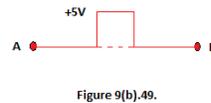
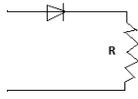
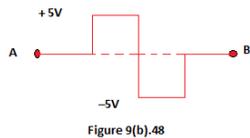


**Class: 12**  
**Subject: Physics**  
**Topic: Electronic Devices**  
**No. of Questions: 22**

1. The resistance of p-n junction is low when forward biased and is high when reverse biased. Explain.
2. Why are Si and GaAs preferred materials for solar cells?
3. How reverse current suddenly increases at the breakdown voltage in case of zener diode?
4. What will happen if emitter be reverse-biased and collector be forward biased in a transistor?
5. A transistor is current operated device. Explain.
6. Explain, why the input resistance of a transistor is low and output resistance is high.
7. How will you test in a simple way whether a transistor is spoiled or in working order?
8. Draw and explain the output waveform across the load resistor R, if the input wave form is as shown in Fig. 9(b).48.



9. In a transistor, forward bias voltage is always low as compared to reverse bias voltage. Why?
10. In a common emitter transistor circuit, a bulb B and a voltmeter V are connected as shown in fig. 9(b).51. What changes would take place in bulb B and voltmeter V when the value of resistance R is increased?

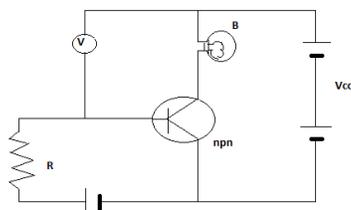


Figure 9(b).51.

11. In the emitter and base of a n-p-n transistor have same doping concentration, explain how will the collector and base currents be affected?
12. The gain of a common emitter amplifier is given by  $A_v = -g_m R_L$ . Does it mean that if we keep on increasing indefinitely  $R_L$ , the gain of the amplifier also increase indefinitely? Explain your answer.
13. In radio and television broadcast, the information signal is in the form of
  - A. analog signal
  - B. digital signal
  - C. both analog and digital signals
  - D. neither analog nor digital signal
14. Through which mode of communication can radio waves be sent from one place to another?
  - A. Ground wave propagation
  - B. Sky wave propagation
  - C. Space wave propagation
  - D. All of the above
15. Which mode of communication is employed to transmit very high frequency (VHF) and ultra high frequency (UHF) signals?
  - A. Ground wave propagation
  - B. Sky wave propagation
  - C. Space wave propagation
  - D. None of these
16. A receiving station on the ground is receiving a signal of frequency 5 MHz from a transmitter at a height of 300 m above the surface of the Earth (radius =  $6.4 \times 10^6$  m) at a distance of 100 km from the receiver. The signal is coming via
  - A. ground wave propagation
  - B. sky wave propagation
  - C. both ground wave and sky wave propagation
  - D. neither ground wave nor sky wave propagation
17. The addition of a minute quantity of antimony to a silicon crystal makes it
  - A. a good insulator
  - B. a good conductor
  - C. a p-type semiconductor
  - D. an n-type semiconductor

18. To obtain a p-type semiconductor germanium crystal, it must be doped with foreign atoms whose valency is
- A. 2
  - B. 3
  - C. 4
  - D. 5
19. A piece of copper and another of germanium are cooled from room temperature to 80 K. The resistance of
- A. each of them increases
  - B. each of them decreases
  - C. copper increases and that of germanium decreases
  - D. copper decreases and that of germanium increases
20. In a half-wave rectifier, the rms value of the ac component of the wave is
- A. equal to dc value
  - B. more than dc value
  - C. less than dc value
  - D. zero
21. In a typical transistor, the collector current is
- A. slightly less than the emitter current
  - B. slightly more than the emitter current
  - C. equal to the emitter current
  - D. equal to the base current
22. In a transistor, the value of the base current depends on
- A. base thickness only
  - B. bias voltages only
  - C. doping levels of emitter, base and collector only
  - D. all the above factors