BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Diploma in Electronics & Communication Engineering

Course Name – Network Analysis

Course Code - DECE301

Semester / Year - Semester III

Time allotted : 75 Minutes Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 60=60

1. *(Answer any Sixty)*

(i) Unit of inductance is _____

a) Weber b) Henry

c) Farad d) Tesla

(ii) In a circuit with more number of loops, which law can be best suited for the analysis?

a) KCL b) Ohm’s law

c) KVL d) None of the mentioned

(iii) Kirchhoff’s Current law is based on law of conservation of

a) energy b) momentum

c) mass d) charge

(iv) A semiconductor diode is an _____ element.

a) Bilateral b) Unilateral

c) Active d) Passive

(v) Example of distributed element is _____.

a) Resistor b) Thermistor

c) Semiconductor diode d) Transmission lines

(vi) Potential difference in electrical terminology is known as?

a) Voltage
b) Current
c) Resistance
d) Conductance

(vii) If the voltage-current characteristics are a straight line through the origin, then the element is said to be?

a) Linear element
b) Non-linear element
c) Unilateral element
d) Bilateral element

(viii) For a voltage source to be neglected, the terminals across the source should be

a) replaced by inductor
b) short circuited
c) replaced by some resistance
d) open circuited

(ix) In case of ideal current sources, they have

a) zero internal resistance
b) low value of voltage
c) large value of current
d) infinite internal resistance

(x) A practical current source can also be represented as

a) a resistance in parallel with an ideal voltage source
b) a resistance in parallel with an ideal current source
c) a resistance in series with an ideal current source
d) none of the mentioned

(xi) Which of the following is true about an ideal voltage source?

a) zero resistance
b) small emf
c) large emf
d) infinite resistance

(xii) A dependent source

a) is always a voltage source
b) may be a current source or a voltage source

c) is always a current source
d) none of the mentioned

(xiii) An electric current of 10 A is the same as

a) 10 J/C
b) 10 V/C
c) 10C/sec
d) 10 W/sec

(xiv) Consider a circuit with two unequal resistances in parallel, then

a) large current flows in large resistor
b) current is same in both
c) potential difference across each is same
d) smaller resistance has smaller conductance

(xv) In which of the following cases is Ohm's law not applicable?

a) Electrolytes
b) Arc lamps
c) Insulators
d) Vacuum ratio values

(xvi) Conductance is expressed in terms of

a) mho
b) mho/m
c) ohm/m
d) m/ohm

(xvii) In Superposition theorem, while considering a source, all other voltage sources are?

a) open circuited
b) short circuited
c) change its position
d) removed from the circuit

(xviii) In Superposition theorem, while considering a source, all other current sources are?

a) open circuited
b) short circuited
c) change its position
d) removed from the circuit

(xix) Resistivity of a wire depends on

a) length of wire
b) cross section area

c) material
d) all of the mentioned

(xx) Three resistance 14.5 ?, 25.5 ? and 60 ? are connected in series across 200 V. What will be the voltage drop across 14.5 ?

a) 29 V
b) 10
c) 19
d) 39

(xxi) While considering Reciprocity theorem, we consider ratio of response to excitation as ratio of?

a) voltage to voltage
b) current to current
c) voltage to current
d) None of these

(xxii) Reciprocity Theorem is applied for _____ networks.

a) Linear
b) Bilateral
c) Linear bilateral
d) Lumped

(xxiii) Resistance of a wire is directly proportional to its

a) Length
b) Diameter
c) Area of cross section
d) All of these

(xxiv) If three resistance (R1, R2 & R3) are connected in series then Where V=Potential difference, I=Current

a) V = I/R1 + I/R2 + I/R3
b) V = IR1 + IR2 + IR3
c) I = VR1 + VR2 + VR3
d) I = V/R1 + V/R2 + V/R3

(xxv) The dual pair of current is?

a) current source
b) capacitance
c) conductance
d) voltage

(xxvi) In a series R-L circuit, VL___VR by ___ degrees.

a) lags,45
b) lags,90

c) leads,90 d) leads,45

(xxvii) In a series RLC circuit at resonance, the magnitude of the voltage developed across the capacitor

a) is always zero

b) can never be greater than the input voltage

c) can be greater than the input voltage, and is in phase with the input voltage

d) can be greater than the input voltage, however, it is 90 degree out of phase with the input voltage

(xxviii) The form factor is the ratio of

a) Peak value to r.m.s. value

b) Average value to r.m.s. value

c) r.m.s. value to average value

d) None of these

(xxix) In a R-L-C circuit

a) Power is consumed in resistance and is equal to IR

b) Exchange of power takes place between inductor and supply line

c) Exchange of power takes place between capacitor and supply line

d) All of these are correct

(xxx) As the impedance increases, the admittance _____

a) Increases

b) Decreases

c) Remains the same

d) Becomes zero

(xxxi) Quality factor-Q of a resonant circuit signifies:

a) Loss in the resonant circuit

b) Gain in the resonant circuit

c) Magnetic energy stored in the circuit

d) Electric energy stored in the circuit

(xxxii) At resonance, the capacitive energy is _____ inductive energy.

a) Greater than

b) Less than

c) Equal to

d) Depends on the circuit

(xxxiii) At resonance, the circuit appears _____

a) Inductive
b) Capacitive
c) Resistive
d) Either inductive or capacitive

(xxxiv) Find the Q factor when the voltage across the inductor is 2000V and the source voltage is 100V.

a) 10
b) 20
c) 30
d) 40

(xxxv) At resonance condition, the voltage across the capacitor and inductor is _____ the source voltage.

a) Greater than
b) Less than
c) Equal to
d) Much less than

(xxxvi) Form factor for a sine wave is

a) 1.414
b) 0.707
c) 0.637
d) 1.11

(xxxvii) In selective circuits, the resonant frequency lies in the _____ of the bandwidth frequency range.

a) Beginning
b) End
c) Midpoint
d) Cannot be determined

(xxxviii) What is the Q factor of a selective circuit?

a) Very low
b) Very high
c) Zero
d) Infinity

(xxxix) In an A.C. circuit power is dissipated in

a) Resistance only
b) Inductance only
c) Capacitance only
d) None of these

(xl) In R-L-C series resonant circuit magnitude of resonance frequency can be changed by changing the value of

a) R only
b) L only
c) C only
d) L or C

(xli) In three phase system, the three voltages (currents) differ in phase by _____electrical degrees from each other in a particular sequence.

a) 30
b) 60
c) 90
d) 120

(xlii) In a three phase alternator, there are _____ independent phase windings or coils.

a) 1
b) 2
c) 3
d) 4

(xliii) In wye or star connection, _____ of the three phases are joined together within the alternator.

a) similar ends
b) one similar end, two opposite ends
c) opposite ends
d) one opposite end, two opposite ends

(xliv) In the Delta connection, there will be _____ number of common terminals.

a) 0
b) 1
c) 2
d) 3

(xlv) The relation between line voltage and phase voltage in Delta connection is?

a) Vphase >Vline
b) Vphase <Vline
c) Vphase = Vline
d) Vphase >= Vline

(xlvi) The relation between VRY ,Vph in a star connected system is

a) VRY =Vph
b) VRY =?3Vph

c) VRY =3?3Vph
d) VRY =3Vph

(xlvii) The voltages, VBR ,Vph are related in star connected system is?

a) VBR =3Vph
b) VBR =3?3Vph
c) VBR =?3Vph
d) VBR =Vph

(xlviii) In a delta-connected system, the currents IR = IB = IY =?

a) IPh
b) 2IPh
c) ?3IPh
d) 4IPh

(xlix) A filter which passes without attenuation all frequencies up to the cut-off frequency fc and attenuates all other frequencies greater than fc is called?

a) high pass filter
b) low pass filter
c) band elimination filter
d) band pass filter

(l) A filter that passes all frequencies lying outside a certain range, while it attenuates all frequencies between the two designated frequencies is called?

a) high pass filter
b) band elimination filter
c) band pass filter
d) low pass filter

(li) The ratio of transform voltage to the transform current is defined as _____ of the resistor.

a) transform voltage
b) transform current
c) transform impedance
d) transform admittance

(lii) The ratio of transform current to the transform voltage is defined as _____ of the resistor.

a) transform admittance
b) transform impedance
c) transform current
d) transform voltage

(liii) The ratio of voltage transform at first port to the voltage transform at the

second port is called?

a) Voltage transfer ratio
b) Current transfer ratio
c) Transfer impedance
d) Transfer admittance

(liv) The ratio of the current transform at one port to current transform at other port is called?

a) Transfer admittance
b) Transfer impedance
c) Current transfer ratio
d) Voltage transfer ratio

(lv) The ratio of voltage transform at first port to the current transform at the second port is called?

a) Voltage transfer ratio
b) Transfer admittance
c) Current transfer ratio
d) Transfer impedance

(lvi) Two ports containing no sources in their branches are called?

a) active ports
b) passive ports
c) one port
d) three port

(lvii) In a circuit, find the value of IR.

a) 0
b) V/I
c) V
d) Cannot be determined

(lviii) Power in a Three Phase Circuit =

a) P = 3 VPh IPh Cos?
b) P = ?3 VL IL Cos?
c) Both P = 3 VPh IPh Cos? & P = ?3 VL IL Cos?
d) None of These

(lix) In a star connected system, the phasors VRN , VYN are ____ apart.

a) 15?
b) 30?
c) 45?
d) 60?

(lx) In delta-connected system, the currents IR , IY , IB are equal in magnitude and they are displaced by _____ from one another.

a) 0?

b) 60?

c) 90?

d) 120?