

Tut-Sheet 1

Q1. Define Electronics.

Q2. What are the applications of electronics?

Q3. What are the modern trends in electronics?

Tut-Sheet 2

Topics Definition of Electronic Components: passive components: types of resistors: fixed (color coding) and variable, types of capacitors: mica, ceramic, paper, electrolytic and variable, inductor.

Q1 What are electronics components?

Q2. Differentiate between active and passive components.

Q3. Write the unit of resistance? If a resistor is rated at 1000Ω and $100W$, What is the maximum current it can carry?

Q4. Explain constructional features of a wire-wound resistor. What is the range of wattage for wire-wound resistors?

Q5. Explain in brief what is capacitor and inductor?

Q6. Name three primary use of capacitors?

Q7. Explain briefly the basic construction of a ceramic capacitor. What is the range of capacitance value available in ceramic capacitors?

Q8. Why are paper capacitors are not used in filters of rectifier power supplies?

Q9. While tuning your radio receiver to a desired station , which component inside the set are you varying?

Q10. When you adjust the volume control knob of your radio receiver , which component is varied inside the set?

Q11. What is trimmer capacitor? Describe the basic construction of a mica trimmer capacitor.

Q12. What is an inductor ? What is the unit of inductance?

Q13. Give some applications of inductors.

Q14. For what purpose can be transformer be used in an electronic circuit?

Q15. Name a few active components used in electronic circuits.

Q16. What is resistor? Explains all the types of resistors.

Q17. Explain all types of capacitors.

Q18. One of the examples of an active device is:

- a. an electric bulb
- b. a transformer
- c. a loud speaker
- d. a silicon controlled rectifier (SCR)

Q19. Which of the following is used as a passive component in electronic circuits?

- a. Resistor
- b. Transistor
- c. Zener diode
- d. Tunnel diode

Q20. The term IC as used in electronics, denotes:

- a. internal combustion
- b. integrated circuits
- c. industrial control
- d. Indian culture

Q21. A 100 μF is required in fabricating an electronic circuit. Such a large value of capacitance is possible if the capacitor is:

- a. a mica capacitor
- b. a ceramic capacitor
- c. an air-gang capacitor

d. an electrolytic capacitor

Q22. A resistor has a colour band sequence : brown, black, green and gold. Its value is:

- a. $1\text{k}\Omega \pm 10\%$
- b. $10\text{k}\Omega \pm 5\%$
- c. $1000\text{k}\Omega \pm 5\%$
- d. $1\text{M}\Omega \pm 10\%$

Q23. The colour bands on a fixed carbon resistors are: brown, red, and black. Its value is:

- a. 12Ω
- b. 120Ω
- b. 21Ω
- d. 210Ω

Q24. we need a resistor of value $47\text{k}\Omega$ with $+ 5\%$ tolerance. The sequence of the color band on this resistor should be:

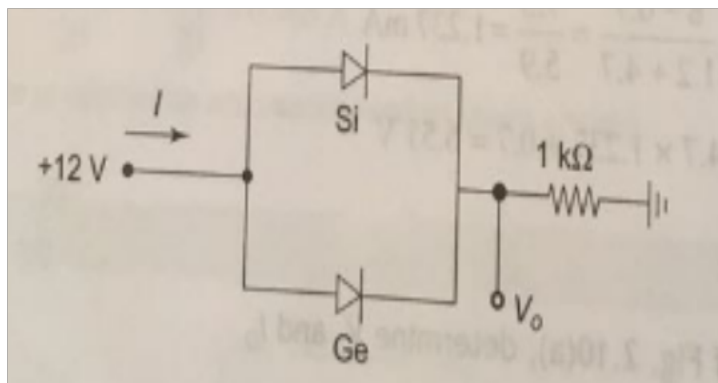
- a. yellow, violet, yellow and gold
- b. yellow, violet, orange and gold
- c. yellow, violet, orange and silver
- d. yellow, violet, brown and silver.

Tut-Sheet 3

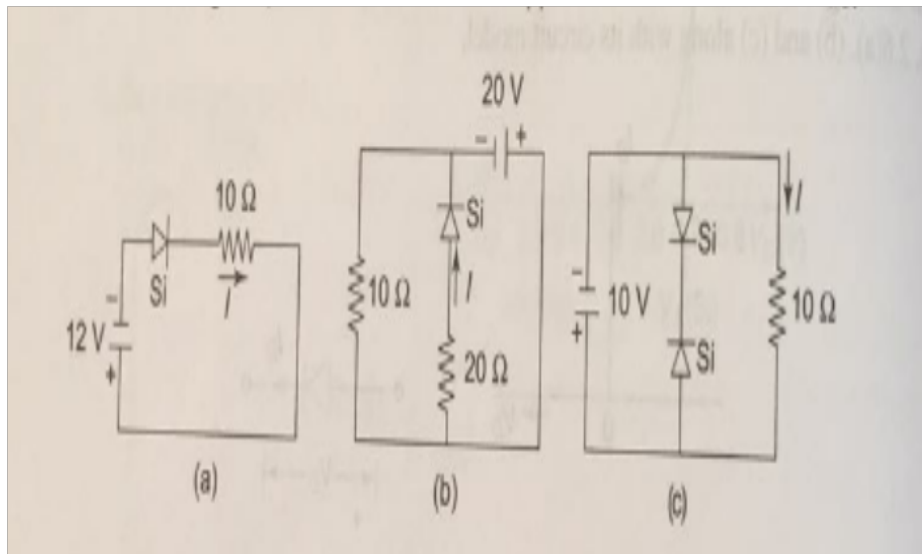
Q1. Classified all types of material according to the energy band? Draw their energy band diagram.

Q2. Explain working of PN junction diode in forward bias and reverse biased?

Q3. For the diode network, determine the output voltage V_o .



Q4. For the diode circuits, find the value of I , use approximate model of the diode.



Q5. Differentiate between N-type and P-type semiconductor.

Q6. Define semiconductors. Explain types of semiconductors.

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