

*BEST BMET  
CBET STUDY GUIDE  
MODULE ONE*

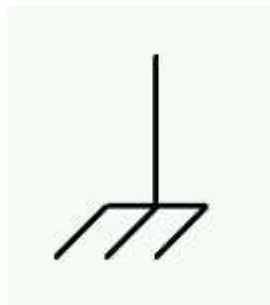


*1 OCTOBER, 2008*

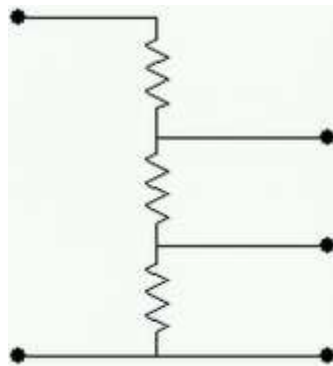
1. The phase relation for pure capacitance is
  - a. current leads voltage by 90 degrees
  - b. current leads voltage by 180 degrees
  - c. current lags voltage by 90 degrees
  - d. current lags voltage by 45 degrees
  
2. The total inductance of a 2.0 henry and a 3.0 henry coil connected in parallel with no mutual induction is
  - a. 0.2 henry
  - b. 1.2 henrys
  - c. 2.5 henrys
  - d. 5.0 henrys
  
3. In series-tuned LC circuits at resonance
  - a. the voltage across the capacitor may be several times the voltage applied across the series-tuned circuit
  - b. the circuit impedance is maximum
  - c. the circuit current is minimum
  - d. all of the above
  
4. The approximate low-frequency cutoff point for an RC coupled amplifier with an input resistance of 2500 ohms and a 0.1  $\mu\text{F}$  input coupling capacitor is
  - a. 5 Hz
  - b. 63 Hz
  - c. 250 Hz
  - d. 637 Hz
  - e. none of the above
  
5. The approximate resonant frequency of a tank circuit using a 600  $\mu\text{H}$  inductor and a 200 pF capacitor is
  - a. 460 kHz
  - b. 120 kHz
  - c. 30 kHz
  - d. 14.5 kHz
  - e. none of the above
  
6. The transformer turns ratio will match an 8100 ohm output impedance to a 900 ohm load is
  - a. to 190
  - b. to 130
  - c. to 13
  - d. to 1
  - e. none of the above

7. The peak-inverse voltage rating for a diode refers to the maximum the
- cathode can be more positive than the anode potential
  - anode can be more positive than the cathode potential
  - cathode can be more positive than ground
  - anode can be more positive than ground
8. Electric current can flow through
- conductors and semiconductor materials
  - liquids
  - gases
  - all of the above
  - only a and b above
9. The circuit resistance of a 20,000 ohm/volt meter when used on the 100 volt range is
- 200 ohms
  - 20,000 ohms
  - 200,000 ohms
  - 2 megohms
  - 20 megohms
10. Three capacitors, with values of 6.0 uF, 3.0 uF, and 2.0 uF, are connected in series across 100 VDC. When fully charged, the voltage across the 2.0 uF capacitor will be
- 18.2 volts
  - 33.3 volts
  - 45.5 volts
  - 50.0 volts
  - 100 volts
11. The total resistance of 8 ohms, 12 ohms, and 24 ohms connected in parallel is approximately
- 44 ohms
  - 14.67 ohms
  - 12 ohms
  - 5.12 ohms
  - 4 ohms
12. A capacitive filter outputs 4 mA into a 2000 ohm load. If the ripple is 5%, the RMS value of the ripple is about
- 0.14 volt
  - 0.4 volt
  - 1.1 volt
  - 8 volts
  - none of the above

13. If a step voltage is applied to a capacitor (C) through a series resistor (R), it will charge to 87% of the applied voltage in a time equal to about
- a.  $1RC$
  - b.  $2RC$
  - c.  $4RC$
  - d.  $8RC$
14. A resistor with blue, white, green, and silver bands has a resistance of
- a.  $6,900,000 \text{ OHMS} \pm 10\%$
  - b.  $500 \text{ OHMS} \pm 10\%$
  - c.  $6.85 \text{ OHMS}$
15. A good 1.2 watt light bulb is placed across a 12-volt battery. How much resistance does the bulb have?
- a.  $10 \text{ OHMS}$
  - b.  $120 \text{ OHMS}$
  - c.  $144 \text{ OHMS}$
  - d.  $1.2 \text{ OHMS}$
16. If 16 watts are dissipated in a closed circuit consisting of a battery in series with a single 4-OHM resistor, what are the current and applied voltage?
- a. 1 A, 16 volts
  - b. 0.25 A, 1 volt
  - c. 4A, 16 volts
  - d. 2A, 8 volts
17. Refer to the pages of drawings and schematics; see Drawing 1. The following symbol stands for
- a. earth ground
  - b. chassis ground
  - c. air ground
  - d. positive potential



18. In any given series circuit containing two or more resistors, if one of the resistors is replaced with another of higher value resistance, the voltage drop across the resistor with higher resistance will
- increase
  - decrease
  - stay the same
  - fall to zero
19. When solving series-parallel networks, the most appropriate technique is to
- reduce parallel circuit clusters with parallel law
  - use series laws to reduce elements to minimum series elements
  - find the total current from the total equivalent series resistance
  - solve the circuit from right to left
20. Refer to the pages of drawings and schematics; see Drawing 2. The series resistor network of A through E in the circuit below is known as a
- voltage divider
  - open circuit
  - series-parallel network
  - parallel-series network



21. The algebraic sum of all voltages in a closed loop equals zero is
- to be used only for Norton's circuit analysis
  - to be used only for parallel circuit analysis
  - an alternative form of Kirchoff's current law
  - an alternative form of Kirchoff's voltage law

22. The type of source used in Norton's theorem is
- a voltage source
  - a current source
  - parallel resistor
  - a series source
23. The capacitive time constant is defined by
- $\tau = RC$
  - $\tau = R/C$
  - $\tau = C + R$
  - $\tau = L/C$  (Note:  $\tau$  = Greek tau)
24. The time constant for an RL circuit is 25 mS. If steady state current is flowing and the current is turned off, the current reaches 1% of it's final value (0) in
- 25 mS
  - 50 mS
  - 75 mS
  - 125 mS
25. What is the value of the inductor when the resonant frequency is 100 kHz and the capacitor value is 25 pF?
- 101 mH
  - 50 mH
  - 110 mH
  - 101 H
26. A forward biased diode made of germanium will have a voltage drop such that the anode will be
- positive with respect to the anode
  - negative with respect to the cathode
  - positive with respect to the cathode
  - negative with respect to the anode
27. In the power formula  $P = EI \cos \theta$  for an AC circuit, if  $\theta$  varies from 0 to 90 degrees,  $\cos \theta$  varies from
- 1 to infinity
  - 0 to infinity
  - 1 to 0
  - 0 to negative infinity
28. Load regulation is a measure of a power supply's ability to keep a constant output under conditions of changing
- input line voltage
  - load current demands
  - source effect
  - all of the above

