

MCQ on NT,3rd sem EE

1. A passive network

- a) Has no current source
- b) Has no e.m.f. source
- c) Has neither of the above
- d) Has either of the above

Ans: (b)

2.If an electrical network having one or more than one voltage sources is transformed into equivalent electrical network with a single voltage source (which is open circuit voltage of previous circuit) with series internal resistance of the network with all voltage sources replaced by their internal resistances.

The above illustration is called

- a) Reciprocity theorem
- b) Thevenin's theorem
- c) Superposition theorem
- d) Duality

Ans: (b)

3. In the circuit given below, the ammeter reads 0.1 ampere and voltmeter 10 volts. The internal resistance of the ammeter is 1 ohm and that of voltmeter is 500 ohms. What is the value of R?

- a) 110 ohms
- b) 120 ohms
- c) 115 ohms
- d) 112.5 ohms
- e) 125 ohms

Ans: (e)

MCQ on NT,3rd sem EE

4. In the circuit given below the power factor will be

- a) Lagging
- b) Leading
- c) Zero
- d) Unity,

Ans: (b)

5. If $a = 4 \angle 20^\circ$ and $b = 2 \angle 10^\circ$ then the value of a/b , will be :

- a) $2 \angle 10^\circ$
- b) $2 \angle 30^\circ$
- c) $2 \angle -10^\circ$
- d) $2 \angle 20^\circ$

Ans: (a)

6. The conjugate of the complex quantity $(a + jb)$ will be

- a) $-a - jb$
- b) $-a + jb$
- c) $A - jb$
- d) $Ja - b$

Ans: (c)

7. Mass in the MKS unit system is analogous to

- a) Resistance
- b) Voltage
- c) Inductance
- d) Capacitance

Ans: (d)

MCQ on NT,3rd sem EE

8. A damped oscillation has the equation $I = 50 e^{-10t} \sin 628 t$. What will be the frequency of a oscillation?

- a) 50 Hz
- b) 75 Hz
- c) 100 Hz
- d) 60 Hz

Ans: (c)

9. In a loss-free R-L-C circuit the transient current is

- a) Sinusoidal
- b) Oscillating
- c) None-oscillating
- d) Square wave

Ans: (a)

10. A 0.5-meter-long conductor carrying a current of 2 amperes is placed in a magnetic field having the flux density of 0.05 wb/m^2 . What will be the amount of force experienced by the conductor?

- a) 1 New
- b) 2 New
- c) 0.05 New
- d) 0.5 New

Ans: (c)

11 Two parallel conductors carry the same current in the same direction. What kind of mutual force they will experience?

- a) Repulsion
- b) Attraction
- c) Zero

MCQ on NT,3rd sem EE

d) Either (a) or (b)

Ans: (b)

12. Which of the following statement is correct?

- a) The flow of current in the electric circuit involves discontinuous expenditure of energy.
- b) The flow of current in the electric circuit requires energy for creating the current but not to maintain it.
- c) In the magnetic circuit energy is needed continuously to maintain the flux.
- d) In the magnetic circuit energy is needed for creating the flux initially but not to maintain it.

Ans: (c)

13. If a coil has a resistance of 10 ohms and an inductance of 1 H, what will be the value of current 0.1 second after switching on a 500 V d.c. supply?

- a) 6.32 A
- b) 3.16 A
- c) 3.7 A
- d) 4.0 A

Ans: (b)

14 The r.m.s. value of an alternating current is given by steady (d.c) current which when flowing through a given circuit for given time produces

- a) The same heat as produced by a.c. when flowing through the same circuit
- b) The less heat than produced by a.c. when flowing through the same

MCQ on NT,3rd sem EE

circuit

- c) The more heat than produced by a.c. when flowing through the same circuit
- d) 14.4 calories

Ans: (a)

15. In case of an unsymmetrical alternating current the average value must always be taken over

- a) The half cycle
- b) The whole cycle
- c) Unsymmetrical part of the waveform
- d) The quarter cycle

Ans: (b)

16) 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

ANSWER: (c) 1

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

- a. Reactance
- b. Susceptance
- c. Resistance
- d. All of the above

ANSWER: (b) Susceptance

18) Which among the following condition is true at the resonance?

MCQ on NT,3rd sem EE

- a. $X_c > X_L$
- b. $X_c = X_L$
- c. $X_c < X_L$
- d. None of the above

ANSWER: (b) $X_c = X_L$

19) In any linear network, the elements like inductor, resistor and capacitor always _____

- a. Exhibit changes due to change in temperature
- b. Exhibit changes due to change in voltage
- c. Exhibit changes due to change in time
- d. Remains constant irrespective of change in temperature, voltage and time

ANSWER: (d) Remains constant irrespective of change in temperature, voltage and time

20) Which law plays a significant role in the loop analysis of the network?

- a. KCL
- b. KVL
- c. Law of Superposition Theorem
- d. None of the above

ANSWER: (b) KVL

21) How is the loop analysis different in application/functioning level as compared to Kirchoff's law?

- a. Utilization of loop currents instead of branch currents for writing equations
- b. Capability of branch current to carry multiple networks
- c. Reduction in the number of unknowns for complex networks
- d. All of the above

ANSWER: (d) All of the above

22) Which theorem assists in replacement of an impedance branch over the network by the other network comprising different circuit components, without affecting the V-I relations throughout the entire network?

MCQ on NT,3rd sem EE

- a. Superposition Theorem
- b. Compensation Theorem
- c. Substitution Theorem
- d. Maximum Power Transfer Theorem

ANSWER: (a) Substitution Theorem

23) What should be done, if the dependent current and voltage sources are present in a circuit while applying ‘Superposition Theorem’?

- a. Replace them by open circuit
- b. Replaced them by short circuit
- c. Keep in their original form without replacing by either open or short circuits
- d. None of the above

ANSWER: Keep in their original form without replacing by either open or short circuits

24) Which is the correct sequential order of steps to be undertaken while applying Thevenin’s theorem?

- A. Calculation of Thevenin’s equivalent voltage
- B. Removal of branch impedance through which required current is to be estimated
- C. Estimation of equivalent impedance between two terminals of the branch
- D. Estimation of branch current by schematic representation of Thevenin’s equivalent circuit

- a. A, C, B, D
- b. B, A, C, D
- c. D, A, C, B
- d. B, C, D, A

ANSWER: B, A, C, D

25. The superposition theorem is applicable to

- (A) Voltage only
- (B) Current only

MCQ on NT,3rd sem EE

- (C) Both current and voltage
 - (D) Current, voltage and power
-

26. Superposition theorem can be applied only to circuits having

- (A) Resistive elements
 - (B) Passive elements
 - (C) Nonlinear elements
 - (D) Linear bilateral elements
-

27. For a voltage source

- (A) Terminal voltage is always lower than source e.m.f.
 - (B) Terminal voltage cannot be higher than source e.m.f.
 - (C) The source e.m.f. and terminal voltage are equal
 - (D) None of these
-

28. “Any number of current sources in parallel may be replaced by a single current source whose current is the algebraic sum of individual currents and source resistance is the parallel combination of individual source resistances”.

The above statement is associated with

- (A) Thevenin’s theorem
- (B) Millman’s theorem
- (C) Maximum power transfer theorem
- (D) None of the above

29. For high efficiency of transfer of power, internal resistance of the source should be

- (A) Equal to the load resistance
 - (B) Less than the load resistance
 - (C) More than the load resistance
 - (D) None of the above
-

30. For maximum transfer of power, internal resistance of the source should be

- (A) Equal to load resistance
 - (B) Less than the load resistance
 - (C) Greater than the load resistance
 - (D) None of the above
-

31. In a series parallel circuit, any two resistances in the same current path must be in

- (A) Series with each other
 - (B) Parallel with each other
 - (C) Series with the voltage source
 - (D) Parallel with the voltage source
-

32. Application of Norton's theorem to a circuit yields

MCQ on NT,3rd sem EE

- (A) Equivalent current source and impedance in series
 - (B) Equivalent current source and impedance in parallel
 - (C) Equivalent impedance
 - (D) Equivalent current source
-

33. In Thevenin's theorem, to find Z

- (A) All independent current sources are short circuited and independent voltage sources are open circuited
 - (B) All independent voltage sources are open circuited and all independent current sources are short circuited
 - (C) All independent voltage and current sources are short circuited
 - (D) All independent voltage sources are short circuited and all independent current sources are open circuited
-

34. Choose the incorrect statement.

- (A) A branch formed by the parallel connection of any resistor R and open circuit has the characteristic of an open circuit
- (B) A branch formed by the parallel connection of any resistor R and a short circuit has the characteristic of a short circuit
- (C) A branch formed by the series connection of any resistor R and an open circuit has the characteristic of an open circuit
- (D) A branch formed by the series connection of any resistor R and a short circuit has the characteristic of resistor R

35. To neglect a voltage source, the terminals across the source are

MCQ on NT,3rd sem EE

- A. Open-circuited
- B. Short-circuited
- C. Replaced by some resistance
- D. Replaced by inductor

36. For determining the polarity of a voltage drop across a resistor, it is necessary to know the

- A. Value of resistor
- B. Value of current
- C. Direction of current flowing through the resistor
- D. Value of e.m.f. in the circuit

37. A dependent source

- A. May be a current source or a voltage source
- B. Is always a voltage source
- C. Is always a current source
- D. Neither a current source nor a voltage source

38. Ideal voltage source have

- A. Zero internal resistance
- B. Infinite internal resistance
- C. Low value of current
- D. Large value of e.m.f.

MCQ on NT,3rd sem EE

39. Ideal current source have

- A. Zero internal resistance
- B. Infinite internal resistance
- C. Low value of voltage
- D. Large value of current

40. Star circuit has element of resistance $R/2$. The equivalent delta elements will be

- A. $R/6$
- B. $3/2 R$
- C. $2R$
- D. $4R$

41. A delta circuit has each element of value $R/2$. The equivalent elements of the star circuit will be

- A. $R/6$
- B. $R/3$
- C. $2R$
- D. $3R$

42. In a series parallel circuit, any two resistance in the same current path must be in

MCQ on NT,3rd sem EE

- A. Series with each other
- B. Parallel with each other
- C. Series with the voltage source
- D. Parallel with the voltages source

43. Kirchhoff's laws are valid for

- A. Linear circuits only
- B. Passive time invariant circuits
- C. Nonlinear circuits only
- D. Both the linear and nonlinear circuits only

44. Kirchhoff's laws are not applicable to circuits with

- A. Distributed parameters
- B. Lumped parameters
- C. Passive elements
- D. Non-linear resistances

45 Three equal resistances are connected in star. If this star is converted into equivalent delta, the resistance of both the networks will be.....

- A. Equal
- B. Zero
- C. Vive-versa
- D. None of the above

MCQ on NT,3rd sem EE

46. Two ideal voltage sources of unequal output voltages cannot be placed in.....

- A. Series
- B. Parallel
- C. Both series and parallel
- D. None of the above

47. Which of the following theorems can be applied to any network linear or non-linear, active or passive, time variant or time-invariant?

- A. Thevenin Theorem
- B. Norton Theorem
- C. Tellegen Theorem
- D. Superposition Theorem

48. The theorem that enables a number of voltage (or current) sources to be combined directly into a single voltage (or current) source is thetheorem

- A. Compensation
- B. Reciprocity
- C. Milliman's
- D. Maxwell's

MCQ on NT,3rd sem EE

49. Which of the following theorems is applicable for both linear and nonlinear circuits?

- A. Superposition
- B. Thevenin's
- C. Norton's
- D. None of these

50. The circuit having some properties in either direction is known ascircuit

- A. Bilateral
- B. Unilateral
- C. Irreversible
- D. Reversible