

## FUNDAMENTALS OF VOICE & DATA CABLING

### CHAPTER 12 STUDY GUIDE

1. What is the definition of "as built" drawings?

*the way a cabling job was actually built*

2. Name four common problems found in cabling installations. Briefly describe each one.

*opens - a wire isn't correctly terminated*

*shorts - two wires touch*

*split - pair - two pairs are switched*

- wire mapping errors - all mixed up (reverse pair)*

3. Name a typical wire mapping error. Explain what it is.

*putting pin in wrong slot*

4. What is the definition of cable testing? of cable certification? Which should you do first? Why?

*testing - making sure there is a connection*

*certification - connection meets minimum requirements for link*

*testing comes first*

5. What speed (in megahertz) is Cat 5e cable designed to work at? Cat 6?

*Cat 5e - 100 MHz*

*Cat 6 - 250 MHz*

6. Briefly describe the four pieces of cable testing equipment listed below:

Equipment	Description
Tone generator and probe	allows cable to be found by placing a tone on wire
Cable/jack testers	test cables & jacks, checks wire map, opens, shorts, split
Telephone test set	test complete connections, test dial tone, checks polarity
Volt/ohm meter	measures voltage & resistance on wires for PoE or foreign voltages
Time domain reflectometer	used to find breaks in cable or if jack isn't properly terminated checks distance
Optical time domain reflectometers	TDR for fiber optic, measures losses

7. What is meant by a "link test"? What are the two types of link tests? Which one is accepted by TIA/EIA 568-B.1?

checks connectivity

basic - TR to jack

permanent - patch port to patch port (computer to switch)

8. What does a channel test test for?

one end to the other end

checks everything

9. What do the following terms mean?

Term	Meaning
Crosstalk	signal from one wire leaks to another
NEXT	crosstalk on near end
FEXT	crosstalk on far end
850 or 1300	$\lambda$ of wave in MM fiber
1310 or 1550	$\lambda$ of wave in single mode

Decibels (dB)	ratio of (S) power to (I) power, usually used for loss of signal
Megger	tests ground
Headroom	difference in minimum of bid & what you have
Power Sum NEXT	crosstalk from the other three pairs
ACR Attenuation to Crosstalk Ratio)	ratio of attenuation to crosstalk
ELFEXT (Equal Level Far End Crosstalk)	
Return Loss	how much signal becomes reflected
Propagation Delay	latency, how long it takes signal to go down cable
Delay skew	difference in time between different pairs

10. What is the maximum resistance reading that indicates a second grounding rod is needed? What is considered commercially acceptable?

25 ohms, 5 ohms or less

11. What is meant by a "soft fault"? Give an example.

crosstalk

12. What tool is used to visually inspect a fiber connector for dirt or scratches? To clean the ends of a fiber connection?

microscope

13. What should you check when installing or inspecting wall plates?

level  
labeled  
not easily removed

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14. List some of the documents used/created for the cabling installation project:

design blueprint  
engineering plans  
change order

•

as-built

15. In which of the above documents would the cable certification results be included?

as-built drawings