

# RCDD Design and Implementation Exam

1. Time division multiplexing (TDM) systems are designed to transport \_\_\_\_\_ between end point systems.

A. Only analog signals

B. Only digital signals

C. A mix of both analog and digital signals

D. Both analog and digital signals, but only one type at a time

**Answer(s): B**

---

2. You must place CAT6 cable above a factory floor with automated welding machines and hammer forges. Of the following, what type of shielding would be most effective?

A. Multi-layer braid

B. Foil and braid

C. Solid metallic conduit

D. Flex metallic conduit

E. Sch. 40 PVC conduit

**Answer(s): C**

---

3. Optical transmitters are typically one of the following types EXCEPT:

A. Light-emitting diode (LED)

B. Short wavelength laser compact disc (CD)

C. Vertical cavity surface emitting laser (VCEL)

D. Laser diode (LD)

E. Overfilled launch (OFL)

**Answer(s): E**

---

4. Two sinusoidal signals have the same amplitude ( $A$ ) and the same frequency ( $f$ ). They differ in phase by 180 degrees. If these two signals are added together, the result is a sinusoidal signal having an amplitude of:

A. Zero

B.  $0.707A$  and a frequency of  $f$

C.  $A$  and a frequency of  $2f$

D.  $2A$  and a frequency of  $f$

E.  $2A$  and a frequency of  $2f$

**Answer(s): A**

---

5. Which characteristic is an advantage of copper based media over optical fiber cable?

A. Weight

B. Corrosion resistance

C. Ability to handle analog signals

D. Susceptibility to EMI

E. Very high data rates

**Answer(s): C**

---

6. You must place a cable between 2 equipment locations with separate grounds having a potential difference between them of 2.1 V rms. Which one of the following cables should NOT be used?

A. Multimode

B. Singlemode

C. UTP

D. STP

**Answer(s): D**

---

7. A SONET OC-1 channel can carry 672 voice signals and has a data rate of 51.84 Mbps. A SONET OC-48 channel can carry 32,256 voice channels. What MINIMUM data rate is required for the OC-48 channel?

A. 155 Mbps

B. 622 Mbps

C. 2.5 Gbps

D. 5 Gbps

E. 10 Gbps

**Answer(s): C**

---

8. A video camera has a coaxial cable output. The video signal is to be distributed to devices that have balanced twisted pair inputs. The transition between these two different transmission media can be accomplished by using a:

A. Balun

B. Converter

C. Modulator

D. Cross connect

E. Transceiver

**Answer(s): A**

---

9. All of the following are nominal wavelengths for laser light sources EXCEPT:

A. 700 nm

B. 850 nm

C. 1300 nm

D. 1310 nm

E. 1550 nm

**Answer(s): A**

---

**10.** Wave division multiplexing (WDM) is most similar to:

A. Amplitude modulation

B. Frequency modulation

C. Time division multiplexing

D. Frequency division multiplexing

E. Carrier sense multiple access with collision detection (CSMA/CD)

**Answer(s): D**

---

**11.** The conversion of an analog speech signal to a pulse code modulation (PCM) digital signal involves all of the following steps EXCEPT:

A. Low pass filtering

B. Periodic sampling

C. Quantizing

D. Companding

E. Amplitude modulation

**Answer(s): E**

---

**12.** Composite conductors, although not generally recommended, may be used in special circumstances because they provide all of the following advantages EXCEPT:

A. Have good digital transmission characteristics

B. Lightweight

C. Inexpensive

D. Easy to produce

E. Easily embedded into other materials

**Answer(s): A**

---

**13.** Assume that the optical power transmitted by a 62.5/125 multimode fiber is distributed uniformly across its core. If this fiber is perfectly coupled (i.e., the two fibers are aligned and abutted) to a 50/125 fiber, what is the percent of power that is lost?

A. 0 percent

B. 36 percent

C. 50 percent

D. 80 percent

E. 100 percent

**Answer(s): B**

---

**14.** Which electrical characteristic is displayed with the correct preferred value?

A. Dielectric constant high value

B. Dielectric strength high value

C. Dissipation factor low value

D. Insulation resistance - high value

**Answer(s): A**

---

**15.** A reasonable approximation for the signal speed in 100 ohm balanced twisted pair cable is \_\_\_\_\_, where  $c$  is the velocity of light in free space.

A.  $0.2 c$

B.  $0.4 c$

C.  $0.6 c$

D.  $0.8 c$

E.  $0.9 c$

**Answer(s): C**

---

**16.** The signal at the input to a balanced twisted pair cable is 10 mW. The cable is 1000 feet long and has an attenuation of 1 dB per 100 feet. This cable is connected to the input of a receiver. The noise level at the input to the receiver is 1 microwatt. What is the signal-to-noise ratio (SNR) (dB) at the receiver input?

A. 10 dB

B. 30 dB

C. 40 dB

D. 60 dB

E. 100 dB

**Answer(s): B**

---

**17.** Which of the following correctly lists the lowest frequency band to the highest frequency band?

A. MF, HF, VHF, UHF

B. UHF, VHF, HF, MF

C. HF, MF, UHF, VHF

D. VHF, UHF, MF, HF

E. HF, MF, UHF, VHF

**Answer(s): A**

---

**18.** The public telephone system is an example of a \_\_\_\_\_ system.

A. Simplex

B. Half-duplex

C. Full-duplex

D. Purely analog

E. Purely digital

**Answer(s): C**

---

**19.** Which is an advantage of stranded conductors over solid conductors?

A. Less costly

B. Simpler terminations

C. Better high frequency performance

D. More flexible

**Answer(s): D**

---

**20.** If the input signal power to a communication system is 1 W and the output power is 1 mW, the system attenuation is:

A. 3 dB

B. 20 dB

C. 30 dB

D. 40 dB

E. 1000 dB

**Answer(s): C**

---