SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

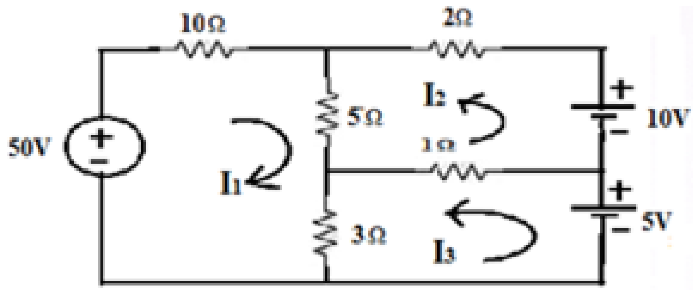
Subject with Code : NETWORK THEORY(19EE0242) **Course & Branch**: B.Tech - ECE

Year & Sem: II-B.Tech & I-Sem **Regulation:** R19

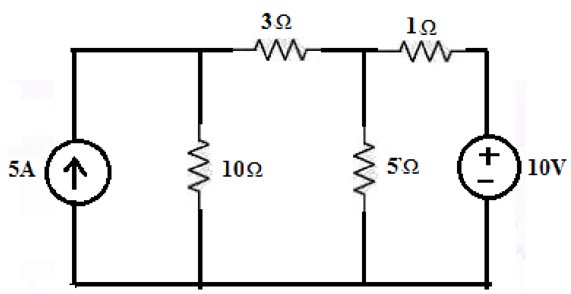
UNIT –I

CIRCUIT ANALYSIS TECHNIQUES

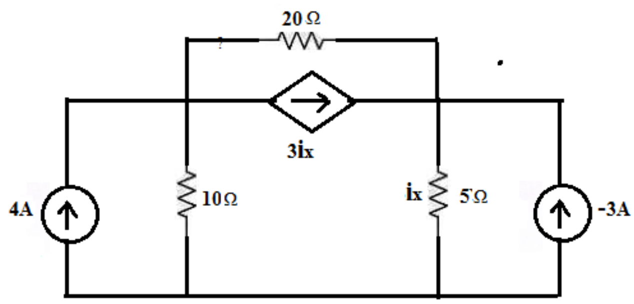
1. a) Explain about Nodal analysis and write the steps for applying nodal analysis. [L2][CO1][5M]
   b) Determine the mesh currents for the following network. [L4][CO1][5M]



2. a) Explain about Mesh analysis and write the steps for writing mesh analysis. [L2][CO1][5M]
   b) Determine the current in 10Ω resistor for the following network by using nodal analysis. [L4][CO1][5M]



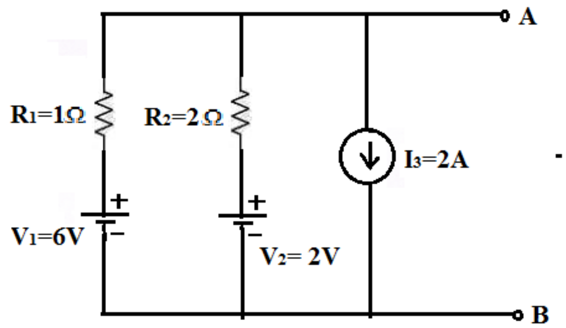
3. a) Determine i_x for the following network. [L4][CO1][5M]



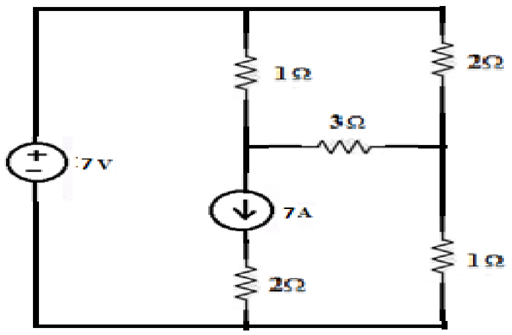
   b)Explain about source transformation briefly. [L2][CO1][5M]

4. a) State and prove Tellegen's theorem. [L2][CO2][5M]

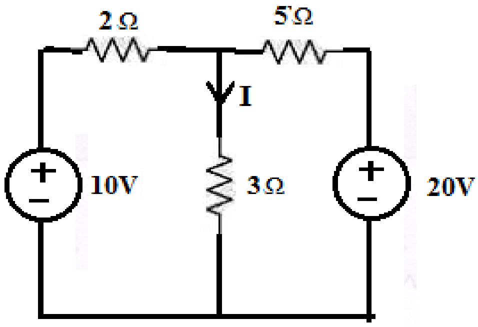
b) Determine the equivalent current source between the terminals A and B. [L4][CO1][5M]



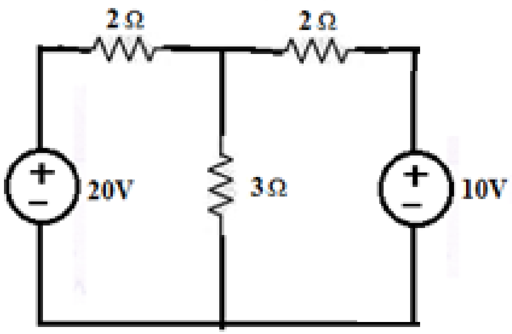
5. a) State and prove Reciprocity theorem. [L2][CO2][5M]
   b) Determine the mesh currents for the circuit shown in below figure. [L4][CO1][5M]



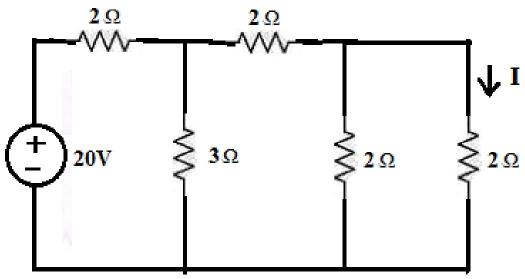
6. a) Explain about Super Nodal analysis and write the steps for applying nodal analysis. [L2][CO1][5M]
   b) Calculate the current 'I' shown in below figure by using Milliman's theorem. [L4][CO2][5M]



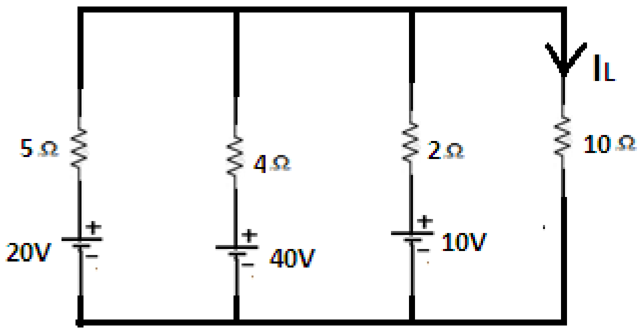
7. a) State and prove Compensation theorem. [L2][CO2][5M]
   b) Verify Tellegen's theorem for the circuit shown in below figure. [L4][CO2][5M]



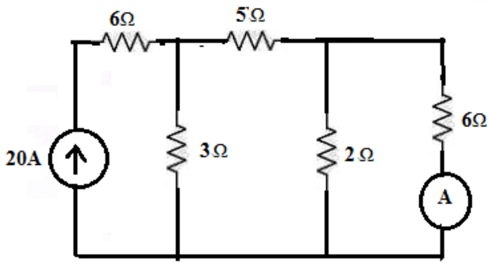
8 .a) State and prove Milliman's theorem. [L2][CO2][5M]
   b)Verify reciprocity theorem for the network shown in below figure. [L4][CO2][5M]



9. a)) Find the current I_L, use millman's theorem as shown in figure below. [L4][CO2][5M]



b) Determine the ammeter reading where it is connected to 6Ω resistor as shown in below figure. The internal resistance of the ammeter is 2Ω.,by using compensation theorem. [L4][CO2][5M]



10. a) Write statement of millman's theorem . [L1][CO2][2M]
 b) Define Super node and Super mesh. [L1][CO1][2M]
 c) Write statement of Reciprocity theorem. [L1][CO2][2M]
 d) Write statement of Tellegen's theorem. [L1][CO2][2M]
 e) Draw a circuit diagram of volage source to current source by using source transformation. [L1][CO1][2M]

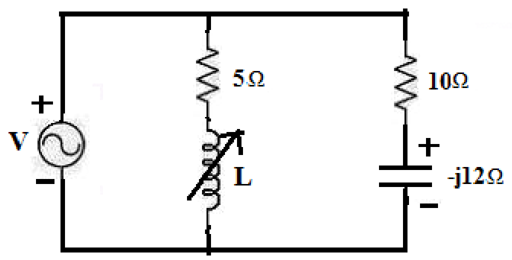
UNIT-II
RESONANCE AND FILTERS

1. a) A series RLC circuit has R=10Ω, L=0.1H and C=50μF. The applied voltage is 100V. Find Resonant frequency & Quality factor of a coil. [L4][CO3][5M]

   b) Explain about Series resonance with phasor diagrams. [L2][CO3][5M]

2. a) Explain about Parallel resonance with phasor diagrams. [L2][CO3][5M]

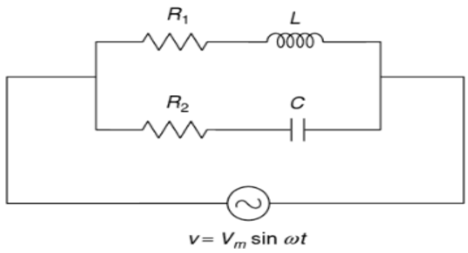
   b) Find the value of 'L' at which the circuit resonates at a frequency of 1000 rad/sec in the circuit shown in figure. [L4][CO3][5M]



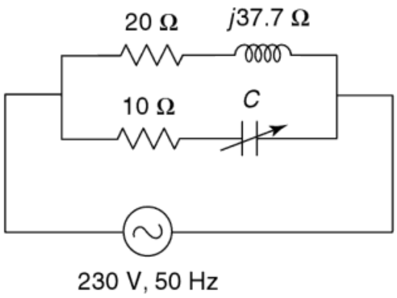
3. a) Explain about Quality factor and Band-width of Series resonance. [L2][CO3][6M]

   b) Design constant-K band pass filter having a design impedance of 500Ω and cut-off frequencies f_1= 1kHz and f_2= 10 kHz. [L4][CO6][4M]

4. a) Derive the expression of resonant Frequency of the following circuit. [L4][CO3][5M]



   b) Find the value of C in the circuit shown to get resonance. [L4][CO3][5M]



5. a) Explain about classification of filters. [L2][CO6][4M]

   b) Explain about Propagation constant and Characteristic impedance in T-network filters.[L2][CO6][6M]

6. a) Explain about Propagation constant and Characteristic impedance in Π-network filters.[L2][CO6][6M]

   b) Design Low Pass Filter in both T& Π section having a cut off frequency of 2KHz to operate with a terminated load resistance of 500 Ω . [L2][CO6][4M]

7. Explain about Constant-K low-pass filter in detail. [L3][CO6][10M]

8. a) Design a High –pass filter having a cut-off frequency of 1kHz with a load resistance of 600Ω. [L4][CO6][5M]

b) Design a Band-elimination filter having design impedance of 600Ω and cut-off frequencies f_1= 2kHz and f_2= 6 kHz. [L4][CO6][5M]

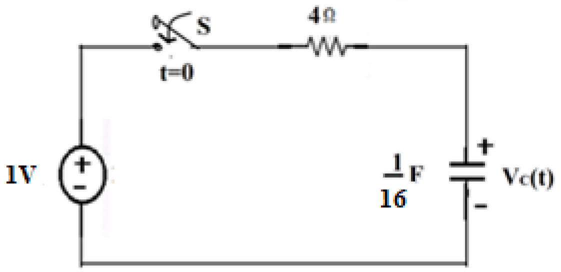
9. Explain about Constant-K band -pass filter in detail. [L3][CO6][10M]

10. a) Define Quality-factor and Selectivity. [L1][CO3][2M]
    b) Define Neper and Decibel. [L1][CO6][2M]
    c) Draw the block diagram of band-pass and band-elimination filters. [L1][CO6][2M]
    d) Draw the characteristics of Low-pass and High-pass filters. [L1][CO6][2M]
    e) Define Resonance and Resonant frequency. [L1][CO3][2M]

UNIT-III

TRANSIENT ANALYSIS

1. a) Derive the Transient Response of series RL-circuit with D.C excitation. [L2][CO3][6M]
   b)Determine The Current I for T>0 If $V_c(0)$ = 9V For The Circuit Shown In Fig. [L2][CO3][4M]



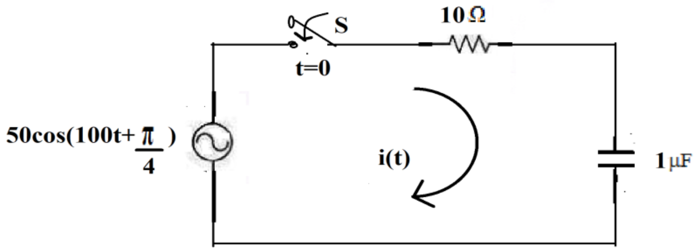
2. a) Derive the Transient Response of series RC-circuit with D.C excitation. [L2][CO3][5M]
   b) The Circuit Consists Of Resistance=20 Ohm, Inductance = 0.05H, Capacitance = 20uF in Series With a 100V Constant at t=0. Find The Current Transient. [L4][CO3][5M]

3. Derive the Transient Response of series RLC-circuit with D.C excitation. [L2][CO3][10M]

4. a) Derive the Laplace Transform of Series RL Circuit . [L2][CO3][5M]
   b) A series RC circuit consists of a resistor of 10Ω and capacitor of 0.1 F with a constant voltage of 20v, is applied to the circuit at t=0.Obtain the current equation. Determine the voltage across the resistor and the capacitor. [L4][CO3][5M]

5. Derive the Transient Response of Series RL circuit with Sinusoidal excitation. [L2][CO3][10M]

6. a) In the circuit shown in figure, determine the complete solution for the current when switch is closed at t=0,applied voltage is V(t)= 50 cos(10^2t+ Π/4), resistance R=10Ω and capacitance C= 1μF. [L4][CO3][5M]



b) A voltage V=300sin(314t). is applied at t=2.14msec to a series RC circuit having resistance of 10Ω and a capacitance of 200μF. Find an expression for current. Also, find the value of current 1msec after Switching-On. [L4][CO3][5M]

7. Derive the Transient Response of Series RLC circuit with Sinusoidal excitation. [L2][CO3][10M]

8. a) Derive the Laplace Transform of Series RC Circuit . [L2][CO3][5M]

b) A series RL circuit with R=30Ω and L= 15H has a constant voltage V=60v applied at t=0. Determine the current "I", voltage across resistor and voltage across inductor. [L4][CO3][5M]

9.Derive the Transient Response of Series RC circuit with A.C excitation. [L2][CO3][10M]

10. a) Define steady state and transient state [L1][CO3][2M]

b) What area the initial conditions? Explain briefly. [L1][CO3][2M]

c) What is the transient response of series RL and RC circuits with D.C excitation? [L1][CO3][2M]

d) What is the behavior of Inductor in Initial and Steady state conditions? [L1][CO3][2M]

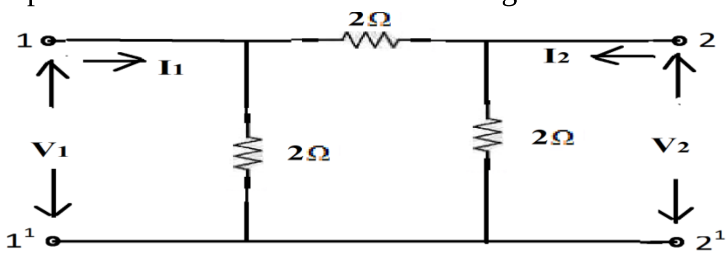
e) What is the behavior of Capacitor in Initial and Steady state conditions? [L1][CO3][2M]

UNIT-IV

TWO PORT NETWORKS

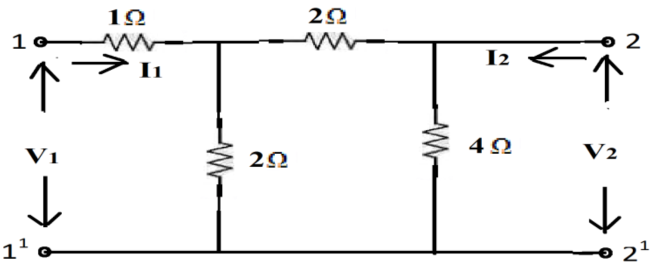
1. a) Explain about Impedance parameters. [L2][CO5][5M]

b) Find the transmission parameters for the circuit shown in figure. [L4][CO5][5M]



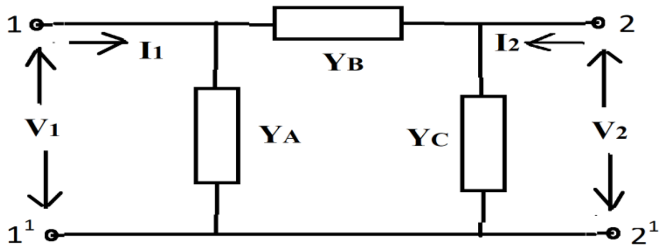
2. a) Explain about short-circuit parameters. [L2][CO5][5M]

b) Find the h-parameters of the network shown in figure. [L4][CO5][5M]



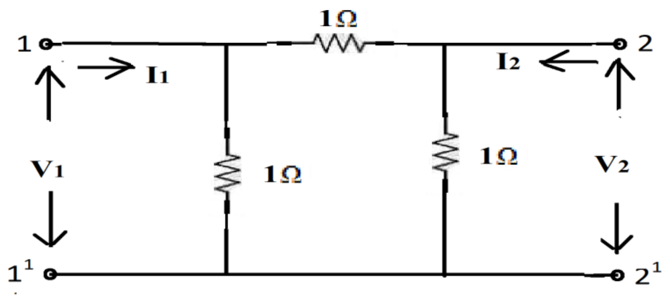
3. a) Explain about h-parameters in terms of y-parameters. [L2][CO5][5M]

b) Find the Short-circuit parameters for the circuit shown in figure. [L4][CO5][5M]



4. a) Explain about ABCD-parameters. [L2][CO5][5M]

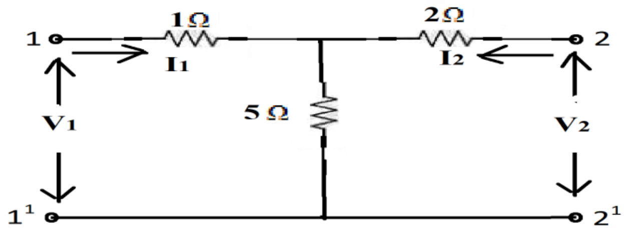
b) Find the Z-parameters of the network shown in below figure. [L4][CO5][5M]



5. a) Derive the expressions for Chain parameters in terms of Z-parameters. [L2][CO5][4M]

b) The Z-parameters of a two-port network are Z_{11}= 10Ω, Z_{22}= 15Ω Z_{12}= 5Ω and Z_{21}= 5Ω .Find the equivalent T-network and ABCD parameters. [L2][CO5][6M]

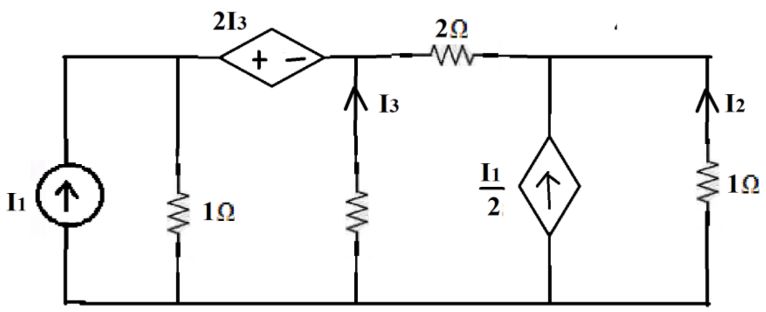
6. a) Find the transmission parameters for the circuit shown in figure. [L4][CO5][5M]



b) The hybrid parameters of a two-port network is shown in figure are, h_{11}= 1K, h_{12}=0.003, h_{21}= 100 and h_{22}= 50μ℧.Find $V_2$and Z-parameters of the network. [L4][CO5][5M]

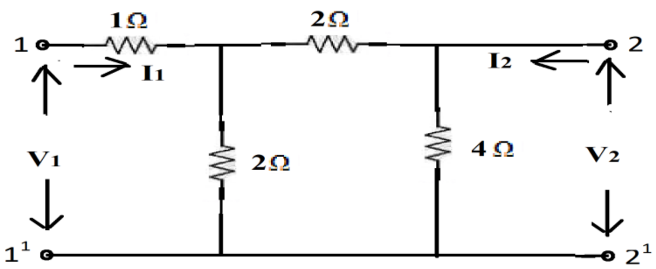
7. a) Derive the expressions for Z-parameters in terms of ABCD-parameters. [L2][CO5][5M]

b) Find the current transfer ratio I_2/I_1 for the network shown on figure. [L2][CO5][5M]



8. a) Derive the expressions for Y-parameters in terms of ABCD parameters. [L2][CO5][5M]

b) Determine the y-parameters of the following network. [L4][CO5][5M]



9. a) The given ABCD parameters are, A=2, B=0.9, C=1.2, D= 0.5. Find Y-parameters. [L4][CO5][5M]

b) The given Y-parameters are, Y_{11}= 0.5, Y_{12}= Y_{21}= 0.6, Y_{22}= 0.9.Find Z- parameters. [L4][CO5][5M]

10. a) Define Two-port network. [L1][CO5][2M]

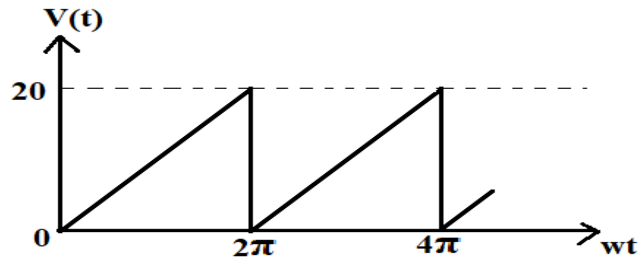
b) Draw the equivalent circuit of Z-parameters. [L1][CO5][2M]

c) What is the condition for Symmetry in Z and Y parameters? [L1][CO5][2M]

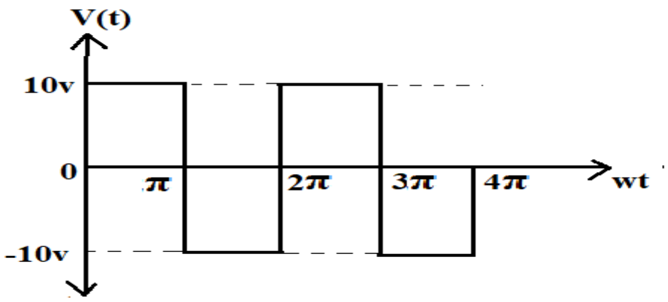
d) What is the condition for Reciprocity in Z and Y parameters? [L1][CO5][2M]
e) Write the equations for Z-parameters in terms of Y-parameters. [L1][CO5][2M]

UNIT-V
FOURIER TRANSFORMS

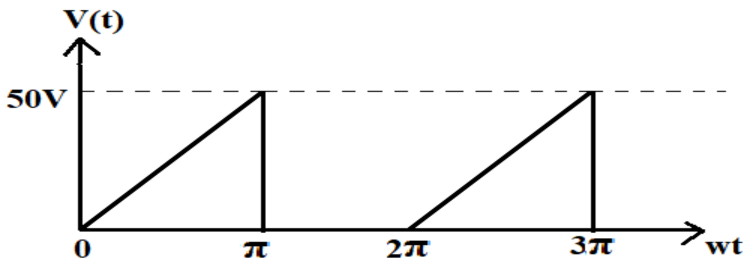
1. a) Derive the Trigonometric form of Fourier series. [L2][CO4][5M]
   b) Find the Fourier series for the following waveform. [L4][CO4][5M]



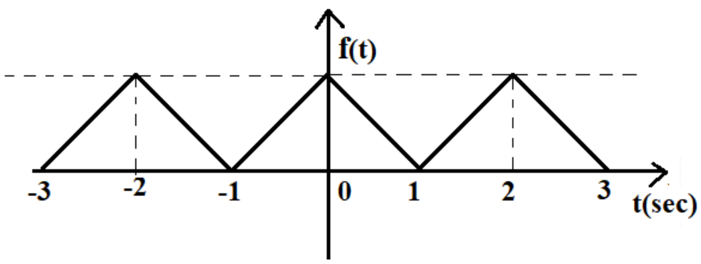
2. a) Derive the Exponential form of Fourier series. [L2][CO4][5M]
   b) Obtain the Fourier series for the following waveform shown in figure. [L4][CO4][5M]



3. a) Find the Trigonometric Fourier series for the following waveform shown in figure. [L4][CO4][5M]



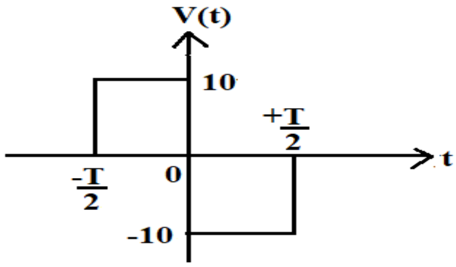
   b) Find the Exponential Fourier series for the following waveform shown in figure. [L4][CO4][5M]



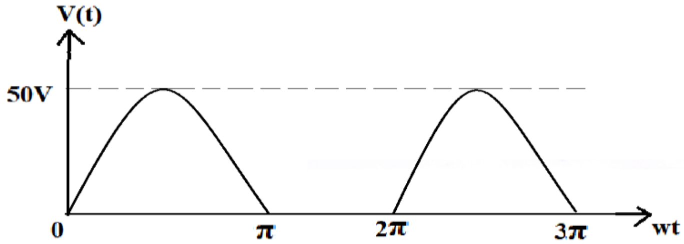
4. Write and prove the properties of Fourier transforms. [L2][CO4][10M]

5. a) Explain about Line spectrum and Phase spectrum. [L2][CO4][6M]

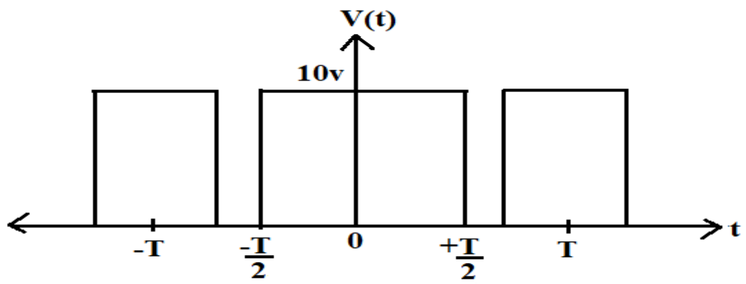
b) Obtain the magnitude and phase spectrum of the waveform shown in figure. [L2][CO4][4M]



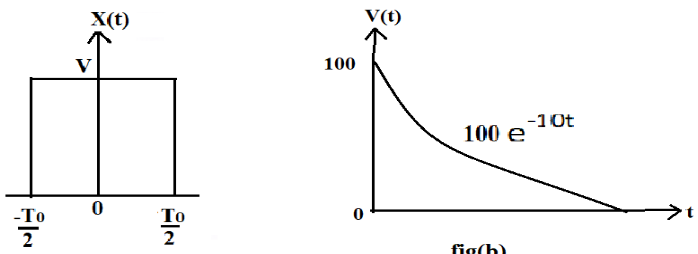
6. a) Find the Trigonometric Fourier series for the waveform shown in figure and sketch the spectrum. [L4][CO4][6M]



b) Find the Fourier transform of a periodic pulse train shown in figure. [L4][CO4][5M]

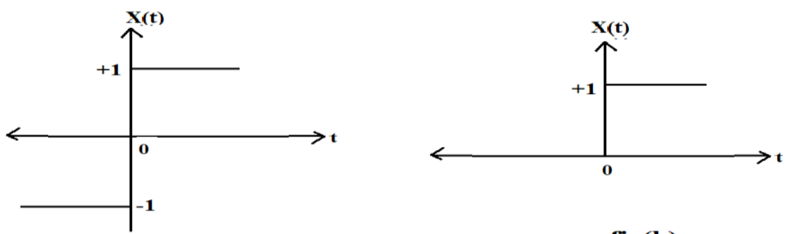


7. Determine the Fourier transforms of the following waveforms shown in figure(a) and figure(b). [L4][CO4][10M]



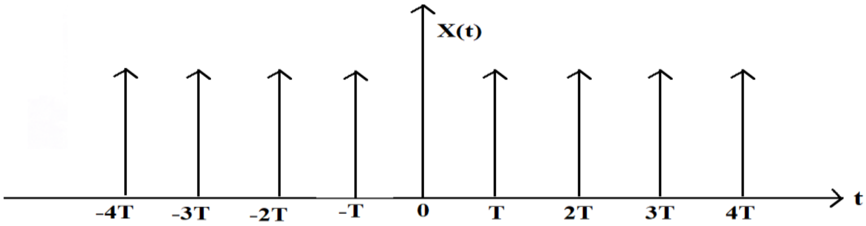
fig(a) fig(b)

8. Determine the Fourier transforms of the following waveforms shown in figure (a) and figure (b). [L4][CO4][10M]



fig(a) fig(b)

9. a) Find the Fourier Transform of a periodic unit impulse train shown in figure [L4][CO4][5M]



b) Explain about waveform symmetry for even and odd functions. [L2][CO4][5M]

10. a) Define Fourier series. [L1][CO4][2M]

b) Define Fourier transform. [L1][CO4][2M]

c) Write the expression for trigonometric form of Fourier series. [L1][CO4][2M]

d) Write the expression for exponential form of Fourier series. [L1][CO4][2M]

e) Write any two properties of Fourier transforms. [L1][CO4][2M]

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QUESTION BANK (OBJECTIVE)

Subject with Code :NETWORK THEORY(18EE0242) **Course & Branch**: B.Tech – ECE

Year &Sem: II-B.Tech& I-Sem **Regulation:** R18

UNIT –I

CIRCUIT ANALYSIS TECHNIQUES

1. The Reciprocity theorem is applicable to [ ]
   (A)Linear networks only (B) Linear/Bilateral networks
   (C) Bilateral networks only (D) Neither of the two
2. Compensation theorem is applicable to [ ]
   (A) (A) Linear networks only (B) Linear/Bilateral networks
   (C) Bilateral networks only (D) Neither of the two
3. Source Voltage defined as V_s=KV_d, represents [ ]
   (A) Voltage dependent Voltage Source (B) Voltage dependent Current Source
   (C) Current dependent Current Source (D) Current dependent Voltage Source
4. Indicate the dual of the series network consisting of voltage source, capacitance and inductance in
   (A) Parallel combination of resistance, capacitance and inductance [ ]
   (B) Series combination of current source, capacitance and inductance.
   (C) Parallel combination of current source, inductance and capacitance.
   (D) None of the above
5. Mesh analysis is based on [ ]
   (A) KCL (B)KVL (C)Both (A)&(B) (D) None
6. A circuit consists of two resistances R_1 and R_2 are in parallel, then, the total current passing through the circuit is I_T. The current passing through R_1 is [ ]
   (A) $I_TR_1/ (R_1+R_2)$ (B) $I_T(R_1+R_2)/ R_1$ (C) $I_TR_2/ (R_1+R_2)$ (D) $I_T(R_1+R_2)/ R_2$
7. The nodal method of circuit analysis is based on [ ]
   (A)KVL and ohm's law (B) KCL and ohm's law (C) KCL and KVL (D) None of the above
8. The Dependent Sources are represented in -------- shape [ ]
   (A) Diamond (B) Circular (C) Both A& B (D) None
9. The formula for maximum power transferred to the load is [ ]
   (A) $P=V^2/4R_L$ (B) $P=V^2/R_L$ (C) $P=V^2/8R_L$ (D) $P=V^2/2R_L$
10. In Reciprocity theorem, the value of ratio of excitation to response is [ ]
    (A) Zero (B)Constant (C) Half of the value (D) Twice the value
11. Which of the following theorems can be applied to any linear or non-linear, active or passive, time-variant or time-invariant? [ ]
    (A)Thevenin's (B) Norton's (C) Telligent's (D) Compensation

12.The common voltage across parallel branches with different voltage sources can be computed from the relation $V=(V_1G_1+ V_2G_2+ V_3G_3)/(G_1+G_2+G_3$.The above statement is associated with ----- theorem.
(A) Thevenin's (B)Milliman's (C) Norton's (D) Reciprocity [ ]

13.The theorem enables a number of voltage or current sources to be combined directly into a single voltage or current source is the ------ theorem. [ ]
(A) Thevenin's (B) Milliman's (C) Norton's (D) Reciprocity

14.Milliman's theorem yields equivalent [ ]
(A) impedance or resistance (B) current source (c) voltage source (D) voltage or current source

15.A closed path made by several branches of the network is known as [ ]
(A) branch (B) loop (C) circuit (D) junction

16.Kirchchoff's law is not applicable to circuits with [ ]
(A) lumped parameters (B) passive elements (C) distributed parameters
(D) non-linear resistances

17.Kirchchoff's law is applicable to [ ]
(A) passive networks only (B) A.C circuits only (C) D.C circuits only (D) both A.C&D.C circuits.

18.For high efficiency of transfer of power, internal resistance of the source should be [ ]
(A) equal to load resistance (B) less than the load resistance
(C) more than the load resistance (D) none of the above

19. The principle of Reciprocity says [ ]
(A) The Trans Resistance is same when source and response interchanged
(B) The Trans Resistance is different when source and response interchanged
(C) Both A&B (D) none of the above

20.The number of independent equations to solve a network is equal to [ ]
(A) the number of chords (B) the number of branches
(C) sum of number of branches & chords (D) sum of number of branches, chords &nodes

21. The Voltmeter connected ------ [ ]
(A) In series (B) In parallel (C) both A& B (D) none

22. The Unit of Conductance is [ ]
(A) Ohm (B) Mho (C) Henry (D) Farad

22. The Reciprocal of Susceptance is [ ]
(A) capacitance (B) inductance (C) conductance (D) none

23. The inductive reactance defined as [ ]
(A) 2πfl (B) 1/2πfc (C) 2πfc (D) 1/2πfl

24. The Capacitive reactance defined as [ ]
(A) 2πfl (B) 1/2πfc (C) 2πfc (D) 1/2πfl

25.The loop existing around a current source,which is common to the two loops is called as [ ]
(A)super node (B) super mesh (C) mesh (D) none

26.Reference node is also known as [ ]
(A) datum node (B) zero potential node (C) both (A)&(B) (D) none

27.The unit of current is [ ]
(A) Amps (B)Volts (C)Coulombs/sec (D) none

28.The region surrounding a voltage source which connects two nodes directly is called [ ]
(A) super node (B)super mesh (C) node (D)none

29.According to Ohm's law, voltage is directly proportional to the [ ]

(A) resistance (B) current (C) capacitance (D) none

30.Ohm's law is applicable to [ ]

(A) Linear networks (B) Non-linear networks (C)Both (A) &(B) (D) none of the above

31. For a Dependent current Source Value depends on [ ]

(A)Current flowing through the element (B)Voltage across element

(C)Both A & B (D) None

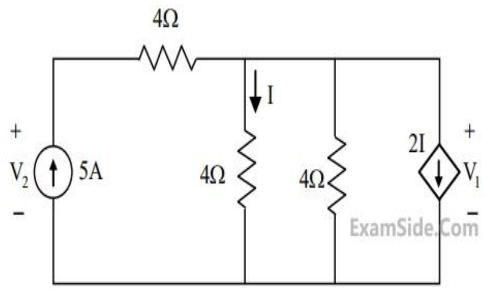
32. A source $v_s(t)$ = V cos 100 ππt has an internal impedance of (4 + j3) ΩΩ. If a purely resistive load connected to this source has to extract the maximum power out of the source, its value in Ωshould be (Gate ECE 2014) [ ]

(A) 3 (B)4 (C) 5 (D)7

33. The nodal Analysis represents the [ ]

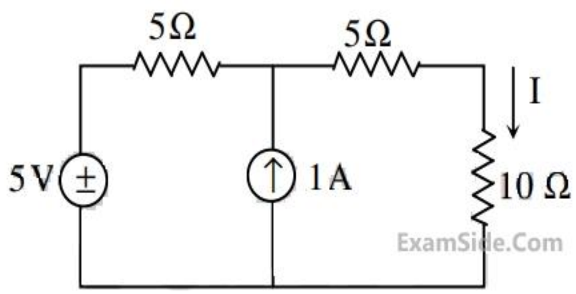
(A)Loop Currents (B) Nodal Voltages (C) Mesh currents (D) None

34. In the given circuit, the values of V_1 and V_2 respectively are (Gate ECE 2015) [ ]



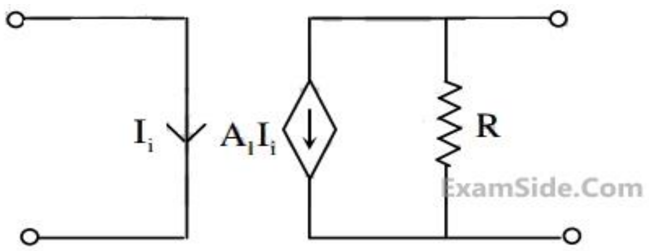
(A)10V, 20V (B) 5V,10V (C) 0V,20V (D)15V,35V

35.In the figure shown, the value of the current I (in Amperes) is (Gate ECE 2014) [ ]



(A)0.5 A (B) 5A (C)10A (D) 2A

36. The circuit shown in the figure represents a (Gate ECE 2014) [ ]



(A)VDVS (B) VDCS (C) CDVS (D) CDCS

37.A voltage source, connected to a load, has an emf of 10Vand an impedance of (500+j100)Ω. The maximum power that can be transferred to the load is, (IES EE 2016) [ ]

(A) 0.2W (B) 0.1W (C)0.05W (D)0.01W

38.A practical D.C current source provides 20KW to a 50Ωload and 20KW to a 200Ωload.The maximum power that can be drawn from it, is (IES ETE 2015) [ ]

(A)22.5KW (B) 30.3KW (C) 40.5KW (D)45.0KW

39.In an ammeter is to be used to in place of a voltmeter, we must connect with the ammeter (IES ETE 2015) [ ]

(A)a high resistance in parallel (B) a high resistance in series

(C) a low resistance in parallel (D) a low resistance in series

40.Thevenin's equivalent circuit consists of (IES EE 2019) [ ]

(A) current source and series impedance (B) voltage source and series impedance

(C) voltage source and shunt impedance (D) current source and series impedance

UNIT – II

RESONANCE AND FILTERS

1)If the value of resonant frequency is 50 kHz in a series RLC circuit along with the bandwidth of about 1 kHz, then what would be the value of quality factor? [ ]

A) 5 B) 50 C) 100 D)500

2) What will be the nature of impedance at a frequency below the anti resonant frequency? [ ]

A) Capacitive B) Inductive C) Reactive D) Resistive

3) What would be the value of impedance of a parallel resonant circuit at anti resonance condition?

A) Resistive & maximum B) Resistive & minimum [ ]

C) Reactive & maximum D) Reactive & minimum

4) The current leads supply voltage if a series resonant circuit exhibits its operation__________ the resonant frequency [ ]

A) Above B) Below C) Equal To D) None Of The Above

5) If an a.c. signal generator drives a series RLC circuit, then the circuit undergoes resonance only due to variation in __________ [ ]

A) Supply voltageB) Series resistance C) Supply frequency D) Phase angle

6) How do the series resonant circuit behave under the resonance condition? [ ]

A) Current amplifier B) Transconductance C) Voltage regulator D) Voltage amplifier

7) Reactance curve is basically a graph of individual reactances verses [ ]

A) Frequency B) PhaseC) Amplitude D) Time period

8) Which among the following condition is true at the resonance? [ ]

A) $X_c > X_L$ B) $X_c = X_L$C) $X_c < X_L$ D) None of the above

9) Which among the following get/s cancelled under the resonance condition in a.c. circuits, inductive and capacitive reactances are in parallel? [ ]

A) Reactance B) Susceptance C) Resistance D) All of the above

10)What would be the value of power factor for series RLC circuit under the resonance phenomenon?

A) 0 B) 0.5 C) 1 D) Infinity [ ]

11) At low frequencies, the impedance of a series RLC circuit is [ ]
A) Capacitive. B) Resistive. C) Inductive. D)Can not be determined.

12) Naturally Parallel Resonance Circuit is a [ ]
A) Acceptor B) Rejecter C) Both A And B D) None

13) Power factor of a series RLC resonant circuit will be [ ]
A) 0.5. B) 0.85. C) Unity. D) Cannot determined.

14) What is the applied voltage for a series RLC circuit when I_T = 3 mA, V_L = 30 V, V_C = 18 V, and R = 1000 ohms? [ ]
(A)3V (B)12.37V (C)34.98V (D)48.00V

15) In a parallel RLC circuit, which value may always be used as a vector reference [ ]
A) currentB) reactanceC)resistanceD) voltage

16) How much current will flow in a 100 Hz series RLC circuit if V_S = 20 V, R_T = 66 ohms, and X_T = 47 ohms? [ ]
A) 1.05 AB) 303 mAC) 247 mAD) 107 mA

17) What is the range between f_1 and f_2 of an *RLC* circuit that resonates at 150 kHz and has a *Q* of 30?
A) 100.0 kHz to 155.0 kHzB) 147.5 kHz to 152.5 kHz [ ]
C) 4500 kHz to 295.5 kHzD) 149,970 Hz to 150,030 Hz

18) What effect will a parallel tank have upon final filter current? [ ]
A) very littleB) The bandpass frequencies will change.
C) The frequency cutoff will change.D) The impedance will block output.

19) A certain series resonant circuit has a bandwidth of 2 kHz. If the existing coil is replaced with one having a higher value of Q, the bandwidth will [ ]
A)decrease B) remain the same C) increase D) be less selective

20) If the resistance in parallel with a parallel resonant circuit is reduced, the bandwidth [ ]
A) decreases B) increases C) becomes sharper D) disappears

21) In a certain series resonant circuit, V_C = 125 V, V_L = 125 V, and V_R = 40 V. The value of the source voltage is [ ]
A) 40 V B) 250 V C) 290 V D) 125 V

22)In a series RLC circuit that is operating above the resonant frequency, the current [ ]
A) is zeroB) lags the applied voltage
C) leads the applied voltage D) is in phase with the applied voltage

23)Plot of gain verses frequency is called [ ]
A) frequency response B) time response C) amplitude response D) altitude response

24)Filter that passes high frequencies and rejects low frequencies is called [ ]
A) Highpass filter B) Lowpass filter C) Bandpass filter D) Active filter

25)In a certain parallel resonant band-pass filter, the resonant frequency is 14 kHz. If the bandwidth is 4 kHz, the lower frequency [ ]
A) is 7 kHz B) is 10 kHz C) is 12 kHz D) cannot be determined

26)In a series resonant band-pass filter, a lower value of *Q* results in [ ]
A) a higher resonant frequency B) a smaller bandwidth
C) a higher impedance D) a larger bandwidth

27) The maximum output voltage of a certain low-pass filter is 15 V. The output voltage at the critical frequency is [ ]

A) 0 V B) 15 V C) 10.60 V D) 21.21 V

28) An *RL* high-pass filter consists of a 470 Ω resistor and a 600 mH coil. The output is taken across the coil. The circuit's critical frequency is [ ]

A) 125 Hz B) 1,250 Hz C) 564 Hz D) 5,644 Hz

29)An *RC* low-pass filter consists of a 120 Ω resistor and a 0.002 μF capacitor. The output is taken across the capacitor. The circuit's critical frequency is [ ]

A) 333 kHz B) 633 kHz C) 331 kHz D) 60 kHz

30) In a certain low-pass filter, f_c = 3.5 kHz. Its passband is [ ]

A) 0 Hz to 3.5 kHz B) 0 Hz C)3.5 kHz D) 7 kHz

31)In a series RC circuit, the values of R=10Ω and C=25μF.A sinusoidal voltage of 50 MHz is applied and the maximum voltage across the capacitance is 2.5V.The maximum voltage across the series combination will be nearly (IES ETE 2019) [ ]

(A)172.7V (B)184.5V (C) 196.3V (D)208.1V

32)A series resonant circuit is tuned to 10MHz and provides a 3-dB bandwi9dth of 100KHz.The quality factor 'Q' of the circuit is, (IES ETE 2015) [ ]

A)30 (B)1 (C)100 (D)10

33) The impedance of a parallel circuit is (10-j30)Ω at 1MHz.The values of circuit elements will be (IES EE 2019) [ ]

(A) 10Ω and 6.4mH (B) 100Ω and 4.7nH (C) 10Ω and 4.7mH (D) 100Ω and 6.4mH

34) A filter that allows high and low frequencies to pass but attenuates any signal with a frequency between two corner frequencies is a (IES EE 2019) [ ]

35)The damping ratio of a series RLC circuit can be expressed as (GATE EC 2015) [ ]

(A) $R^2C/ 2L$ (B)$2L/ R^2C$ (C) $R/L\ (C/L)^{½}$ (D) $2/R\ (L/C)^{½}$

36) A Low-Pass filter with a cut-off frequency of 30Hz is cascaded with a High-Pass filter with a cut- off frequency of 20Hz.The resultant system of filters will function as (GATE EE 2011) [ ]

(A) an all-pass filter (B) an all-stop filter (C) a band-stop filter (D) a band-pass filter

37) If the Q-factor of a coil at resonant frequency of 1.5MHz is 150 for a series resonant circuit, then, the corresponding band-width is (IES EE 2015) [ ]

(A)225MHz (B) 1.06MHz (C) 50KHz (D) 10KHz

38)For a series RLC circuit, $i(t) = 1.414\sin(wt-45^0)$.If ωL=1Ω,the value of 'R' is (IES EE 2015)[ ]

(A)1Ω (B) 3Ω (C) √3Ω (D) 3√3Ω

39) A series RLC circuit is connected to a source of a variable frequency. The circuit current is found to be a maximum of 0.5A at a frequency of 400Hz and the voltage across 'C' is 150V.Assuming ideal components, the values of R and L are respectively (IES EE 2015) [ ]

40)If a series RLC circuit resonates at b1.5KHz and consumes 100W from a 100V A.C source operating at resonant frequency with a band width of 0.75 KHz, the value of R,L and Q-factor of the circuit are respectively (IES EE 2015) [ ]

UNIT-III

TRANSIENT ANALYSIS

1)Transient behaviour occurs in any circuit when [ ]
A) There are sudden changes of applied voltages B)the voltage source is shorted
C) The circuit is connected or disconnected from the supply D) ALL

2)The transient response occurs [ ]
A) Only in resistance circuit B) only I inductive circuits
C) Only in capacitive circuits D) both B& C

3)In steady state current and voltages ___ [ ]
A) Changes w.r.t to time B) doesn't changes w.r.t time
C) both A& B D) none

4)In transient state current and voltages ___ [ ]
A) Changes w.r.t to time B) doesn't changes w.r.t time
C) both A& B D) none

5)Inductor doesn't allows sudden changes in [ ]
A) Currents B) voltages C) Both A & B D) none

6)Capacitor doesn't allows sudden changes in [ ]
A) Currents B) voltages C) Both A & B D) none

7)Inductor allows sudden changes in [ ]
A) Currents B) voltages C) Both A & B D) none

8)Capacitor allows sudden changes [ ]
A) Currents B) voltages C) Both A & B D) none

9)The time constant of series RL circuit is [ ]
A) LR B) L/R C) R/L D) ALL

10)The time constant of series RC circuit is [ ]
A)1/RC B) R/C C)RC D) ALL

11)L/R is time constant of which of the following circuit [ ]
A) Parallel RC circuit B) series RC circuit
C) Series RL circuit D) parallel RL circuit

12)RC is time constant of which of the following circuit [ ]
A) Parallel RC circuit B) series RC circuit
C) Series RL circuit D) parallel RL circuit

13)When series RL circuit is connected to a voltage source V at t=0, the current passing through the inductor L at $t=0^+$ is [ ]
A) V/R B) infinity
C) Zero D) V/L

14)When series RL circuit is connected to a voltage source V at t=0, the current passing through the inductor L at $t=\infty$ is [ ]
A)V/R B) Infinity C) Zero D) V/L

15)When series RC circuit is connected to a voltage source V at t=0, the current passing through the capacitor C at t=0+ is [ ]

A) Infinity B) zero C)V/R D) V/WC

16) When series RC circuit is connected to a voltage source V at t=0, the current passing through the capacitor C at t=∞ is [ ]

A) Infinity B) zero C)V/R D) V/WC

17)When series RC (R=10Ω,C=2µF) circuit is connected to a voltage source V at t=0, what is the time constant of the network [ ]

A) 2 ms B) 2 µs C)0.02 ms D) 0.2µs

18) When series RL (R=10Ω,L=5mH) circuit is connected to a voltage source V at t=0, what is the time constant of the network [ ]

A) 50 ms B) 50 µs C)0.5 ms D) 5 µs

19)When series RC (R=10Ω,C=10µF) circuit is connected to a voltage source V at t=0, the current passing through the capacitor C at t=0.1ms is [ ]

A) Infinity B) zero C)V/R D) 0.63V/R

20)When series RL (R=10Ω,L=10mH) circuit is connected to a voltage source V at t=0, the current passing through the inductor L at t=0.1s is [ ]

A) Infinity B) zero C)V/R D) 0.63V/R

21)The transient current in an RLC circuit is over damped when [ ]

A) $(\frac{R}{2L})^2 > \frac{1}{LC}$ B) $(\frac{R}{2L})^2 = \frac{1}{LC}$ C)$(\frac{R}{2L})^2 < \frac{1}{LC}$D) None

22)The transient current in an RLC circuit is under damped when [ ]

A) $(\frac{R}{2L})^2 > \frac{1}{LC}$ B)$(\frac{R}{2L})^2 = \frac{1}{LC}$ C)$(\frac{R}{2L})^2 < \frac{1}{LC}$ D) None

23)The transient current in an RLC circuit is critically damped when [ ]

A) $(\frac{R}{2L})^2 > \frac{1}{LC}$ B) $(\frac{R}{2L})^2 = \frac{1}{LC}$ C)$(\frac{R}{2L})^2 < \frac{1}{LC}$ D) None

24)If $(\frac{R}{2L})^2 > \frac{1}{LC}$ condition gives_____ response in RLC series circuit [ ]

A) over damped B) under damped C)critically damped D) none

25)If $(\frac{R}{2L})^2 = \frac{1}{LC}$ condition gives_____ response in RLC series circuit [ ]

A) over damped B) under damped C)critically damped D) none

26)If $(\frac{R}{2L})^2 < \frac{1}{LC}$ condition gives_____ response in RLC series circuit [ ]

A) over damped B) under damped C)critically damped D) none

27)The Laplace transform analysis gives [ ]

A) The time domain response only B) frequency response only C)Both A& B D) NONE

28)The laplace transform o a unit step function is [ ]

A) 1/S B) 1 C)$1/S^2$ D) $\frac{1}{S+A}$

29)The laplace transform o a unit ramp function is [ ]

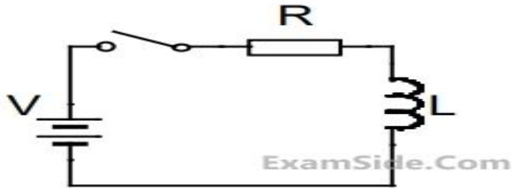
A)1/S B) 1 C)$1/S^2$ D) $\frac{1}{S+A}$

30)The laplace transform of the first derivative of a function f(t) is [ ]

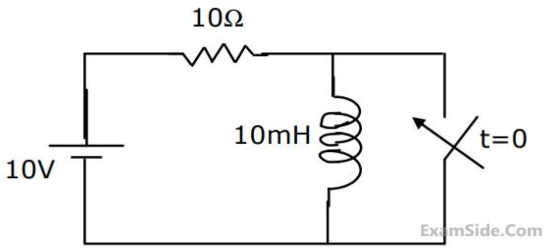
A)F(S)/S B) SF(S)-F(0) C) SF(S)-F(0) D)F(0)

31)A series RL circuit is excited at t = 0 by closing a switch as shown in the figure. Assuming zero initial conditions, the value of d^2i/dt^2 at $t=0^+$ is (GATE EE 2015) [ ]

(A)V/L (B) V/R (C)0 (D) $-RV/L^2$

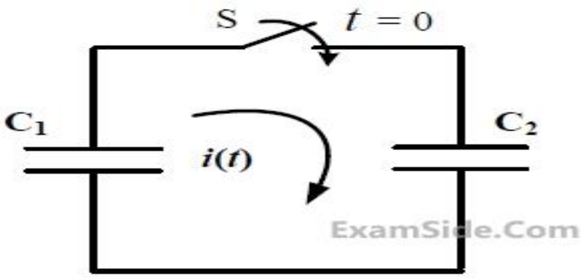


32)The circuit shown in the Fig. is in steady state, when the switch is closed at t=0.t=0. Assuming that the inductance is ideal, the current through the inductor at t=0+t=0+ equals (GATE EE 2005) [ ]



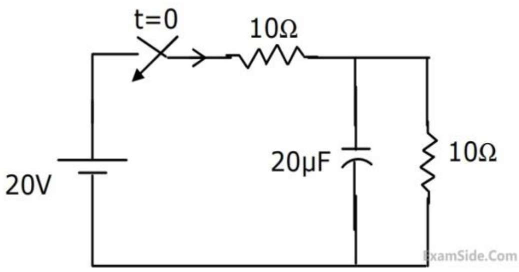
(A) 0V (B) 0.5V (C) 1V (D) 2V

33) In the following figure, C_1 and C_2 are ideal capacitors. C_1 has been charged to 12 V before the ideal switch S is closed at t = 0. The current i(t) for all t is (GATE EE 2012) [ ]



(A) Zero (B)Step function (C) An exponential decaying function (D)Impulse function

34) In the Fig. given below, the initial capacitor voltage is zero. The switch is closed at t=0.t=0. the final steady-state voltage across the capacitor is (GATE EE 2012) [ ]



(A) 20V (B)10V (C) 5V (D) 0V

35)A unit step voltage is applied at t=0t=0 to a series RL circuit with zero initial

Conditions (GATE EE 2012) [ ]

(A)It is possible for the current to be oscillatory.

(B) The voltage across the resistor at $t=0^+$

(C)The energy stored ibn inductor at steady state is zero.

(D) The resistor current eventually falls to zero.

36)In the series RC circuit shown in Fig. the voltage across C starts increasing when the d.c source is switched on. The rate of increase of voltage across 'C 'at the instant just after the switch is closed (i.e., at t=0+t=0+), will be (GATE EE 1996) [ ]

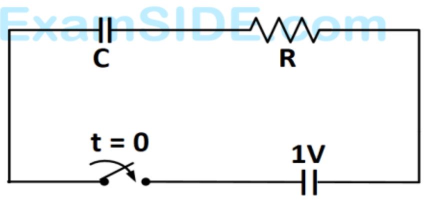


Fig.

(A)Zero (B) Infinite (C) RC (D)1/RC

37)A coil has R=10Ω, L=15H.The voltage at the instant when the current is 10A and increasing at the rate of 5A/Sec will be (IES EE2019) [ ]

(A)125V (B)150V (C)175V (D) 200V

38)A coil having a resistance of 10Ωand inductance of 1H is switched to a direct voltage of 100V.The steady-state value of the current will be (IES EE2019) [ ]

39)A Unit-step voltage is applied at t=0 to a series RL circuit with zero initial condition. Then, (IES ETE2017) [ ]

(A)It is possible for the current to be oscillatory.

(B) The voltage across the resistor at $t=0^+$ is zero.

(C) The voltage across the resistor at $t=0^-$ is zero.

(D)The resistor current eventually falls to zero.

40)What should be done to find initial values of the circuit variables in a first order RC circuit excited by only initial conditions? (IES EE2016) [ ]

(A)To replace a capacitor by a short-circuit. (B) To replace a capacitor by a open-circuit.

(C) To replace a capacitor by a voltage source. (D) To replace a capacitor by a current source.

UNIT – IV

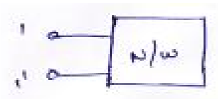
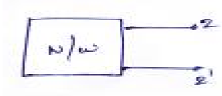
TWO PORT NETWORKS

1. Which parameters are widely used in transmission line theory [ ]
   A) Z parameters B) Y parameters C) ABCD parameters D) h parameters
2. For a two port network to be reciprocal [ ]
   A) $Z_{11} = Z_{22}$ B) $h_{21}= -h_{12}$ C) $Y_{21} = Y_{22}$ D) AD-BC = 0
3. The h parameters h_{11} and $h_{12}$are obtained [ ]
   A) by shorting the output terminals B) by opening input terminals
   C) by shorting input terminals D) by opening output terminals
4. Two ports containing sources in their branches are called [ ]
   A) passive ports B)two ports C) active ports D)none

5. In Z parameter V_1, V_2 are [ ]
   A) Independent variables B) dependent variables C) both A and B D) none

6. Which of the parameters widely used in transmission line theory [ ]
   A) Z parameters B) ABCD parameters C) Y parameters D) H parameters

7. Which of the following is two port network [ ]

A)  B)  C)  D) None

8. In Z parameters are also called as [ ]

9. In Y parameter I_1,I_2 are [ ]
   Dependent variables B)Independent variables C)Both A & B D) None

10. In describing the transmission parameters [ ]
    A) The input voltage and current are expressed in terms of output voltage and current
    B) The input voltage and output voltage are expressed in terms of output current and input current
    C) The input voltage and output current expressed in terms of input current and output voltage
    D) none
11. If the two port network is reciprocal then [ ]
    A) $Y_{11} = Y_{22}$ B) $Y_{12} = Y_{22}$ C) $Y_{12} = Y_{11}$ D) $Y_{12} = Y_{21}$
12. Y parameters are also called as [ ]
    A) Short circuit admittance parameters B) short circuit impedance parameters
    C) Open circuit admittance parameters D) open circuit impedance parameters

13. Which parameters are widely used in transmission line theory [ ]
    A) Z parameters B) Y parameters C) ABCD parameters D) H parameters
14. Y parameters are also called as [ ]
    A) Short circuit admittance parameters B) short circuit impedance parameters
    C) Open circuit admittance parameters D) open circuit impedance parameters
15. Two ports containing sources in their branches are called [ ]
    A) Passive ports B) two ports C) active ports D) none
16. If the two port network is reciprocal then [ ]

A) $Z_{11} = Z_{22}$ B) $Z_{12} = Z_{21}$. C) $Z_{11} = Z_{12}$. D) All

17. If the two port network is reciprocal then [ ]
A) $Y_{11} = Y_{22}$ B) $Y_{12} = Y_{22}$ C) $Y_{12} = Y_{11}$ D) $Y_{12} = Y_{21}$

18. Y parameters are also called as [ ]
A) Short circuit admittance parameters B) short circuit impedance parameters
C) Open circuit admittance parameters D) open circuit impedance parameters

19. Transmission parameters are also called as [ ]
A) Y parameters B) General circuit parameters C) H parameters D) z parameters

20. A Two port network is simply a network inside a block box, and the network has only [ ]
A) Two terminals B) two pair of terminals C) two pair of ports D) two pair of accessible terminals

21. The no. of possible combinations generated by four variable taken two at a time in two-port network is [ ]
A) 6 B) 3 C) 2 D) 5

22. If the two port network is reciprocal then [ ]
A) $Z_{11} = Z_{22}$ B) $Z_{12} = Z_{21}$. C) $Z_{11} = Z_{12}$. D) All

23. In Y parameters I_1, I_2 are [ ]
A) Independent variables B) dependent variables C) both A and B D) none

24. In Y parameters V_1, V_2 are [ ]
A) Independent variables B) dependent variables C) both A and B D) none

25. In ABCD parameters V_1, I_1 are [ ]
A) Independent variables B) dependent variables C) both A and B D) none

26. In ABCD parameters V_2, I_2 are [ ]
A) Independent variables B) dependent variables C) both A and B D) none

27 If z-parameters are $z_{11} = 40$, $z_{22} = 50$ and $z_{12} = z_{21} = 20$, what would be the value of y_{22} in the matrix form of y-parameters given below?

$$\begin{bmatrix} \frac{5}{160} & -\frac{2}{160} \\ -\frac{2}{160} & ? \end{bmatrix}$$

A) 4 / 160 B) 5 / 160 C) 10 / 160 D) 15 / 150 [ ]

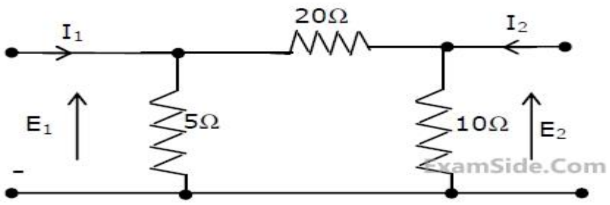
28) If the two ports are connected in cascade configuration, then which arithmetic operation should be performed between the individual transmission parameters in order to determine overall transmission parameters?
A) Addition B) Subtraction C) Multiplication D) Division [ ]

29) Which among the following represents the precise condition of reciprocity for transmission parameters?
A) AB - CD = 1 B) AD – BC = 1 C) AC – BD = 1 D) None of the above [ ]

30) Which is the correct condition of symmetry observed in z-parameters?
A) $z_{11} = z_{22}$ B) $z_{11} = z_{12}$ C) $z_{12} = z_{22}$ D) $z_{12} = z_{21}$ [ ]

31.If a two-port network is passive, then we have, with the usual notation, the following relationship (GATE EE 1994) [ ]
(A)$h_{12}=h_{21}$ (B)$h_{11}=h_{22}$ (C) $h_{11}-h_{22}=1$ (D)$h_{12}=-h_{21}$

32.The admittance parameter Y_{12} in the 2-port network in Figure is (GATE EE 1994) [ ]



(A)-0.2 mho (B) 0.1mho (C) -0.05mho (D) 0.05mho

33.A passive 2-port network is in a steady state. Compare to its input, the steady state output can never offer (GATE EE 2001) [ ]
(A) higher voltage (B)lower impedance (C) greater power (D) better regulation

34.If each branch of a Delta circuit has impedance √3 Z, then each branch of the equivalent Wye circuit has impedance (GATE ECE 2001) [ ]
(A) Z/√3 (B)3Z (C)3√3Z (D)Z/3

35. A 2-port network is shown in figure. The parameter h21 for this network can be given by (GATE ECE 1999) [ ]
(A)-1/2 (B) +1/2 (C) -3/2 (D) +3/2

36.The condition, that a 2-port network is reciprocal, can be expressed in terms of its ABCD parameters as............... (GATE ECE 1994) [ ]
(A) AD-BC=1 (B) A=C (C)B=D (D)AD=BC

37.A one-port network consists of a capacitor of 2Fin parallel with a resistor of 1/3Ω.Then,the input admittance is (IES EE 2015) [ ]
(A)2S+3 (B)3S+2 (C) (2/S)+(1/3) (D)(S/2)+3

38.A two-port network is characterized by (IES ETE 2017) [ ]
$I_1=3V_1+4V_2$, $6I_2=2V_1-4V_2$ .Its A,B,C,D parameters are respectively
(A) 2,3,6 & 9 (B) 2,-3,10 & -9 (C)3,2,-9 & 6 (D) 3,-2,9 & -6

39.In hybrid parameters, h_{11} and h_{21} are called as (IES EE2019) [ ]
(A) input impedance &forward current gain (B) reverse voltage gain &output admittance
(C) input impedance &forward voltage gain (D) output impedance &forward current gain

40. What is the condition for reciprocity and the symmetry in Y-parameters representation? (IES EE2019) [ ]
(A) $Y_{21} = Y_{11}$ & $Y_{22} = Y_{21}$ (B) $Y_{21} = Y_{12}$ & $Y_{11} = Y_{22}$
(C) $Y_{21} = Y_{11}$ & $Y_{22} = Y_{21}$ (D) $Y_{11} = Y_{22}$ & $Y_{21} = Y_{22}$

UNIT – V

FOURIER TRANSFORMS

1.Fourier series for the signale^{-at}does not exist if [ ]

A)a >0 B)a<0 C)a = 1 D)a< 0

2. The Fourier transform []

A) satisfies linearity B) does not satisfies linearity C) both A&B D)none

3.Whatisthespectrumofadcsignal [ ]

A) 0 B) π C) 2π D) 2πδ(w)

4. The Fourier transform of $x_1(n)*x_2(n)$is [ ]

A) X1(ω)X(ω) B)X1(ω)*X2(ω) C)X1(ω)*K2(ω) D)Does not exits

5.The Fourier exist, if the following condition is satisfied [ ]

$\int_{-\infty}^{\infty}|f(t)dt| > K$

A) transform B) $\int_{-\infty}^{\infty}|f(t)dt|$ <& C) $\int_{-\infty}^{\infty}|f(t)dt|$ =0 D) none

6.Inverse Fourier transform of $\delta(w-w_0)$ [ ]

A)$1/2\pi e^{-jw_0t}$ B)1/ 2π C)e^{-jw_0t} D)e^{jw_0t}

7.The Fourier transform of signalx(t)is [ ]

A)–x(w) B)x(-w) C)-x(-w) D)x(w)

8. The Fourier transform of sin(t)function is [ ]

A) 2/jω B)-2/jω C)jw D)2jw

9. Time convolution property states that (**GATE EE 2012**) [ ]

A)$F_1(t)*F_2(t)$ B)$F_1(t)F_2(t)$ C)$F_1(w)*F_2(w)$ D)$F_1(w)/F_2(w)$

10.The frequency convolution property states that [ ]

A)$F_1(t)*F_2(t)$ B)$F_1(t)F_2(t)$ C)$F_1(w)*F_2^*(w)$ D)$F_1(w)/F_2(w)$

11.In a periodic signal, The period T_0 is doubled, the fundamental frequency w_0 in the spectrum becomes

A) Doubled B)halved C)Increased4times D)no change [ ]

12.Any periodic function can be expressed by a Fourier series when the function having [ ]

A)Infinite number of finite discontinuities in a period

B)finite number of finite discontinuities in a period

C)finite number of infinite discontinuities in a period

D)Infinite number of infinite discontinuities in a period

14. A function is said to be even, if x(t)is (IES EE2016) [ ]

A)x(-t) B)-x(t) C)x(2t) D)x(t)

15.If x(-t)=x(t) then, the function is called [ ]

A) Odd function B) even function C) Both A&B D)none

16.If x(-t)=-x(t)then the function iscalled [ ]

A) Odd function B) even function C) BothA&B D)none

17.Identify the even function [ ]

A) Cosine B)sine C) Both A & B D)none

18.Identify the odd function [ ]

A) Cosine B)Sine C) Both A & B D) none

19.A periodic function x(t) is said to have half wave symmetry if x(t) is [ ]

A) -x(t+ T/2) B) x(t+ T/2) C) -x(t-T /2) D) x(t-T /2)

20. The Fourier transform of a conjugate symmetric function is always **[GATE ECE 1999]** [ ]

A) imaginary B)conjugate anti-symmetric C) real D)conjugate symmetric

21.The Fourier transform may be applied to [ ]

A) Non-periodic B)Periodic C)Both A and B D) Neither A nor B

22.The Fourier transform of u(t) is [ ]

A) 1/jωB)jω C)1/(1+jω)D) πδ(ω)+(1/jω)

23.The Fourier transform of e^{-at}u(t)is [ ]

A)1/(a-jω) B)1/(a+jω) C) $1/(a^2+\omega^{2)}$ D) $1/(a^2-\omega^{2)}$

24.The Fourier transform of tx(t) is [ ]

A) $\frac{dX(j\omega)}{d\omega}$ B) $\frac{dX(j\omega)}{d\omega}$ C) x(jω)/ω D) $\frac{jdX(j\omega)}{d\omega}$

25. The Fourier transform of $e^{j\omega_0 t}x(t)$ is [ ]

A)$X(\omega+\omega_0)$ B)$X(\omega_0)$ C)$X(\omega-\omega_0)$ D)$X(\omega/\omega_0)$

26.The Fourier transform of $x^*(t)$ is [ ]

A)X*(ω) B) X*(-ω) C)-X*(ω) D) - X*(-ω)

27.The Fourier transform of dx(t)/dt is [ ]

A)dω X(ω)/dω B)X(ω)/ω C) jωX(ω) D)jω/X(ω)

28.The Fourier transform of x(at) = [ ]

A) $\frac{1}{|a|}X\left(\frac{\omega}{a}\right)$ B)$\frac{1}{|a|}X(a\omega)$ C)$\frac{1}{|a|}X\left(\frac{a}{\omega}\right)$ D)$\frac{1}{|\omega|}X\left(\frac{\omega}{a}\right)$

29.The Fourier series may be applied to [ ]

A) Non-periodic B) Periodic C) Both A and B D) Neither A nor B

30.Periodic signal are analyzed by using [ ]

A)Fourier series B)Fourier transforms C) Both A&B D)none

31.Non-Periodic signal are analyzed by using [ ]

A) Fourier series B)Fourier transforms C)Both A&B D)none

32. If the signals can be represented by sum of the sinusoids whose frequencies are integral multiple of fundamental frequency is called [ ]

A)Non-periodic B)Periodic C) Both A and B D) Neither A nor B

34.Fourier series can be represented as [ ]

A) Trigonometric form B) exponential form C)Both A & B D)none

35.Series coefficient a_0 in Fourier series can be calculated using **(GATE ECE 1999)** [ ]

A) $\frac{1}{2\pi}\int_0^{\pi} x(t)d(wt)$ B) $\frac{1}{2\pi}\int_0^{2\pi} x(t)d(wt)$ C) $\frac{1}{2\pi}\int_{\pi}^{2\pi} x(t)d(wt)$ D) $\frac{1}{2\pi}\int_{-\pi}^{\pi} x(t)d(wt)$

36.Series coefficient a_n in Fourier series can be calculated using [ ]

A) $\frac{1}{\pi}\int_0^{\pi} x(t)d(wt)$ B) $\frac{1}{\pi}\int_0^{2\pi} x(t)cosnwt\, d(wt)$ C) $\frac{1}{\pi}\int_0^{2\pi} x(t)sinnwt\, d(wt)$ D)$\frac{1}{\pi}\int_{\pi}^{2\pi} x(t)cosnwt\, d(wt)$

37.Series coefficient b_n in Fourier series can be calculated using [ ]

$\frac{1}{\pi}\int_0^{\pi} x(t)d(wt)$ $\frac{1}{\pi}\int_0^{2\pi} x(t)cosnwt\, d(wt)$ $\frac{1}{\pi}\int_0^{2\pi} x(t)sinnwt\, d(wt)$

A) B) C) D) $\frac{1}{\pi}\int_{\pi}^{2\pi} x(t)cosnwt\, d(wt)$

38.Which of the following is a periodic signal [ ]

A) x(t) B) x(t+T) C) x(2t) D) x(w)

39. Parseval's identity states that $\int_{\infty}^{\infty}|f(t)|^2 dt =$ (GATE ECE 1999) [ ]

A) $\int_{\infty}^{\infty} X_1(\omega)X_2^*(\omega)d\omega$ B) $\frac{1}{2\pi}\int_{\infty}^{\infty} X_1(\omega)X_2^*(\omega)d\omega$ C) $\frac{1}{2\pi}\int_{\infty}^{\infty} X_1^*(\omega)X_2^*(\omega)d\omega$ D) $2\pi\int_{\infty}^{\infty} X_1(\omega)X_2^*(\omega)d\omega$

40.The Fourier transform of $x_1(n)*x_2(n)$is (**IES EE 2013)** [ ]

A) X1(ω)X(ω) B)X1(ω)*X2(ω) C)X1(ω)*K2(ω) D)Does not exits

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