Which resistive component is designed to be temperature sensitive?

A. Thermistor

B. Rheostat

C. Potentiometer

D. Photoconductive cell

Answer: Option **A**

2. Batteries differ from fuel cells in that

A. a battery is a closed system

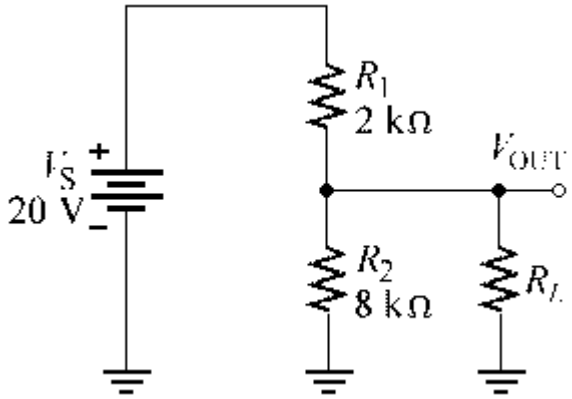
B. a battery uses hydrogen and oxygen to create electricity

C. a battery uses a polymer electrolyte membrane

D. none of the above

Answer: Option **A**

3.



If the load in the given circit is 120 kΩ , what is the loaded output voltage?

A. 4.21 V

B. 15.79 V

C. 16 V

D. 19.67 V

Answer: Option **B**

4. The ___ of a capacitor affects the time it takes to charge and discharge.

   A. package style

   B. lead arrangement

   C. plate area

   D. voltage rating

Answer: Option **C**

5. The secondary current in a transformer depends on the secondary voltage and load resistance values.

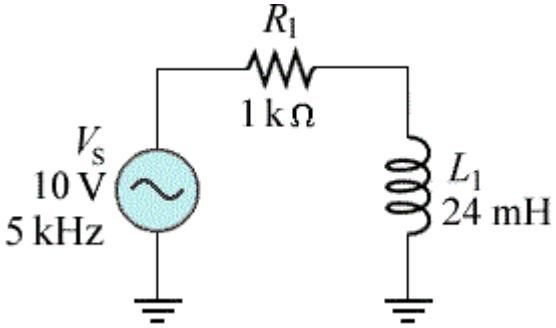
   A. True B. False

Answer: Option **A**

6. If a 7.5 kΩ resistance is connected to a 10 kΩ inductive reactance in a series *RL* circuit, then the impedance equals 12.5 kΩ .

   A. True B. False

Answer: Option **A**

7. 

   The voltage dropped across the resistor in the circuit in the given circuit is approximately equal to ___.

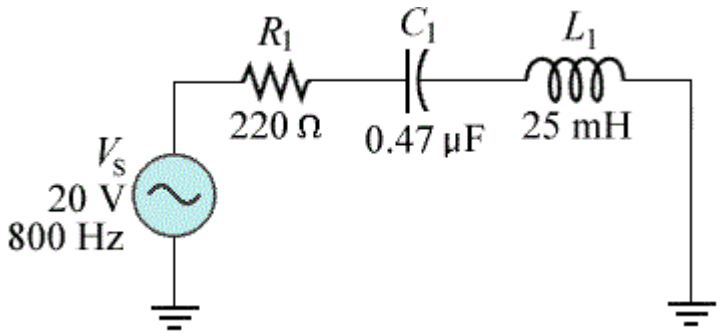
   A. 5 V

   B. 10 V

   C. 7.98 V

   D. 6.02 V

Answer: Option **C**

8. 

What is the impedance of the circuit in the given circuit?

A. 125.7 Ω

B. 297.6 Ω

C. 370.1 Ω

D. 423.3 Ω

Answer: Option **C**

9. If a periodic pulse waveform is applied to an *RC* differentiating circuit, which two conditions are possible?

A. $t_w \geq 5\tau$ or $t_w > 5\tau$

B. $t_w = 5\tau$ or $t_w > 5\tau$

C. $t_w \leq 5\tau$ or $t_w < 5\tau$

D. $t_w \geq 5\tau$ or $t_w < 5\tau$

Answer: Option **D**

10. A *pn* junction allows current flow when

A. the *p*-type material is more positive than the *n*-type material

B. the *n*-type material is more positive than the *p*-type material

C. both the *n*-type and *p*-type materials have the same potential

D. there is no potential on the *n*-type or *p*-type materials

Answer: Option **A**

11. The voltage produced by a thermocouple is called the _____.

A. hot junction voltage

B. cold junction voltage

C. Seebeck voltage

D. Hooke voltage

Answer: Option **C**

12. The six basic forms of energy are:

A. light, sun, magnetic, chemical, electrical, and mechanical

B. electrical, mechanical, light, heat, magnetic, and chemical

C. electrical, mechanical, sun, heat, chemical, and light

D. potential, sun, light, chemical, electrical, and mechanical

Answer: Option **B**

13. If the frequency of a radio wave is increased, then its wavelength will:

A. increase

B. decrease

C. remain the same

D. cannot tell

Answer: Option **B**

14. A bipolar junction transistor has ____ regions of operation.

A. 1 B. 2

C. 3 D. 4

Answer: Option **B**

15. A NAND gate consists of an AND gate and an OR gate connected in series with each other.

A. True B. False

Answer: Option **B**

16. Which of the following summarizes the important features of emitter-coupled logic (ECL)?

A. negative voltage operation, high speed, and high power consumption

B. good noise immunity, negative logic, high frequency capability, low power dissipation, and short propagation time

C. slow propagation time, high frequency response, low power consumption, and high output voltage swings

D. poor noise immunity, positive supply voltage operation, good low-frequency operation, and low power

Answer: Option **A**

17. A multiplexed display circuit uses a technique called time division modulation.

A. True B. False

Answer: Option **B**

18. Memory configuration refers to the organization of storage bits within a memory.

A. True B. False

Answer: Option **A**

19. The difference between analog voltage represented by two adjacent digital codes, or the analog step size, is the:

A. quantization B. accuracy

C. resolution D. monotonicity

Answer: Option **C**

20. A machine cycle is the time it takes a microprocessor to fetch and execute a complete instruction.

A. True B. False

Answer: Option **B**