STUDY GUIDE

FOR

COMMUNICATIONS TECH TEST

TEST NUMBER: 2983

INTRODUCTION

The 2983 Communication Technician Test is a job knowledge test designed to cover the major knowledge areas necessary to perform the job. This guide contains strategies to use for taking tests and a study outline, which includes knowledge categories and study references.

TEST SESSION

It is important that you follow the directions of the Test Administrator exactly. If you have any questions about the testing session, be sure to ask the Test Administrator before the testing begins. During testing, you may NOT leave the room, talk, smoke, eat, or drink. Since some tests take several hours, you should consider these factors before the test begins.

Mobile phones or other electronic equipment will NOT be allowed in the testing area.

All questions on this test are multiple-choice format and have four possible answers. All knowledge tests will be taken on the computer. Consult the following link and click on Computer Based Testing for more information: www.edison.com/studyguides.

The test has a three-hour time limit. A scientific calculator will be provided for you to use during the test. The calculator provided during the test session will be one of these models:

Casio fx-250HC

Texas Instruments TI-30XA

Texas Instruments TI-36X

You will NOT be able to bring or use your own calculator during testing.

You will receive a Test Comment form so that you can make comments about test questions. Write any comments you have and turn it in with your test when you are done.

STUDY GUIDE FEEDBACK

At the end of this Guide you have been provided with a Study Guide Feedback page. If a procedure or policy has changed, making any part of this Guide incorrect, your feedback would be appreciated so that corrections can be made.

ASSESSMENT TAKING STRATEGIES

The test contains multiple-choice questions. The purpose of this section is to suggest techniques for you to use when taking one.

Your emotional and physical state during the test may determine whether you are prepared to do your best. The following list provides common sense techniques you can

CONFIDENCE

If you feel confident about passing the test, you may lose some of your anxiety. Think of the test as a way of demonstrating how much you know, the skills you can apply, the problems you can solve, and your good judgment capabilities.

PUNCTUALITY

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CONCENTRATION

Try to block out all distractions and concentrate only on the test. You will not only finish faster but you will reduce your chances of making careless mistakes. If possible, select a seat away from others who might be distracting. If lighting in the room is poor, sit under a light fixture. If the test room becomes noisy or there are other distractions or irregularities, mention them to the Test Administrator immediately.

BUDGET YOUR TIME

Pace yourself carefully to ensure that you will have enough time to complete all tasks/functions.

READ CRITICALLY

Read all directions and questions carefully.

Remember that the techniques described in this section are only suggestions. You should follow the test taking methods that work best for you. If particular questions seem difficult to understand, make a note of them, continue with the test and return to them later.

MAKE EDUCATED GUESSES

Make an educated guess if you do not know the answer or if you are unsure of it.

DOUBLE-CHECK MATH CALCULATIONS

Use scratch paper to double check your mathematical calculations.

REVIEW

If time permits, review your answers. Do the questions you skipped previously.

Make sure each multiple-choice question has your correct answer selected.

Remember the techniques described in this section are only suggestions. You should follow the test taking methods that work best for you.

JOB KNOWLEDGE CATEGORIES AND STUDY REFERENCES

Below are the major job knowledge areas (topics) covered on the 2983 Communications Tech Test and the associated study references. Listed next to each knowledge category is the number of items on the exam that will measure that topic. You can use this information to guide your studying. Some exams also contain additional pretest items. Pretest items will appear just like all of the other items on your exam, but they will not affect your score. They are an essential part of ensuring the 2983 Communications Tech Test remains relevant to successful performance of the job.

There are a total of 81 items on the 2983 Communications Tech Test and the passing score is 71%.

ELECTRONIC & ELECTRICAL THEORY (9 items)

Understanding of electronic & electrical theory including knowledge of: electrical circuitry and related diagrams and symbols; power source symbols; electric coils, switches, transistors, fuses, amplifiers, rectifiers, and batteries; AC/DC current; grounding, resistance, capacitance, and relays.

References:

Croft, Terrell, et al. American Electrician's Handbook. McGraw-Hill, 2013.

Grob, Bernard. Basic Electronics. McGraw-Hill, 2003.

PRINCIPLES OF COMMUNICATION (35 items)

Understanding of communication principles including knowledge of: analog and digital signals; noise (including how to measure it); cycle frequencies; dispersion, duplexing, amplitude; bandwidth, distortion, interference, modulation, and feedback; oscillation; decibels; clocking/sync systems; attenuation; and data rates (e.g., DS0, DS1 and DS3, etc..)

References:

Bates, Regis & Gregory, Donald. Voice & Data Communications Handbook. McGraw-Hill, 2007.

Coll, Eric. Telecom 101. Teracom Training Institute Ltd, 2020

Green, James H. The Irwin Handbook of Telecommunications. McGraw-Hill, 2005.

Grob, Bernard. Basic Electronics. McGraw-Hill, 1997.

Horak, Ray. Telecommunications and Data Communications Handbook. Wiley-Interscience, 2007.

Newton, Harry. Newton’s Telecom Dictionary, 32nd Edition. Telecom Publishing, 2021.

Shrader, Robert. Electronic Communication. Career Education, 1990.

TELECOMMUNICATION SYSTEMS & TECHNOLOGIES (37 items)

Understanding of Telecommunication systems, technologies, equipment including advanced knowledge of proper terminology, function, and operating principles for the following: microwave carrier systems (e.g., transmitters; wave signals, transmissions, receivers, etc…) ; fiber optic carrier systems (e.g., SONET, DWDM, BLSR, , trunking and links, UBSR, ROADM, etc…); digital cross-connect systems; data switching systems; power protection relay communication circuits; digital systems (e.g., transmission rates, circuit types, Ethernet connections, RS-485),subnetting and OSI Model.

References:

Bates, Regis & Gregory, Donald. Voice & Data Communications Handbook. McGraw-Hill, 2007.

Biswanath, Mukherjee. Optical WDM Networks. Springer, 2006

Coll, Eric. Telecom 101. Teracom Training Institute Ltd, 2020

Green, James H. The Irwin Handbook of Telecommunications. McGraw-Hill, 2005.

Grob, Bernard. Basic Electronics. McGraw-Hill, 2003.

Hagen, Jon. Radio-Frequency Electronics: Circuits and Applications. Cambridge University Press, 2009.

Helvoort, Huub van. SDH/SONET Explained in Functional Models: Modeling the Optical Transport Network. Wiley, 2005.

Horak, Ray. Telecommunications and Data Communications Handbook. Wiley-Interscience, 2007.

Newton, Harry. Newton’s Telecom Dictionary, 32nd Edition. Telecom Publishing, 2021.

Winch, Robert G. Telecommunications Transmission Systems. McGraw-Hill, 1998.

SAMPLE QUESTIONS

The following sample questions should give you some idea of the form the test will take.

1. The sonet signal hierarchy is based on a basic "building block" frame called:

A. Sts-1
B. T1.
C. Ds1.
D. Ds3.

2. Which of the following meters would most likely be used for monitoring audio levels?

A. Volt-ohm meter
B. Volume-unit (vu) meter
C. Digital voltmeter
D. Vacuum tube voltmeter

3. The four lowest layers of the 7-layered osi (open systems interconnect) model are:

A. Transport, session, presentation, application.
B. Physical, network, transport, session.
C. Physical, data link, network, transport.
D. Physical, data link, transport, network.

4. Converting from an analog to a digital signal for digital transmission is achieved by:

A. Sampling the analog signal using pulse amplitude modulation (pam), and formatting the samples using pulse code modulation (pcm).
B. Measuring the analog time differential and coding the difference using tdm.
C. A to d conversion using frequency division multiplexing.
D. A to d conversion using pulse position multiplexing.

SAMPLE QUESTION ANSWERS

1. **A**

2. **B**

3. **C**

4. **A**

STUDY GUIDE FEEDBACK

Please use this page to notify us of any changes in policies, procedures, or materials affecting this guide. Once completed, return to:

Southern California Edison, Corporate Testing

EdisonTesting@sce.com