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Circuit Theorems and Conversions MCQ

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Q1. Conversions between delta-type and wye-type circuit arrangements are useful in certain specialized applications.

- **A. True**
- **B.** False

Q2. What is the values for an equivalent current source. When A certain voltage source has the values VS = 30 V and RS = 6 ?

- **A. 5 A, 6 Ω**
- **B.** 30 A, 6 Ω
- **C.** 5 A, 30 Ω
- **D.** 30 A, 5 Ω

Q3. An ideal current source has zero internal resistance.

- **A.** True
- **B. False**

Q4. A certain current source has the values IS = 4 μA and RS = 1.2 M. The values for an equivalent voltage source are ____.

- **A.** 4.8 V, 1.2 M Ω
- **B.** 1 V, 1.2 M Ω

- **C.** 4.8 V, 4.8 M Ω
- **D. 4.8 V, 1.2 M Ω**

Q5. A transistor is basically ____.

- **A. a current amplifier**
- **B.** a voltage source
- **C.** power
- **D.** None of the above

Q6. A 120 V voltage source has a source resistance RS, of 60 Ω . The equivalent current source is ___.

- **A. 2 A**
- **B.** 4 A
- **C.** 200 mA
- **D.** 400 mA

Q7. A 120 ? load is connected across an ideal voltage source with VS = 12 V. The voltage across the load is ____.

- **A.** 0 V
- **B.** 120 V
- **C. 12 V**
- **D.** None of the above

Q8. You cannot convert a voltage source to an equivalent current source, or vice versa.

- **A. False**
- **B.** True

Q9. Some circuits require more than one voltage or current source.

- **A. True**
- **B.** False

Q10. An ideal current source has ___ in parallel with the source.

- **A. an infinite output impedance**
- **B.** zero internal resistance
- **C.** zero internal impedance
- **D.** None of the above

Q11. What is Norton's equivalent current?

- **A. The current source present in the Norton's equivalent circuit is called as Norton's equivalent current.**
- **B.** The current source present in the circuit is called as Norton's equivalent current.
- **C.** The voltage source present in the Norton's equivalent circuit is called as Norton's equivalent current.
- **D.** All of the above

Q12. A practical current source has a finite internal resistance.

- **A. True**
- **B.** False

Q13. A practical voltage source has a nonzero internal resistance.

- **A. True**
- **B.** False

Q14. The Thevenin-equivalent voltage is the voltage at the output terminals of the original circuit.

- **A. True**
- **B.** False

Q15. A certain voltage source has the values VS = 30 V and RS = 6 ?. The values for an equivalent current source are ___.

- **A. 5 A, 6 ?**
- **B.** 30 A, 6 ?

- **C.** 5 A, 30 ?
- **D.** 30 A, 5 ?

Q16. A 2 ? RL is connected across a voltage source, VS, of 110 V. The source's internal resistance is 24 ?. What is the output voltage across the load?

- **A. 8.5 V**
- **B.** 85 V
- **C.** 0 V
- **D.** 110 V

Q17. The current source is converted into the equivalent voltage source:

- **A. $V_S=I_SR_S$**
- **B.** $V_S=I_S/R_S$
- **C.** $V^2_S=I_SR_S$
- **D.** None of the above

Q18. Superposition works for voltage and current but not power.

- **A. True**
- **B.** False

Q19. The superposition theorem is applicable to:

- **A.** linear, non-linear and time variant responses
- **B.** linear and non-linear resistors only
- **C. linear responses only**
- **D.** none of the above

Q20. A voltage source having an open-circuit voltage of 100 V and internal resistance of 50 ? is equivalent to a current source:

- **A. 2 A in parallel with 50 ?**
- **B.** 2 A with 50 ? in series
- **C.** 0.5 A in parallel with 50 ?
- **D.** A in parallel with 100 ?