waveguide.
8. Calculation of unknown-Impedance using smith chart.
9. Design and simulation of E plane Tee/H plane Tee on HFSS/CST



B.E.CBGS V SEMESTER
DIGITAL COMMUNICATION

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Digital Communication	EC5004	Min. "D"	Min. "D"	5.0

Unit-I:

Pulse Analog Modulation: Pulse Amplitude Modulation (PAM), Spectrum of PAM signal, Pulse Time Modulation, Spectra of PDM and PPM waves, Noise in Pulse Analog Systems, Time Division Multiplexing (TDM), Channel Bandwidth for PAM-TDM Signal.

Unit-II:

Pulse Code Modulation: Quantization, Quantization Error, Pulse Code Modulation (PCM), Noise considerations in PCM Systems, Companding, Data Rate and Bandwidth of Multiplexed PCM Signal, Differential PCM (DPCM), Delta Modulation (DM), and Adaptive Delta Modulation (ADM).

Unit-III:

Digital Transmission through AWGN Channel: Signal Space Representation, Representation of Digitally modulated signal, Optimum Receiver for Digitally Modulated Signals in AWGN, Correlation type Demodulator, Matched Filter type Demodulator, The Optimum Detector, Performance of the Optimum Receiver for Memory less Modulation, Optimum Receiver for CPM Signals,

Unit-IV:

Digital Transmission through Band limited AWGN Channel: Digital Transmission through Band limited Channels, Power Spectrum of DigitaJly Modulated Signals, Signal Design for Band limited Channels, Channel Equalization, Linear and Non-linear Equalizers, Adaptive Equalizers.

Unit–V:

Spread Spectrum Modulation: Introduction to Spread Spectrum modulation, Generation and Characteristics of p-n Sequences, Direct sequence Spread Spectrum System, Processing Gain, Spread Spectrum with Code division Multiple Access (CDMA), Frequency Hopping Spread Spectrum.

Books References:

1. J. G. Proakis and M. Salehi: Communication Systems Engineering, Prentice Hall, Pearson Education International.
2. Simon Haykins: Communication Systems, 4th Edition, John Wiley.
3. J. G. Proakis: Digital Communications, Mc Graw Hills
4. B. P. Lathi: Modern Analog and Digital Communication System, Oxford University Press
5. Tomasi: Advanced Electronics Communication Systems, 6th Edition, PHI

DIGITAL COMMUNICATION LAB

List of Experiments (Expandable) :

1. Study of Sampling Process and Signal Reconstruction and Aliasing.
2. Study of PAM.
3. Study of PPM.
4. Study of PWM.
5. Study of PCM Transmitter and Receiver.
6. Study of Time Division Multiplexing and De-multiplexing.
7. Study of ASK Transmitter and Receiver.
8. Study of PSK Transmitter and Receiver.
9. Study of FSK Transmitter and Receiver.

B.E.CBGS V SEMESTER
(ELECTIVE - I) ENERGY, ECOLOGY, ENVIRONMENT & SOCIETY

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective - I) Energy, Ecology, Environment & Society	EC5005A	Min. "D"	Min. "D"	5.0

*** This Syllabus is only valid for B.E. (EC) batch 2015-19.**

Unit - I: Energy sources and energy storing devices :

World and Indian energy scenario, types of energy sources – renewable and non-renewable energy sources. Solar energy storage, application & maintenance of solar cell panel, introduction & applications of hydro, wind, biomass, ocean, tidal, wave and geothermal. Synergy between energy and environment. Global environment issues, greenhouse gas emission, global warming, green energy solution. Batteries – Primary and Secondary batteries- Alkaline battery – Lead (Pb) acid storage battery , Ni-cadmium battery ,Lithium battery Fuel cell , Hydrogen Oxygen fuel cell ,Photo galvanic cell.

Unit - II: Ecosystem :

Structure & scope of ecology, Natural cycles of the environment, Hydrogen cycle, Oxygen Cycle, Carbon cycle, Nitrogen cycle, Phosphate cycle, Sulphur cycle, Biodiversity.

Society:- Environmental problems and impact of P.A.T(Population, Affluence and Technology). Environmentally beneficial and harmful technologies, environment impact assessment policies (EIA).Ethics and regulatory act of environment.

Soil Pollution Sources & control measures. MSW, HWM.

Unit -III: Air pollution :

Chemical composition of atmosphere, -primary, Secondary; pollutants, Chemical and photochemical reaction, effects of CO, SOx, NOx, HC and particulates. Causes & effects of acid rain, ozone depletion: Monitoring and control of air pollutants.

Noise pollution : introduction physiological effect, measurement and control of noise pollutants.

Unit -IV: Water pollution:

sources causes of water pollution , types and nature of water pollutant. Pollution load determination i.e. particulates ,suspended matter, total dissolved solids ,dissolved gases DO, BOD & COD. EL NINO phenomenon. Waste water treatment Domestic – Aerobic & anaerobic treatment. Industrial waste water treatment (ETP plant.) Electro dialysis membrane technique and filtration by activated charcoal and synthetic resins.

Unite - V: Corrosion & its prevention :

Theories of Corrosion and Mechanism - Dry (Direct Chemical attack), Wet (Electro Chemical Theory) Atmospheric corrosion, Galvanic Series, Galvanic & Concentration Cell Corrosion, Corrosion by sea water. Factors Influencing& control of Corrosion – Proper Design, Use of pure metal and metal alloys, passivity, cathodes protection – Sacrificial anode and Impressed Current. Modifying the environment, Use of inhibitors.

Books References:

1. J.C. Kuriakose and J. Rajaram, "Chemistry in Engineering and Technology", Vol.1 & 2, Tata Mcgraw Hill PublishingCompany (P) Ltd., New Delhi
2. Mars G. Fontana, "Corrosion Engineering", Tata Mcgraw Hill Publishing Company (P) Ltd., New Delhi.

3. F.Chau, Y. Liang, J. Gao and X. Shao, "Chemometrics", Wiley Inter Science.
4. A text book of Engineering Chemistry by Jain & Jain, Dhanpat Rai Publishing Company, New Delhi
5. Chemistry of Engineering Materials by C.P. Murthy, C.V. Agarwal and A. Naidu BS Publication Hyd.
6. A text book of Environmental Chemistry and Pollution control by S.S. Dara & Dr. D. D. Mishra, S. Chand & Co, New Delhi
7. Energy,Environment Ecology and Society by Dr.Pushpendra,Vayu Education of India New Delhi
8. Energy, Environment Ethics and Society, by Dr.S.Deswal & Dr.A.Deswal Dhanpat Rai Publishing Company, New Delhi

B.E.CBGS V SEMESTER
(ELECTIVE - I) DATA STRUCTURE

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective - I) Data Structure	EC5005B	Min. "D"	Min. "D"	5.0

Unit –I: Basic Concept:

Data Structure and algorithm preliminaries: Definitions; Data types, Time and Space analysis of Algorithms; Time and space trade-off, Pointers and dynamic memory allocation; Recursion.

Unit –II: Arrays and Structure:

Concepts of Linear Search, Binary Search, Evaluation of Polynomial, Polynomial representation, Polynomial Addition, Structures: Internal representation of structure, Self–referential structure, Array: Definitions of Arrays and Lists, Strings, Row/Column major representation of Arrays. Application of array:- Searching and Sorting Methods: Various Searching (Linear Search and Binary Search) and Sorting algorithms (bubble sort, Merge sort, Insertion sort)

Unit – III: Linked List:

Introduction to Linked List: Singly linked list, circular linked list, doubly linked list, operations on linked list

Stack: Introduction to Stack, Static and Dynamic Representation, Operation, Application of Stack, Evaluation of Expression, postfix expression, Infix, prefix. Implementation of stack using array and linked list.

Unit- IV: Queues and Trees:

Queue, Static and Dynamic Representation, Operation, Priority Queue, Circular Queue. Application of queue in computer science. Implementation of queue using array and linked list.

Tree:- Introduction to Tree, Definition, Terminology, Generalised tree representation, Binary tree - definitions and properties, Representation. Array and Linked Representation of Binary trees, Traversing Binary trees, Complete Binary Tree

Unit- V: Sorting:

Selection Sort, Insertion Sort, Bubble Sort, Quick Sort, Merge Sort, Heap Sort, Radix sort algorithms and their Complexities.

Searching & Hashing: Sequential search, binary search, Hash Table, Hash Functions, Collision Resolution Strategies.

Graphs:

Introduction, Representations of Graphs: Adjacency List, Adjacency Matrices. Graph Traversals: Depth First Traversal, Breadth First Traversal. Connected Component and Spanning Trees, Minimum Cost Spanning Trees. Application: Dijkstra's Algorithm for shortest path.

Books References:

1. R. Kruse et al, Data Structures and Program Design in C, Pearson Education Asia, Delhi-2002
2. ISRD Group: Data structures using C, TMH
3. Lipschutz, Data structure (Schaum), TMH
4. Horowitz and Sahani, Fundamentals of data Structures, Galgotia Publication Pvt. Ltd., N Delhi.
5. A. M. Tenenbaum, Data Structures using C & C++, Prentice-Hall of India Pvt. Ltd., New Delhi.
6. Trembley and Sorenson, Data Structures, TMH
7. Pai, Data structure and algorithm, TMH
8. Thomas H. Corman et al, Introduction to Algorithm; AWL

B.E.CBGS V SEMESTER

(ELECTIVE - I) COMMUNICATION NETWORKS AND TRANSMISSION LINES

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective -I) Communication Networks and Transmission Lines	EC5005C	Min. "D"	Min. "D"	5.0

Unit –I: Characteristic Parameters of symmetrical and asymmetrical two port networks and their design :

Image impedance, iterative impedance, characteristic impedance, propagation coefficient, image transfer coefficient , iterative transfer coefficient, Lattice and Bridged T networks, reactive matching networks, matching techniques, insertion loss, symmetrical and asymmetrical attenuators and their design.

Unit - II: Passive LC Filters :

Analysis and design of Low pass, high pass, band pass and band elimination filters, m-derived filters, composite filters, Filter specifications, Butterworth approximation, Chebyshev approximation, elliptic function approximation, frequency transformation.

Unit –III: Positive real function :

LC, RL, RC, and RLC network synthesis, Foster and Cauer network, minimum positive real function, Brune's method, Bott-Duffin method, Synthesis-Coefficient.

Unit –IV: Transmission line fundamentals :

Lumped parameter equivalent, voltage and current on a transmission line, infinite line, characteristic impedance and propagation constant, waveform distortion, attenuation and phase equalizers, distortion-less line, loading, liner reflection on a line, reflection coefficient, input and transfer impedances, open circuit and short circuit line, reflection factors, reflection loss, insertion loss, T and π equivalents of a line, location of line fault, construction and design of two wire line and coaxial cable.

Unit –V: Line at radio frequencies :

Parameters of line and coaxial cable at radio frequencies, dissipation-less line, voltage and current on a dissipation-less line, standing waves, standing wave ratio, input impedance of open circuit and short circuit, power and impedance measurement on lines, eighth-wave, quarter-wave and half wave line, circle diagram, Smith chart, solution of problems using Smith chart, single and double stub matching . Introduction to micro strip lines and its analysis.

Books References:

1. Ryder: Networks and Transmission Lines, PHI Learning.
2. Valkenberg: Introduction to Modern Network synthesis, Wiley India.
3. Suresh: Electric Circuits and Networks, Pearson Education.
4. Raju: Electromagnetic field theory and Transmission Lines, Pearson Education.
5. Ganesan: Transmission Lines and Waveguides, TMH.
6. Rao: Electromagnetic Waves and Transmission Lines, PHI learning.

B.E.CBGS V SEMESTER
(ELECTIVE - I) BIOMEDICAL INSTRUMENTATION

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	(Elective - I) Biomedical Instrumentation	EC5005D	Min. "D"	Min. "D"	5.0

Unit- I : PHYSIOLOGY AND TRANSDUCERS :

Cell and its structure – Resting and Action Potential – Nervous system: Functional organisation ofthe nervous system – Structure of nervous system, neurons - synapse –transmitters and neural communication – Cardiovascular system – respiratory system – Basic components of a biomedicalsystem - Transducers – selection criteria – Piezo electric, ultrasonic transducers – Temperaturemeasurements - Fibre optic temperature sensors.

Unit -II : ELECTRO – PHYSIOLOGICAL MEASUREMENTS 9 :

Electrodes –Limb electrodes –floating electrodes – pregelled disposable electrodes - Micro, needleand surface electrodes – Amplifiers: Preamplifiers, differential amplifiers, chopper amplifiers –Isolation amplifier. ECG – EEG – EMG – ERG – Lead systems and recording methods – Typical waveforms.Electrical safety in medical environment: shock hazards – leakage current-Instruments for checkingsafety parameters of biomedical equipments

Unit - III : NON-ELECTRICAL PARAMETER MEASUREMENTS 9 :

Measurement of blood pressure – Cardiac output – Heart rate – Heart sound –Pulmonary functionmeasurements – spirometer – Photo Plethysmography, Body Plethysmography – Blood Gas analysers : pH of blood –measurement of blood pCO2, pO2, finger-tip oxymeter - ESR, GSRmeasurements .

Unit- IV : MEDICAL IMAGING :

Radio graphic and fluoroscopic techniques – Computer tomography – MRI – Ultrasonography – Endoscopy – Thermography – Different types of biotelemetry systems and patient monitoring – Introduction to Biometric systems

Unit- V-:ASSISTING AND THERAPEUTIC EQUIPMENTS :

Pacemakers – Defibrillators – Ventilators – Nerve and muscle stimulators – Diathermy – Heart – Lung machine – Audio meters – Dialysers – Lithotripsy

Books References:

1. M.Arumugam, 'Bio-Medical Instrumentation', Anuradha Agencies, 2003.
2. L.A. Geddes and L.E.Baker, 'Principles of Applied Bio-Medical Instrumentation', John Wiley & Sons, 1975.
3. J.Webster, 'Medical Instrumentation', John Wiley & Sons, 1995.
4. C.Rajarao and S.K. Guha, 'Principles of Medical Electronics and Bio-medical Instrumentation',Universities press (India) Ltd, Orient Longman ltd, 2000.
5. R.S.Khandpur, 'Hand Book of Bio-Medical instrumentation', Tata McGraw Hill Publishing Co Ltd., 2003.
6. Leslie Cromwell, Fred J.Weibell, Erich A.Pfeiffer, 'Bio-Medical Instrumentation and Measurements', II edition, Pearson Education, 2002 / PHI.

B.E.CBGS V SEMESTER
DEPARTMENTAL LAB –II (DEPARTMENTAL CHOICE)
SIMULATION LAB

Course	Subject Title	Subject Code	Grade for End Sem.		CGPA at the end of every even semester
			T	P	
B.E.	Departmental Lab – II (Departmental Choice) Simulation Lab	EC5006	Min. "D"	Min. "D"	5.0

List of Experiments:

1. Write a Program (WAP) in Mat lab to Generate UNIT STEP, UNIT RAMP, UNIT IMPULSE, RANDOM SIGNAL, EXPONENTIAL SIGNAL, SINE SIGNALS And plot them using subplot command.
2. Write a program (WAP) in Mat lab to shift a sine signal by (n-4) and plot both original and shifted signal in one point.
3. Write a program in Mat lab to computation and plot of linear convolution of two sequences.
4. Write a program in Mat lab to find ROOT LOCUS,NYQUIST PLOT, BODE PLOT for the given transfer function. A>(s+1)/(S3+3S2+2S+1)B> 150/(s+10)(S+11)(S+9)(S-5)
5. Design a 6^{th} order LOW PASS CHEBYSHEV TYPE 1 Filter with 10 dB of pass band ripple and a pass band edge frequency of 300 Hz, which for data sampled at 1000 Hz, corresponds to 0.6π red/sample. Plot its Magnitude and Phase response. Use it to filter a 1000- sample random signal.
6. Design a 6^{th} order LOW PASS BUTTERWORTH Filter with a cut off frequency at 300 Hz, which for data sampled at 1000 Hz, corresponds to 0.6π red/sample. Plot its Magnitude and Phase responses