Module 30 Unit 1 Task 2 Security Systems

1. What is the purpose of a security system? Protect property and people

2. What is deterrence and give an example? Ability to stop criminals from committing acts they may be considering (Warning decals)

3. What is Prevention and give an example? Physically limits the criminal (Fences and door locks)

4. What is Detection and give an example? Method of detecting an intruder (motion sensor, door contacts)

5. What are some examples of Response? Police or private guard, audible warning such as a siren

6. What is Apprehension? Authorities will apprehend the intruder and electronic may be used in identification. (security camera tape)

7. What is the “onion skin” approach to security? Layers of security

8. What is point-of-entry protection? Door contacts that sound an alarm and allows people to stay inside a protected area

9. What is space protection? Designed to detect the presence of persons within a specific area. Volumetric protection is cost effective and does not require anticipation of points of entry

10. What is spot protection? Third layer of protection (after perimeter and space) and protects and object. Used when space protection may not be effective or reasonable

11. What are the three circuits of a security alarm system? Detection, Control, and Output

12. Which part of the security system contains the digital timers? Control

13. Which part of a security system contains the auxiliary relay? Output

14. Which part of a security system contains the keypad? Control

15. Which part of a security system contains the holdup button? Detection

16. What are the two states of the devices in the detection circuit of a security system? Secure and Insecure or tripped
17. How are devices connected in a two-wire, closed-loop system? Series
18. What is the main disadvantage of the two-wire closed-loop security system? Doesn’t allow for electrical supervision if the wires are shorted
19. What is the main advantage of the two-wire with end-of-line resistor system? Allows for supervision of the circuit
20. Why is it necessary to install the end-of-line resistor after the last device in a security system circuit? To provide for short circuit as well as opens protection
21. Which type of devices can be connected to the four-wire loop security system? (Open or closed) Both
22. Which type of security system is best suited to window foil type detectors? Four-wire loop
23. What are the terminals on a detection device in a four-wire ULC security system? Common, Normally open and Normally closed
24. What are the two actions when a four-wire ULC device activates? High loop is opened and it is also shorted to the low loop
25. What is the main advantage of the four-wire ULC system over the four-wire loop? Added protection against tampering
26. Where is the switch part of a door contact typically mounted? Door frame
27. Where is the magnet part of a door contact typically mounted? In or on the door
28. What is a “reed” switch and how does it operate? Two slivers of metal in a hermetically sealed glass tube made with tension to keep them apart. In the presence of a magnetic field they will be attracted to each other
29. What is the maximum amperage rating of most reed switches? 250 mA
30. Which type of door is not well suited to use with reed switches? Steel
31. What factor has made the PIR motion detector increasingly popular? Reduced cost
32. What is the term used to describe a detector that does not emit a signal? Passive
33. What is a “pyroelectric element”? Semiconductor device that undergoes a change in resistance when exposed to infrared energy
34. What is the purpose of the “walk-test light” on a PIR detector? Allow for setting the coverage area.

35. How are detection patterns changed on PIR detectors? Moving the mirror and lense.


37. List three disadvantages of PIR detectors. 1. Affected by heaters, ducts, fans, reflective surfaces, areas of sunlight, and sources of white light 2. Detection area can be blocked 3. Range depends somewhat on ambient temperature.

38. How do ultrasonic detectors operate? Emit sound waves that react to Doppler shift as they bounce off objects in the protected area.

39. What is Doppler shift? Relative movement between the sound source and the observer.

40. How do microwave detectors operate? Emit microwave radiation that reacts to Doppler shift as they bounce off objects within the protected area.

41. What are two advantages of microwave detectors? 1. Higher frequency passes through most materials allowing for protection outside the main area 2. Unaffected by ambient temperatures which may trigger an alarm in PIR or ultrasonic detectors.

42. Which detectors are subject to interference between two units? Ultrasonic and Microwave.

43. Which detector is most affected by the reflective properties of water? Microwave.

44. What is the advantage of dualtechs? Two sensing methods for greater reliability.

45. Which two detector technologies are used together for most dualtechs? PIR/Microwave.

46. What are some advantages and disadvantages of photobeam detectors? Advantages 1. Indoor and outdoor use 2. Consistent pattern easily kept from hazards Disadvantages 1. Expensive 2. Difficult to install.

47. How does a photobeam detector operate? Two parts are transmitter and receiver. Transmitter sends out an infrared beam that is sensed by the receiver. If it is broken, it will trigger the device.
48. How is the signal in a photobeam detector protected against tampering? Coded signal that is recognized by the receiver

49. What is the range of a photobeam detector? Up to 2 km

50. What are the two types of glassbreak detectors? Audio and shock

51. What is an audio glass break sensor actually looking for? Frequency of the noise to match that of glass breaking

52. Where are audio detectors typically mounted? Frame near the glass or ceiling away from the glass

53. What are some sounds that can trigger false alarms for audio glassbreak detectors? Squeeks, animal noises, metal scraping, loud stereos, and dropped plates

54. Which type of glassbreak sensor has a piezoelectric crystal? Both

55. What is the function of the control panel? React to changes in the detection circuit and provide changes to the output circuits

56. How is information changed in an EEPROM? Overwritten

57. How does a panel react when it is armed? Allows an exit delay before activating any alarms

58. What are some common sources of trouble signals? Opens, grounds, blown fuses, loss of AC power, low battery

59. What is alarm memory for a security system? Will display the devices responsible for the most recent alarms

60. How is information transmitted from the digital dialer to the receiver at the monitoring station? Digital codes

61. Other than the digital dialer, what are some other types of communication? DVACS, radio waves, cellular