

(300) Computer Network Technology

Description

Demonstrate knowledge in fundamental networking concepts including network architecture, standards, topologies, protocols, and security. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be IT Specialist Networking and upon passing the exam, members will be awarded 50 points to their final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Members must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: <http://www.certiport.com>

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. Members who violate this rule will be *disqualified*.

Published and/or unpublished non-electronic written reference materials

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Demonstrate knowledge of OSI and TCP/IP subnetting and routing
- Demonstrate knowledge of IPv4, IPv6
- Demonstrate knowledge of network adapters, network cabling, switches and routers, proxies, and firewalls
- Demonstrate knowledge of network connectivity, troubleshooting, protocols, and administrative utilities
- Demonstrate knowledge of DNS
- Demonstrate knowledge of Cloud and Virtualization
- Demonstrate knowledge of WINS, DHCP
- Demonstrate knowledge of remote access protocols
- Demonstrate knowledge of network operating systems and clients
- Demonstrate knowledge of directory services
- Demonstrate knowledge of home wireless technologies

Method of evaluation

Objective Test - ***Reference materials are allowed.***

Certification test taken per conference schedule at NLC

Application: Top 10 members at national level only. Reference materials are allowed for the application portion. At the national level, scores from the preliminary round and objective test do *not* advance with member to finals. Final contest score is based solely on hands-on component.

Length of event

Preliminaries - No more than sixty (60) minutes for objective test, no more than one hundred twenty (120) minutes for certification test.

Finals - No more than sixty (60) minutes for hands-on tasks

Entries -Each state is allowed five (5) entries

(305) Device Configuration and Troubleshooting

Description

Demonstrate knowledge of device configuration, maintenance, and management as an IT technician. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be IT Specialist Device Configuration and Management and upon passing the exam, members will be awarded 50 points to their final score. All persons planning to take a certification test **MUST** register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Members must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: <http://www.certiport.com>

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. Members who violate this rule will be *disqualified*.

Published and/or unpublished non-electronic written reference materials, this includes hands-on tasks

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Identify PC components
- Add and remove components
- Demonstrate knowledge of system resources
- Utilize peripheral ports
- Demonstrate knowledge of IDE, SATA, and SCSI devices
- Utilize peripheral devices
- Troubleshoot problems and perform preventative maintenance
- Demonstrate knowledge of Windows® and Linux installations, functions, and upgrades
- Demonstrate booting procedures
- Configuring device drivers
- Replace system components
- Describe cloud services
- Describe firewall settings
- Manage user accounts

Equipment/supplies provided

Toolkit for hands-on component at national level

Method of evaluation

Objective Test - **Reference materials are allowed.**

Certification test taken per conference schedule at NLC

Application: Top 10 members at national level only. Reference materials are allowed for the application portion. At the national level, scores from the preliminary round and objective test do *not* advance with member to finals. Final contest score is based solely on hands-on component.

Length of event

- **Preliminaries** - No more than sixty (60) minutes for objective test, no more than one hundred twenty (120) minutes for certification test
- **Finals** - No more than sixty (60) minutes for hands-on tasks

Entries

Each state is allowed five (5) entries

(310) Server Administration Using Microsoft®

Description

Demonstrate knowledge of fundamental network management and maintenance tasks in a Windows® network.

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. Members who violate this rule will be *disqualified*.

Published and/or unpublished non-electronic written reference materials

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area.

No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Troubleshooting Windows® 10/11, Windows® Server 2019/2022 operating systems installation
- Monitor, manage, and troubleshoot access to files and folders
- Manage and troubleshoot access to shared folders
- Manage printers and print jobs
- Configure and manage file systems
- Monitor and optimize system performance and reliability
- Recover system state data and user data
- Configure and troubleshoot the desktop environment
- Encrypt data on a hard disk by using Encrypting File Systems (EFS)
- Monitor, configure, troubleshoot, and control access to websites
- Configure and troubleshoot hardware devices and drivers
- Configure and troubleshoot Windows® Network connections
- Configure, monitor, and troubleshoot remote access
- Configure inbound connections
- Implement, configure, manage, and troubleshoot auditing, local security policy, and policies in a Windows® environment

Method of evaluation

Objective Test - ***Reference materials are allowed.***

Length of event

Preliminaries - No more than sixty (60) minutes for objective test

Finals - No more than sixty (60) minutes for hands-on tasks

Entries

Each state is allowed five (5) entries

Certiport's Parental Consent Form Required

(320) Computer Security

Description

Demonstrate knowledge of fundamental security management tasks in Windows® and Linux® networking environments. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be IT Specialist - Network Security and upon passing the exam, members will be awarded 50 points to their final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Members must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: <http://www.certiport.com>

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. Members who violate this rule will be *disqualified*.

Published and/or unpublished non-electronic written reference materials, this includes hands-on tasks

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area.

No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Demonstrate knowledge of security threats
- Explain infrastructure security
- Demonstrate knowledge of cryptography, encryption, access control, and authentication
- Demonstrate security tactics to prevent against external attack
- Demonstrate knowledge of operational and organization security
- Demonstrate hardening internal Windows and Linux systems and services
- Demonstrate knowledge of TCP/IP
- Demonstrate hardening Internet work devices and services
- Demonstrate knowledge of network defense fundamentals
- Create security policies
- Perform a risk analysis
- Demonstrate knowledge of biometrics
- Demonstrate knowledge of wireless security
- Demonstrate knowledge of Internet security issues
- Manage certificates
- Monitor security infrastructure

Method of evaluation

Objective Test - **Reference materials are allowed.**

Certification test taken per conference schedule at NLC

Application: Top 10 members at national level only. Reference materials are allowed for the application portion. At the national level, scores from the preliminary round and objective test do *not* advance with member to finals. Final contest score is based solely on hands-on component.

Length of event

Preliminaries - No more than sixty (60) minutes for objective test, no more than one hundred twenty (120) minutes for certification test.

Finals - No more than sixty (60) minutes for hands-on tasks

Entries - Each state is allowed five (5) entries

(325) Network Design Team

Description

Analyze existing and planned business environments and develop a strategy for the implementation of a network infrastructure that addresses the business needs of the scenario provided. At state and national level, teams will be presented with an additional element to the scenario that requires revision of their final presentation.

Eligibility

Any secondary division student member may enter this event. A team will consist of 2-4 members. Members participating in national level competition must be registered for the event prior to submission deadline for technical judging. Teams must participate in both parts of the competition to be ranked.

Topic:

Java Junction, headquartered in Maplewood, New Jersey, is a growing coffee shop chain with three existing locations. They plan to expand and open three more locations within a few years. Each is a miniature shack in the parking lots of larger businesses. The new locations are looking into migrating to a retail/restaurant space with the other three locations. Their organization and unification of their computer network are nonexistent. Java Junction seeks contracts to redesign and build a current network design to support its existing locations and add additional locations to industry standards and current specifications. Hoping to provide that warm and inviting coffee shop atmosphere where coffee enthusiasts can seek a cozy retreat with the espresso sounds to read an eBook, but also can provide space for customers to continue their daily work outside the office. Additionally, it caters to the students and patrons busy with study, seeking inspiration for their next adventure.

As a part of their business expansion plan, they would like to update their Java Junction shacks with better network infrastructure, providing a reliable and secure connection to these locations and a state-of-the-art network infrastructure to carry them forward. Currently, Java Junction has three existing locations. These built-in mini shacks are in parking lots of anchor stores, and the headquarters is in a small office space in Maplewood, New Jersey.

Currently, the three locations are Bend, Oregon; Asheville, North Carolina; and Fredericksburg, Texas. These mini shacks are cleverly utilized for the coffee-making experience. They are on a short-term lease with their anchor stores and must be mobile to move at any time. The front has a walk-up window, and the side is a drive-thru window. Inside, the coffee machines are in the center of the hut. There is no customer seating on the inside, but it does have some outdoor patio seating in a section of the parking spaces each is occupying. In Bend, Oregon, the location currently uses an employee phone to connect their credit card terminal to the Internet to process credit cards because there is no suitable wired connection. The transactions are in a cash drawer under the front and drive-thru counters. In Asheville, North Carolina, this location was fortunate enough for the anchor store to allow them to connect an Ethernet cable from the store to a small aging 802.11b wireless Cable/DSL router for credit card transactions. Finally, Fredericksburg, Texas, obtained a cellular hotspot to provide Internet access to its credit card terminal and computerized point-of-sale system. At the Texas location, they also allow customers to connect to the hotspot to enjoy the Internet while they have coffee and work on tasks outside the office on the patio.

The Maplewood, New Jersey office has a receptionist, inventory curator/quality manager, accounts payable/receivable, and owner. They have a small five-room office with separate spaces for each employee and a break room which doubles as the conference room. Currently, they are using a single 802.11g wireless router connected to a small DSL connection of 25Mbps through a wireless connection. Each employee complains that the Internet is slow and that their computers are constantly buffering. They also travel to the locations several times throughout the year to ensure their business is still top-notch.

Java Junction is looking into expanding into Austin, Texas, Myrtle Beach, South Carolina, and Oak Bluff, Massachusetts. Each of these locations will be structured the same. All have a coffee counter with two order stations, a drive-thru window, a kitchen in the center, a customer seating/lounge area, and a private room for events; the whole space is approximately 2,000 square feet. Eventually, they will expand their menu to include food items other than the bakery items they are receiving frozen from the delivery supply food service.

Java Junction needs a proposal for the following:

- Secure and reliable network infrastructure for the office and all locations, existing and new
 - Ability to centrally manage devices, point-of-sale, applications, and inventory across all coffee shops
- Scalable design to accommodate the ever-expanding coffee shop growth
- New and improved Wi-Fi performance for customers.

Team must supply

Laptop/notebook computer (**each** team member may have **one** laptop), portable printer, software, and paper for this event

The team must bring all supporting devices (e.g., extension cords, power supply, etc.)

Published and/or unpublished non-electronic written reference materials

Projector/Props (Optional)

Business Professionals of America assumes no responsibility for hardware/software provided by the member. Props or visual aids are allowed in this competition. No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Apply technical skills in the network design
- Evaluate and delegate responsibilities needed to perform required tasks
- Utilize problem solving techniques
- Demonstrate teamwork skills needed to function in a business setting
- Analyze existing and planned network and systems management
- Demonstrate knowledge of network cable topologies
- Diagram the completed network
- Analyze end-user work needs
- Plan for placement and management of resources
- Plan for decentralized resources or centralized resources
- Incorporate redundancy into the network

- Design a remote access solution
- Analyze network infrastructure, protocols, and hosts
- Estimate upgrade cost based on existing environment
- Incorporate future expansion into the network
- Demonstrate an ability to meet software requirements
- Demonstrate a knowledge of VPNs
- Identify the company’s tolerance for risk
- Analyze technical support structure
- Design a routing strategy
- Develop multiple recommendations to scenarios
- Produce business reports

Specifications

- This is a pre-submitted event. See instructions for submissions.
- **Submit the written proposal and Works Cited in a combined PDF file to <https://upload.bpa.org> no later than 5:00 p.m. Eastern Time, on April 1, 2025.** *This is the deadline for the National Leadership Conference. Each Regional or State Conference may have specific deadlines prior to the National deadlines. Please consult the Regional or State Conference Administrator for Regional or State deadlines.*
- The written proposal must follow the Report Format located in the *Style & Reference Manual*.
- Members will receive an automated response confirmation at the time of submission.
- Individual confirmation of receipt *cannot* be provided by the National Center.
- Member ID will be required for all submissions.
- No fax or mailed copies will be accepted.
- No exceptions can be made for missed deadlines due to incorrect submission or technical difficulties.
- Multiple submissions *will not* be accepted.
- Only one (1) team member should complete the submission.
- Members must be registered for national level competition prior to submission of materials. The Member ID must be included as indicated.
- Use each member’s full membership ID number in the header.
- Materials from non-registered members and those missing Member ID and/or projects received after the deadline *cannot* be accepted.
- *No* changes can be made to the project after the date of submission.
- It is the policy of Business Professionals of America to comply with state and federal copyright law. Federal law pertaining to copyright, as contained within the United States Code, is available at <https://www.copyright.gov/title17/title17.pdf>. The *Style & Reference Manual* contains guidelines for Copyright and Fair Use. Participant(s) will be *disqualified* for violations of the guidelines.
- Notes or note cards may be used.

Upload Requirements

What to Submit at https://upload.bpa.org	Saved File Name(s)	Deadline
Written proposal (Report Format) and Works Cited in one combined PDF file.	NDT-TeamID.pdf	April 1, 2025, 5:00 p.m. Eastern Time

Method of evaluation

Judge's Scoring Rubric

Length of event

No more than thirty (30) minutes preparation time at State and National Level Only

No more than three (3) minutes setup in presentation room

No more than ten (10) minutes presentation time

No more than ten (10) minutes judges' questions

Finals may be required at state and national levels

Entries

Each state is allowed three (3) entries

Judges' comments will be returned digitally through the online judging system at the national level.

(325) Network Design Team

Judge Number _____

Team Number _____

Technical Scoring Rubric

Required Elements (If any questions below are checked NO, stop scoring and assign a TOTAL score of 0)	
Team followed topic	<input type="checkbox"/> Y <input type="checkbox"/> N
Team followed Copyright and/or Fair Use Guidelines	<input type="checkbox"/> Y <input type="checkbox"/> N
If no to either question, please stop scoring and provide a brief reason for the <i>disqualification</i> :	

Items to Evaluate	Below Average	Average	Good	Excellent	Points Awarded
The team submitted the correct information and in the correct format. <ul style="list-style-type: none"> Written proposal in Report Format - PDF format Works Cited - PDF format. All points or none are awarded by the technical judge. 				10	
TECHNICAL POINTS					
Written Proposal					
Customer profile	1-5	6-10	11-15	16-20	
Objectives	1-5	6-10	11-15	16-20	
Abstract of implementation	1-5	6-10	11-15	16-20	
Explanation of products and/or services provided	1-5	6-10	11-15	16-20	
Clarity of message <ul style="list-style-type: none"> Message is attention-grabbing, compelling, and concise Message was developed according to topic 	1-5	6-10	11-15	16-20	
Short- and long-range goals defined	1-5	6-10	11-15	16-20	
Financial analysis	1-5	6-10	11-15	16-20	
Supporting documentation	1-5	6-10	11-15	16-20	
Grammar, spelling, punctuation, and usage <ul style="list-style-type: none"> Content without errors/No copyright violations 	5 (3+ errors)	10 (2 errors)	15 (1 error)	20 (0 errors)	
Total Written Proposal Points (180 points maximum)					
Creativity					
Solution is innovative <ul style="list-style-type: none"> Fresh ideas, unique 	1-5	6-10	11-15	16-20	
Total Creativity Points (20 points maximum)					
Specific Technical Recommendations					
Plan includes design and deployment specifications for requirements in the topic.	1-10	11-20	21-40	41-50	
Plan includes structure and setup for the network.	1-5	6-10	11-15	16-20	
Plan identifies different bandwidth tiers and services.	1-5	6-10	11-15	16-20	

Network is designed for expansion and scalability. Plan ensures quality of service and reliable connection speeds.	1-5	6-10	11-15	16-20	
Value-added services are identified to enhance Internet experience and differentiate from competitors.	1-5	6-10	11-15	16-20	
Total Specific Technical Recommendation Points (130 points maximum)					
TOTAL TECHNICAL POINTS (340 points maximum)					

(325) Network Design Team

Judge Number _____

Team Number _____

Presentation Scoring Rubric

Items to Evaluate	Below Average	Average	Good	Excellent	Points Awarded
Ability to outline short- and long-term objectives and defend the solution as the most appropriate for the given scenario	1-5	6-10	11-15	16-20	
Ability to use technical terms, along with appropriate explanations that achieve effective communications with the client	1-5	6-10	11-15	16-20	
Voice quality and diction	1-5	6-10	11-15	16-20	
Self-confidence, assertiveness, and eye contact	1-5	6-10	11-15	16-20	
Presentation quality/style; flow	1-5	6-10	11-15	16-20	
All team members participated in presentation	1-5	6-10	11-15	16-20	
Response to judges' questions	1-5	6-10	11-15	16-20	
All points or none are awarded per item below.					
Setup lasted no longer than three (3) minutes				5	
Presentation lasted no longer than ten (10) minutes				5	
At least two original team members in attendance at time of presentation				10	
Total Presentation Points (160 points maximum)					

Props and/or additional items shall not be used as a basis for scoring.

TOTAL MAXIMUM POINTS = 500

PRESENTATION WILL BE STOPPED AT TEN MINUTES

(330) C# Programming

Description

Evaluate knowledge of working with C# syntax, programming logic, program development, system design concepts, databases, designers, and objects. This contest will be graded on the Windows operating system; therefore, Unix/Linux should *not* be used. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be IT Specialist - Software Development and upon passing the exam, members will be awarded 50 points to their final score. All persons planning to take a certification test **MUST** register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Members must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: <http://www.certiport.com>

Eligibility

Any postsecondary division student member may enter this event.

Member must supply

Computer or laptop/notebook (USB-Type A or adapter required); a full-size keyboard may be used (no printer is needed)

Visual Studio 2015 or higher

Carry-in and setup of equipment must be done solely by the member

Member must bring all supporting devices and software appropriate for the event (e.g., extension cords, power supply, IDE, paper, etc.)

Published and/or unpublished non-electronic written reference materials

Only pre-written code that is hard copied is allowed.

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Competencies

- Demonstrate knowledge of object-oriented concepts and techniques
- Demonstrate understanding of general computer concepts and computer language
- Use structured design techniques, algorithms, and object-oriented concepts
- Understand and implement UML diagrams
- Create a program/GUI using variables, looping, controls, logical operations, calculations, classes, totals, file access, data structures, sorting, selection statements, and I/O operations

Method of evaluation

Application - ***Reference materials are allowed.***

Certification test taken per conference schedule at NLC

Length of event

No more than ten (10) minutes orientation, ninety (90) minutes testing time, ten (10) minutes wrap-up

No more than one hundred twenty (120) minutes for certification test.

Entries - Each state is allowed five (5) entries

(335) C++ Programming

Description

Evaluate knowledge of working with structured designs, algorithms, and OOP methodology using the C++ language. This contest can only be completed using the C++ programming language, if you want to use C#, you must take the C# contest. This contest will be graded on the Windows operating system; therefore, Unix/Linux should *not* be used.

Eligibility

Any secondary division student member may enter this event.

Member must supply

Computer or laptop/notebook (USB-Type A or adapter required); a full-size keyboard may be used (no printer is needed)

Carry-in and setup of equipment must be done solely by the member

Member must bring all supporting devices and software appropriate for the event (e.g., extension cords, power supply, IDE, paper, etc.)

Published and/or unpublished non-electronic written reference materials

Only pre-written code that is hard copied is allowed.

Business Professionals of America assumes no responsibility for hardware/software provided by the member. No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Demonstrate understanding of general programming concepts and C++ computer language
- Use programming skills for proper development of a C++ computer program
- Demonstrate knowledge of C++ computer language
- Implement program logic (algorithms, structured design)
- Use structural design techniques and object-oriented concepts
- Understand and implement UML diagrams
- Create a C++ program using calculations, totals, selection statements, logical operators, classes, sequential file access, I/O operations, loops, methods, arrays, and data structures (linked lists, structures, etc.)

Method of evaluation

Application

Length of event

No more than ten (10) minutes orientation, ninety (90) minutes testing time, ten (10) minutes wrap-up

Entries

Each state is allowed five (5) entries

(340) Java Programming

Description

Evaluate knowledge of working with structured designs, algorithms, and OOP methodology using the Java Programming language. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be IT Specialist - Java and upon passing the exam, members will be awarded 50 points to their final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Members must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: <http://www.certiport.com>

This contest will be graded on the Windows operating system; therefore Unix/Linux should *not* be used.

Eligibility

Any secondary division student member may enter this event.

Member must supply

Computer or laptop/notebook (USB-Type A or adapter required); a full-size keyboard may be used (no printer is needed)

Carry-in and setup of equipment must be done solely by the member

Member must bring all supporting devices and software appropriate for the event (e.g., extension cords, power supply, IDE, paper, etc.)

Published and/or unpublished non-electronic written reference materials

Only pre-written code that is hard copied is allowed.

Business Professionals of America assumes no responsibility for hardware/software provided by the member. No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Demonstrate knowledge of Java computer language, concepts, and syntax
- Use structured design techniques and object-oriented concepts
- Apply programming concepts such as classes, operators, loops, control breaks, sequential file access, data structures, error handling, and I/O operations
- Understand and implement UML diagrams
- Demonstrate knowledge of error handling techniques

Method of evaluation

Application - **Reference materials are allowed.**
Certification test taken per conference schedule at NLC

Entries

Each state is allowed five (5) entries

Length of event

No more than ten (10) minutes orientation, ninety (90) minutes testing time, ten (10) minutes wrap-up
No more than one hundred twenty (120) minutes for certification test.

(345) SQL Database Fundamentals

Description

Demonstrate knowledge of fundamental database development and SQL scripting. Competencies addressed in this event will mandate the member use a high-end database product such as MS SQL Server®, the focus of this event, to acquire the necessary skills; however, topics addressed are transferable to any database product such as Oracle® or MySQL™.

This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement. The certification offered will be IT Specialist - Databases and upon passing the exam, members will be awarded 50 points to their final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Members must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: <http://www.certiport.com>

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. Members who violate this rule will be *disqualified*.

Published and/or unpublished non-electronic written reference materials

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Identify various types of databases
- Create and employ tables, rows, columns
- Understand roll of keys, constraints
- Understand and create indexes
- Define relational types and integrity
- Identify normal forms and normalize to 3NF
- Understand data types and when to use them
- Understand SQL Server® schemas
- Understand/use DDL commands such as CREATE, DROP, ALTER database
- Understand/use DML commands such as INSERT, SELECT, UPDATE, DELETE
- Select data from multiple tables using the WHERE clause
- Understand JOIN, UNION, INTERSECT
- Use aggregate and scalar functions
- Create and use views
- Use and understand transactions
- Understand how to back up databases
- Understand Stored Procedures

Method of evaluation

Objective Test - ***Reference materials are allowed.***

Certification test taken per conference schedule at NLC

Length of event - No more than sixty (60) minutes for objective test, no more than one hundred twenty (120) minutes for certification test.

Entries - Each state is allowed five (5) entries

(350) Linux Operating System Fundamentals

Description

Demonstrate your ability in hardware and system configuration, system operation and maintenance, security, scripting, and troubleshooting and diagnostics within the Linux Operating System. *This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement.* The certification offered will be the TestOut Linux Pro exam and upon passing the exam, members will be awarded 100 points (pass or fail) to their final score. For more information on the exam, visit: <http://www.testout.com/certification/pro-exams/linux-pro>

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. Members who violate this rule will be *disqualified*.

Published and/or unpublished non-electronic written reference materials, this includes hands-on tasks

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Using Linux command line utilities
- Configure and use Linux shell environments
- Manage Linux system startup/shutdown, system processes
- Use Linux package management
- Manage and storage devices in Linux formats
- Manage the Linux file system, configure networking and printing
- Manage users and groups in Linux
- Configure, monitor, and manage system access in Linux

Method of evaluation

Objective Test - ***Reference materials are allowed.***

Certification test taken per conference schedule at NLC

Application: Top 10 members at national level only. Reference materials are allowed for the application portion. At the national level, scores from the preliminary round and objective test do *not* advance with member to finals. Final contest score is based solely on hands-on component.

Length of event

Preliminaries - No more than sixty (60) minutes for objective test, no more than one hundred twenty (120) minutes for certification test.

Finals - No more than sixty (60) minutes for hands-on tasks

This event is sponsored by:

Entries

Each state is allowed five (5) entries



(355) Python Programming

Description

Evaluate knowledge of working with structured (procedural), object-oriented, and functional programming using the Python programming language.

This event includes a separate certification component which will be offered in conjunction with the BPA event at NLC; all members passing this component will receive an industry certification regardless of their overall event placement. The certification offered will be IT Specialist - Python and upon passing the exam, members will be awarded 50 points to their final score. All persons planning to take a certification test MUST register with Certiport (www.certiport.com) before attending NLC to create their Certiport profile. Members must include their BPA member ID in their Certiport profile when they register online. For more information on the exam, visit: <http://www.certiport.com>

Eligibility

Any secondary division student member may enter this event.

Member must supply

Computer or laptop/notebook (USB-Type A or adapter required); a full-size keyboard may be used (no printer is needed)

Carry-in and setup of equipment must be done solely by the member

Member must bring all supporting devices and software appropriate for the event (e.g., extension cords, power supply, IDE, paper, etc.)

Published and/or unpublished non-electronic written reference materials

Only pre-written code that is hard copied is allowed.

Business Professionals of America assumes no responsibility for hardware/software provided by the member. No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Demonstrate understanding of general programming concepts and Python computer language
- Use programming skills for proper development of a Python computer program
- Demonstrate knowledge of Python computer language
- Implement program logic (algorithms, structured design)
- Use structural design techniques and object-oriented concepts
- Create a Python program using calculations, totals, selection, logical operators, classes, sequential file access, I/O operations, loops, methods, arrays, and data structures (linked lists, structures, etc.)

Method of evaluation

Application - **Reference materials are allowed.**

Certification test taken per conference schedule at NLC

Length of event

No more than ten (10) minutes orientation, ninety (90) minutes testing time, ten (10) minutes wrap-up

No more than one hundred twenty (120) minutes for certification test.

Entries - Each state is allowed five (5) entries

(390) Computer Programming Concepts - Open Event

Description

Demonstrate general knowledge of the computer programming industry.

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See [NLC Calculator Guidelines](#). Members who violate this rule will be *disqualified*.

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Demonstrate understanding of general programming concepts
- Demonstrate knowledge of computer languages
- Demonstrate knowledge of program logic (algorithms, structured design)
- Demonstrate knowledge of structural design techniques and object-oriented concepts
- Demonstrate knowledge of selection statements, logical operators, classes, sequential file access, I/O operations, data structures, and loops
- Demonstrate knowledge of the software development process
- Demonstrate knowledge of software design tools (UML, flowcharts, pseudo code)
- Demonstrate knowledge of structured query language
- Demonstrate knowledge of strings and arrays

Method of evaluation

Objective Test - *Reference materials are NOT allowed.*

Length of event

No more than sixty (60) minutes testing time

Entries

Unlimited

(391) Information Technology Concepts - Open Event

Description

Demonstrate general knowledge of the information technology industry.

Eligibility

Any secondary division student member may enter this event.

Member must supply

Sharpened No. 2 pencils, pens

Cordless calculator: Electronic devices will be monitored according to ACT standards. See NLC Calculator Guidelines. Members who violate this rule will be *disqualified*.

No equipment, supplies, or materials other than those specified for an event will be allowed in the testing area. No previous Business Professionals of America tests and/or sample tests or facsimiles thereof (handwritten, photocopied, or keyed) may be taken into the testing area. Violation of this rule will result in disqualification.

Competencies

- Demonstrate knowledge of information technology concepts
- Demonstrate knowledge of programming language evolution
- Apply skills in programming language evolution
- Identify hardware and software basics
- Demonstrate understanding of graphics concepts
- Identify components and concepts related to printers
- Demonstrate understanding of operating systems
- Demonstrate understanding of security, law, and ethics
- Describe ergonomics and environmental concerns
- Demonstrate basic understanding of network concepts

Method of evaluation

Objective Test - *Reference materials are NOT allowed.*

Length of event

No more than sixty (60) minutes testing time

Entries

Unlimited