COMPUTING AND INFORMATION TECHNOLOGY
(Formerly, Introduction to Computing

EXAM INFORMATION

This exam was developed to enable schools to award credit to students for knowledge equivalent to that learned by students taking the course. This exam tests the ability to understand hardware, software licensing and development tools; development life cycles; data management; connectivity, privacy concerns; intellectual property; network etiquette; telecommunications law; artificial intelligence, and globalization.

The exam contains 100 questions to be answered in 2 hours.

The use of nonprogrammable calculators is permitted during the test. Scratch paper for computations will be provided. A calculator function is available during computer-based exams.

Form Codes: SP536, SN536, SY536, SZ536

CREDIT RECOMMENDATIONS

The American Council on Education's College Credit Recommendation Service (ACE CREDIT) has evaluated the DSST test development process and content of this exam. It has made the following recommendations:

Area or Course Equivalent: Computing and Information Technology
Level: Lower-level baccalaureate
Amount of Credit: 3 Semester Hours
Minimum Score: 400
Source: www.acenet.edu

EXAM CONTENT OUTLINE

The following is an outline of the content areas covered in the examination. The approximate percentage of the examination devoted to each content area is also noted.

I. **Computer Organization and Hardware – 20%**
    a. Processing components (e.g. CPU, ALU, Fetch, Execute Cycle)
    b. Primary storage (e.g. RAM, ROM, cache, virtual memory)
    c. Peripherals (e.g secondary storage, disk storage, I/O devices [RFID, biometrics, printers and scanners], communication hardware, cloud computing)
    d. Architectures (e.g. personal computers, workstations, mainframes, mobile devices)
    e. Data representation (e.g. binary system [bits, bytes], words, numbering systems, coding systems, graphic and multimedia formats)
    f. Units of measurement (e.g. kilobytes, gigabytes, terabytes, megahertz, gigahertz, microseconds, nanoseconds, bands, bps)

II. **Systems Software – 10%**
    a. Operating systems (e.g Windows, Apple, Android, Linux, Unix, Mainframe etc., resource allocations, job scheduling, file management, virtual computing)
    b. Utilities (e.g. virus protection/detection, backup, disk maintenance and recovery, print)
    c. User interfaces (e.g. command line, menu-driven, graphical, voice, touch, gesture)

III. **Application Software – 20%**
    a. Word processing and desktop publishing
    b. Spreadsheets (e.g. charts, graphs, functions)
    c. Presentation software including hypertext

d. Personal communications (e.g. electronic mail, list servers, chat groups, newsgroups, conferencing software, social media)
   e. Multimedia(e.g. video, audio)
   f. Databases
      a. Levels of hierarchy (e.g. fields, records, files)
      b. Database models(e.g. relational, network, hierarchical, object, data access mechanisms)
      c. Data mining/analytics
   g. Graphics (e.g. draw, paint, CAD, image processing)
   h. Software Licensing (e.g. shareware, freeware, enterprise, open source, software as a service)
   i. Commercial application software

IV. Data Communications and Networks – 20%
   a. World Wide Web (e.g. browsers, HTML, applets, search engines)
   b. Network access (e.g. file transfer, TELNET, internet service providers [ISPs])
   c. Network architectures (e.g. local area networks, wide area networks, client server, peer-to-peer, network topology, domains, routers, switches, hubs)
   d. Data communications (e.g. infrastructure, protocol [http/https])
   e. Safety and security (e.g. firewalls, IDS/IPS, hardware aspects, encryption schemes, identity and access management)
   f. Mobile networks (wireless)

V. Software Development – 10%
   a. Software life cycle (e.g. analysis, design, development, debugging, testing, maintenance)
   b. Programming methodology (e.g. procedural, object oriented)
   c. Software development tools(e.g. assemblers, profilers, debuggers, editors, compilers/interpreters)

VI. Social Impact and History – 20%
   a. History (e.g. significant people, machines and events; digital revolution, Internet, evolution of user interfaces, new applications of information technology [car, airplanes etc.])
   b. Ethical/legal issues (e.g. privacy concerns, intellectual property rights, telecommunications law, accessibility)
   c. Safety and security (e.g. hacking, malware, system access, privacy in on-line services, identity theft)
   d. Careers in Computer Science and Information Systems (e.g. growth, trends, telecommuting, compensation)
   e. Social issues (e.g. social media responsibility/etiquette [professionally and personally], artificial intelligence, globalization [off shoring], legal implications).

REFERENCES
Below is a list of reference publications that were either used as a reference to create the exam, or were used as textbooks in college courses of the same or similar title at the time the test was developed. You may reference either the current edition of these titles or textbooks currently used at a local college or university for the same class title. It is recommended that you reference more than one textbook on the topics outlined in this fact sheet.

You should begin by checking textbook content against the content outline provided before selecting textbooks that cover the test content from which to study.

Sources for study material are suggested but not limited to the following:

1. *New Perspectives on Computer Concepts*, 17th Edition-Comprehensive, 2014, June Jamrich Parsons and Dan Oja, Cengage.

2. *Using Information Technology: A Practical Introduction to Computers & Communications*, Eleventh Edition, 2015, Brian Williams and Stacey Sawyer, McGraw-Hill.

SAMPLE QUESTIONS

All test questions are in a multiple-choice format, with one correct answer and three incorrect options. The following are samples of the types of questions that may appear on the exam.

1. Which supports the largest number of users simultaneously?
   a. Personal computer
   b. Workstation
   c. Graphics terminal
   d. Mainframe

2. What is the term for a utility program that is used to make a copy of all the files on a disk?
   a. Backup
   b. Defragmenter
   c. Formatter
   d. Translator

3. What is the term for a computer that processes requests from other computers to access a data base?
   a. Client
   b. Data warehouse
   c. Server
   d. Router

4. Which stage of the software life cycle usually requires the most time and effort?
   a. Design
   b. Requirements analysis
   c. Maintenance
   d. Coding

5. The first electronic digital computer was produced in the
   a. 1920s
   b. 1940s
   c. 1960s
   d. 1980s

6. What is a mechanism that prevents unauthorized access to computers that reside on a network?
   a. Sniffer
   b. Spoofer
   c. Firewall
   d. Ethernet

Answers to sample questions:
1-D; 2-A; 3-C; 4-C; 5-B; 6- C.