



BILL DE BLASIO
Mayor

DEPARTMENT OF CITYWIDE ADMINISTRATIVE SERVICES
BUREAU OF EXAMINATIONS

LISETTE CAMILO
Commissioner

NOTICE OF EXAMINATION

COMPUTER SPECIALIST (SOFTWARE)

Exam No. 1139

WHEN TO APPLY: From: December 2, 2020

APPLICATION FEE: \$91.00

To: December 22, 2020

If you choose to pay the application fee with a credit/debit/gift card, you will be charged a service fee of 2.00% of the payment amount. This service fee is nonrefundable.

YOU ARE RESPONSIBLE FOR READING THIS ENTIRE NOTICE BEFORE YOU SUBMIT YOUR APPLICATION.

WHAT THE JOB INVOLVES:

Computer Specialists (Software), under supervision, with considerable latitude for independent action or the exercise of independent judgment, are responsible for the analysis, design, development, implementation, enhancement, maintenance and security of database management systems, operating systems, data communications systems, applications, mobile applications, websites, and/or related software functions; may supervise a unit engaged in work related to these areas or may independently perform related work of a highly complex, technical nature. All Computer Specialists (Software) perform related work.

Special Working Conditions:

Computer Specialists (Software) may be required to work various shifts including nights, Saturdays, Sundays, and holidays.

(This is a brief description of what you might do in this position and does not include all the duties of this position.)

THE SALARY:

The current minimum salary is \$81,951 per annum. This rate is subject to change. There are four assignment levels within this class of positions. Appointments will generally be made to Assignment Level I. After appointment, employees may be assigned to the higher assignment levels at the discretion of the agency.

HOW TO QUALIFY:

You are responsible for determining whether or not you meet the education and experience requirements for this examination prior to submitting your application. If you are found "Not Qualified," your application fee will not be refunded and you will not receive a score.

You will **not** receive credit for education which you obtain after January 31, 2021 or experience which you obtain after the end of the Application Period (December 22, 2020).

EDUCATION AND EXPERIENCE REQUIREMENTS:

1. A baccalaureate degree from an accredited college or university, including or supplemented by 24 semester credits in computer science or a related computer field **and** two years of satisfactory, full-time computer software experience in computer systems development and analysis, applications programming, database administration, maintenance and support, systems programming, data communications, mainframe development, mobile development and/or web development and design, one year of which must have been in a project leader capacity or as a major contributor on a complex project in one or more of the acceptable areas; **or**

2. A four-year high school diploma or its educational equivalent **and** six years of satisfactory, full-time computer software experience as described in "1" above, one year of which must have been in a project leader capacity or as a major contributor on a complex project in one or more of the acceptable areas; **or**

3. Education and/or experience equivalent to "1" or "2" above. College education may be substituted for up to two years of the required experience in "2" above on the basis that 60 semester credits from an accredited college or university is equated to one year of experience. A master's degree from an accredited college or university in computer science or a related computer field, or a certificate of at least 625 hours in computer programming from an accredited technical school (post high school), may be substituted for one year of the required experience in "1" or "2" above. However, all candidates must have at least a four-year high school diploma or its educational equivalent **and at least one year of satisfactory full-time experience in a project leader capacity or as a major contributor on a complex project in one or more of the acceptable areas.**

READ CAREFULLY AND SAVE FOR FUTURE REFERENCE

Note:

Some examples of unacceptable experience are:

- a. end users of: a computer system, program or software package; productivity software products (e.g., word processing, spreadsheet, presentation, and database software, etc.); preprogrammed software without complex programming, design and implementation.
- b. experience in the areas of: computer technical support, computer operations, data entry/data retrieval, hardware installation, call center, teaching and/or telecommunications.

The education requirement must be met by January 31, 2021. The experience requirement must be met by the last day of the Application Period (December 22, 2020).

The high school diploma or its educational equivalent must be approved by a State's Department of Education or a recognized accrediting organization. The technical school (post high school) must be approved by a State's Department of Education or a recognized accrediting organization. The college or university must be accredited by regional, national, professional, or specialized agencies recognized as accrediting bodies by the U.S. Secretary of Education and by the Council for Higher Education Accreditation (CHEA).

If you were educated outside the United States, you must have your foreign education evaluated to determine its equivalence to education obtained in the United States. This is required only if you need credit for your foreign education in this examination. For more information see the Foreign Education Evaluation Guide in the Required Information section.

During the Education and Experience Exam (EEE), you may answer questions about your experience. If your experience was on a part-time basis working less than 35 hours per week, you will need to convert your part-time experience to full-time experience using the formula below. Once you have determined your full-time experience equivalent, use this amount to answer questions about your experience.
(number of hours worked per week/35) x (number of months worked)

For example, if you worked at a job for 21 hours per week for 12 months, you would make the following calculation: $21/35 \times 12 = 7.2$ months.

You have until midnight Eastern time on the last day of the Application Period (December 22, 2020) to clearly specify in detail all of your relevant education and experience and Final Submit your Education and Experience Exam in the Online Application System (OASys) online. Once you Final Submit your Education and Experience Exam in OASys, you will not be permitted to submit new or additional information on your Education and Experience Exam online.

If you do not Final Submit your Education and Experience Exam in OASys by midnight Eastern time on the last day of the Application Period (December 22, 2020), your examination will be considered incomplete, you will not be entitled to the appeals process, you will not receive a score, you will not be invited to subsequent portions of this examination (if applicable), and your application fee will not be refunded. An incomplete examination will not be entitled to the appeals process.

You will not receive credit for education which you obtain after January 31, 2021 or experience which you obtain after the end of the Application Period (December 22, 2020).

Residency Requirement: City residency is not required for this position.

English Requirement: You must be able to understand and be understood in English.

Proof of Identity:

Under the Immigration Reform and Control Act of 1986, you must be able to prove your identity and your right to obtain employment in the United States prior to employment with an agency under the jurisdiction of the Commissioner, Department of Citywide Administrative Services.

HOW TO APPLY:

If you believe you meet the requirements in the "How to Qualify" section, apply using the Online Application System (OASys) at www.nyc.gov/examsforjobs. Follow the onscreen application instructions for electronically submitting your application and payment and completing any required information. A unique and valid email address is required to apply online. Several internet service providers, including but not limited to Google, Yahoo!, AOL, Outlook.com, and Mail.com offer free email addresses. **All new OASys accounts require verification before a candidate can apply to ensure the accuracy of candidate information. Verification is instantaneous for most accounts and you will receive a confirmation email with instructions to activate your account. For any account creation issues, you will receive onscreen prompts to contact DCAS. This review may require up to two (2) business days to be reviewed and resolved. Please keep this information and the application period deadline in mind when creating your account.**

The following methods of payment are acceptable: major credit card, bank card associated with a bank account, or a prepaid debit card with a credit card logo which you may purchase online or at various retail outlets. If you are receiving or participating in certain forms of public assistance/benefits/programs, or are a veteran, you may qualify to have the application fee waived. For more information on eligibility for a fee waiver and documentation requirements visit the Fee Waiver FAQ on the Online Application System at: <https://a856-exams.nyc.gov/OASysWeb/Home/Faq>. **Effective January 2020, the Online Application System is no longer supported on Windows 7 or earlier versions of Windows operating systems. You may come to the DCAS Computer-based Testing & Applications Centers to apply for this examination online. The centers will be open Monday through Saturday from 9:00 AM to 5:00 PM:**

Manhattan

2 Lafayette Street
17th Floor
New York, NY 10007

Brooklyn

210 Joralemon Street
4th Floor
Brooklyn, NY 11201

Queens

118-35 Queens Boulevard
5th Floor
Forest Hills, NY 11375

Staten Island

135 Canal Street
3rd Floor
Staten Island, NY

Bronx

1932 Arthur Avenue
2nd Floor
Bronx, NY 10457

You must complete the entire examination by midnight Eastern Time on the last day of the application period. If you have questions about applying for this examination, you may contact DCAS at OASys@dcas.nyc.gov.

Special Circumstances Guide: This guide is located on the DCAS website at https://www1.nyc.gov/assets/dcas/downloads/pdf/employment/pdf_c_special_circumstances_guide.pdf. This guide gives important information about claiming Veterans' or Legacy credit, and notifying DCAS of a change in your mailing address. Follow all instructions on the Special Circumstances Guide that pertain to you when you complete your "Application for Examination."

REQUIRED INFORMATION:

1. **Application for Examination:** Follow the online instructions, including those relating to the payment of fee and, if applicable, those found in the Special Circumstances Guide.
2. **Education and Experience Exam:** Fill out all the required sections displayed onscreen (if applicable). You will have until midnight Eastern time on the last day of the Application Period (December 22, 2020) to clearly specify in detail all of your relevant education and experience on your Education and Experience Exam and submit it in the Online Application System (OASys).
If you do not Final Submit your Education and Experience Exam in OASys by midnight Eastern time on the last day of the Application Period (December 22, 2020), your examination will be considered incomplete, you will not be entitled to the appeals process, you will not receive a score, you will not be invited to subsequent portions of this examination (if applicable), and your application fee will not be refunded.
3. **Foreign Education Evaluation Guide (Required only if you need credit for your foreign education in this examination):** If you were educated outside the United States, you must have your foreign education evaluated to determine its equivalence to education obtained in the United States. The services that are approved to make this evaluation are listed on the Foreign Education Evaluation Guide, which is located on the DCAS website at <https://www1.nyc.gov/assets/dcas/downloads/pdf/employment/foreigneducation.pdf>. When you contact the evaluation service, ask for the evaluation as follows:
 - (A) If you wish to claim a diploma/degree only and do not wish to claim any semester credits in the subject area(s) described in the How to Qualify section above and/or The Test section below, ask for a "**document-by-document**" evaluation of your foreign education.
 - (B) If you wish to claim a diploma/degree and/or semester credits in the subject area(s) described in The Test section below, ask for a "**course-by-course**" evaluation (which includes a "document-by-document" evaluation) of your foreign education.
 - (C) If you wish to claim a certificate of at least 625 hours in computer programming described in the How to Qualify section above, then ask the Evaluation Service to recommend the appropriate type of evaluation and ensure that the evaluation states the number of hours completed.
 - (D) If you wish to claim continuing education course(s) described in The Test section below, ask the Evaluation Service to recommend the appropriate type of evaluation.

You must have one of these services submit its evaluation of your foreign education directly to the Department of Citywide Administrative Services no later than eight weeks from the last day of the Application Period (December 22, 2020).

THE TEST:

Your score will be determined by an Education and Experience Exam. You will receive a score of 70 points for meeting the education and experience requirements listed above. After these requirements are met, you will receive credit **for up to four additional years of experience**, up to a maximum of 100 points, on the following basis:

Experience:

If you have satisfactory full-time computer software experience in a project leader capacity or as a major contributor on a complex project in at least one of the following areas: computer systems development and analysis; applications programming; database administration; maintenance and support of software, database, operating or data communication systems; systems programming; data communications; mainframe development; mobile development; web development and design, for (see notes 1 and 2 below):	You will receive up to:
At least 6 months but less than 1 year	6 points
At least 1 year but less than 2 years	12 points
At least 2 years but less than 3 years	18 points
At least 3 years but less than 4 years	24 points
4 years of experience	30 points

If you have satisfactory full-time computer software experience in at least one of the following areas: computer systems development and analysis; applications programming; database administration; maintenance and support of software, database, operating or data communication systems; systems programming; data communications; mainframe development; mobile development; web development and design, for (see notes 1 and 2 below):

You will receive up to:

At least 6 months but less than 1 year	3 points
At least 1 year but less than 2 years	6 points
At least 2 years but less than 3 years	9 points
At least 3 years but less than 4 years	12 points
4 years of experience	15 points

Notes:

- The type of acceptable experience listed above includes work performed in Configuring commercial off-the-shelf (COTS) applications, systems and security products in the areas of applications programming, applications development and systems programming.**
- Some examples of unacceptable experience are:**
 - end users of: a computer system, program or software package; productivity software products (e.g., word processing, spreadsheet, presentation, and database software, etc.); preprogrammed software without complex programming, design and implementation.**
 - experience in the areas of: computer technical support, computer operations, data entry/data retrieval, hardware installation, call center, teaching and/or telecommunications.**

Education: Ten (10) points is the maximum amount of additional points for education that may be credited for graduate credit(s), undergraduate credit(s), and continuing education course(s) combined.

If you have undergraduate or graduate semester credits completed at an accredited college or university in computer science, computer information systems and/or science, technology, engineering and mathematics (STEM) course areas such as physics, engineering, logic/proof-based mathematics, and/or statistics, for the completion of (see note below):

You will receive:

3 to 8 undergraduate or graduate semester credits	1 point
9 to 14 undergraduate or graduate semester credits	2 points
15 to 20 undergraduate or graduate semester credits	3 points
21 to 26 undergraduate or graduate semester credits	4 points
27 or more undergraduate or graduate semester credits	5 points

If you have completed continuing education course(s) in computer programming, computer science, computer information systems, project management, business analysis and/or science, technology, engineering and mathematics (STEM) course areas such as physics, engineering, logic/proof-based mathematics, and/or statistics at an accredited college or university or at a professional training center, for the completion of:

You will receive:

One (1) continuing education course	1 point
Two (2) continuing education courses	3 points
Three (3) continuing education courses	5 points

Notes:

- Any course(s) completed as part of a baccalaureate degree program or master's degree program, including those in STEM course areas, which will be applied toward the qualification requirement, cannot receive additional credit. If the twenty-four (24) semester credits in computer science or a related computer field are applied toward the qualification requirement, they cannot receive additional credit.**

During the Education and Experience Exam (EEE), you may answer questions about your experience. If your experience was on a part-time basis working less than 35 hours per week, you will need to convert your part-time experience to full-time experience using the formula below. Once you have determined your full-time experience equivalent, use this amount to answer questions about your experience.

$(\text{number of hours worked per week}/35) \times (\text{number of months worked})$

For example, if you worked at a job for 21 hours per week for 12 months, you would make the following calculation: $21/35 \times 12 = 7.2$ months.

Each year of experience will be credited under only one category, which will be the highest appropriate category. **Education and experience used to meet the minimum requirements cannot be used to gain additional credit.**

You must clearly specify in detail all of your relevant education and experience on your Education and Experience Exam and submit it by the end of the Application Period. You will not receive credit for education which you obtain after January 31, 2021, or experience which you obtain after the end of the Application Period.

You have until midnight Eastern time on the last day of the Application Period (December 22, 2020) to clearly specify in detail all of your relevant education and experience and Final Submit your Education and Experience Exam in the Online Application System (OASys) online. Once you Final Submit your Education and Experience Exam in OASys, you will not be permitted to submit new or additional information on your Education and Experience Exam.

If you do not Final Submit your Education and Experience Exam in OASys by midnight Eastern time on the last day of the Application Period (December 22, 2020), your examination will be considered incomplete, you will not be entitled to the appeals process, you will not receive a score, you will not be invited to subsequent portions of this examination (if applicable), and your application fee will not be refunded.

CHANGE OF MAILING ADDRESS, EMAIL ADDRESS, AND/OR TELEPHONE NUMBER:

It is critical that you promptly notify DCAS of any change to your mailing address, email address and/or phone number. If we do not have your correct mailing address, email address and/or phone number, you will not receive information about your exam(s), consideration for appointment and/or important information that may require a response by a specified deadline. If you need to update your Mailing Address, Email Address, and/or Telephone Number, read below:

- City Employees - update this information in NYCAPS Employee Self-Service (ESS) at www.nyc.gov/ess
- All Others - update this information on your Profile page in the Online Application System (OASys) by logging into your OASys account and navigating to your Dashboard, then your Profile tab at www.nyc.gov/examsforjobs
- Submit a written request by email at OASys@dcas.nyc.gov, by fax (646) 500-7199, or by regular mail: DCAS, 1 Centre Street, 14th Floor, New York, NY 10007. Your written request must include your full name, social security number, exam title(s), exam number(s), previous mailing and/or email address, and your new mailing and/or email address.

CHANGE OF NAME AND/OR SOCIAL SECURITY NUMBER:

Use the Data Correction Form and follow all instructions for changing your name and/or social security number with DCAS. The following link will provide you with the DCAS Data Correction Form: <https://www1.nyc.gov/assets/dcas/downloads/pdf/employment/dp148a.pdf>.

THE TEST RESULTS:

If you pass the Education and Experience Exam, your name will be placed in final score order on an eligible list, you will be given a list number and you will be notified by mail of your test results. The eligible list determines the order by which candidates will be considered for appointment. If you meet all requirements and conditions, you will be considered for appointment if your name is reached on the eligible list. Once a list has been established, it will typically remain active for four years. To learn more about the civil service system go to: <https://www1.nyc.gov/site/dcas/employment/civil-service-system.page>.

If you believe that your test part was rated incorrectly, you may submit an appeal of your score to DCAS, Committee on Manifest Errors, through the Online Application System (OASys). Your appeal must give specific reasons why your score should be higher. Your appeal may result in a higher or lower rating.

To access the appeal portal of OASys, please log into your OASys account at www.nyc.gov/examsforjobs and use the following steps:

1. Navigate to the Dashboard for the Appeals tab.
2. Click the NEW APPEAL button to create and submit your appeal.
3. Select the exam from the Exam drop-down list, and
4. Select the exam part from the Exam Part drop-down list.
5. Select the reason for your appeal from the Appeal Reason drop-down list (if applicable).
6. Enter the details of your appeal by providing specific reasons why your score should be higher.

Note: You may attach up to 5 documents to support your appeal by using the attachment functionality.

ADDITIONAL INFORMATION:

Selective Certification for Certification and/or Special Experience:

If you have the certification and/or experience listed in one or more of the areas listed below, you may be considered for appointment to positions requiring a certification and/or experience through a process called Selective Certification. If you qualify for Selective Certification, you may be given preferred consideration for positions requiring this certification and/or experience. Your certification(s) and/or experience will be checked by the appointing agency at the time of appointment.

1. **.NET Middle Tier Developer (NED):** At least two (2) years of satisfactory, full-time experience working with the .NET development stack. Experience must include, but is not limited to: designing and implementing an Entity Domain Model; utilizing ADO.NET and ORM tools such as Entity Foundation, Nhibernate, Dapper, etc.; Domain-Driven Design; and Command Query Response Segregation (CQRS).
2. **.NET MVC Developer (NEC):** At least two (2) years of satisfactory, full-time experience working with .NET web applications leveraging the ASP.NET MVC Architecture. The experience must include, but is not limited to ASP.NET MVC, Kendo UI, TypeScript, Javascript, Web API, etc.
3. **ADABAS Systems Engineering (ADB):** At least five (5) years of satisfactory, full-time Data processing experience as a systems programmer/engineer installing and administering Software AG

products including, but not limited to ADABAS, NATURAL, PREDICT, Event Replication, Entirex, SQL Gateway, and webMethods Integration Server.

4. **Agile Scrum Certification (SUM):** A valid SCRUM certification (e.g., Certified Scrum Professional (CSP) from any institution, PMI Agile Certified Practitioner (PMI-ACP) from the Project Management Institute (PMI), Certified Scrum Master (CSM) from any institution) and at least two (2) years of satisfactory, full-time experience implementing Scrum to manage IT projects using the Agile software development methodology by conducting daily Scrum meetings as the Scrum master with complex project teams.
5. **Agile Scrum Project Management Experience (SUP):** At least five (5) years of satisfactory, full-time IT project management experience implementing packaged or custom built applications, systems, major system components, or integrations between multiple applications or system components; deployment to, or provisioning of, physical, virtual or cloud-based hosting; implementing Scrum to manage projects using the Agile software development methodology by conducting daily Scrum meetings as the Scrum master with multi-disciplinary teams (e.g., Business Analysts, and/or Developers, and/or Server Engineers, and/or Network Engineers, and/or Security Engineers, and/or Quality Assurance Testers, and/or Support Engineers); utilizing HTML5, Java, Spring, .Net, Oracle, SQL server, MQ, Web Services, ETL, and specific product stacks such as Oracle WebLogic, JBOSS, Azure, AWS Elastic Beanstalk, Docker, OBIEE, Informatica, Socrata, Documentum, Law Manager, MS Dynamics CRM, MS SharePoint, and mobile technologies such as iOS and Android development. Experience must include project management, project portfolio management and utilizing IT Service Management tools, including, but not limited to Rally, Jira, MS Project, CA Clarity, and BMC Remedy.
6. **AIX Server Administration (339):** At least two (2) years of satisfactory, full-time experience in AIX System administration. The experience must include but is not limited to: configuration and administration of enterprise-class servers including IBM AIX 4.x, AIX 5.1, AIX 5.2, AIX 5.3, or AIX 6.1.4 or higher version in a large scale data center operations support function.
7. **API Development (API):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of Application Program Interfaces (APIs). The experience must include, but is not limited to SOA, SOAP, REST, XML, Java, .NET, Test-Driven Development (TDD), Git, Subversion, CVS, Eclipse, Apache Xerces, Tomcat, Jboss, Oracle WebLogic, DOM and Unix.
8. **Apple Certified Support Professional (ACSP) Certification (CSP):** A valid Apple Certified Support Professional (ACSP) certification, and at least two (2) years of satisfactory, full-time experience in the installation, configuration, implementation, support and maintenance of macOS systems including the support of graphics workflows.
9. **Application Developer (APD):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of web applications, including but not limited to: Java, Spring, Hibernate, Azure DevOps, Jenkins, relational databases such as MySQL/Oracle, Maven, Spring Boot, Linux, AWS, Azure, HTML, JavaScript, CSS and React.JS.
10. **AWS Certified Solutions Architect – Associate (088):** A valid Amazon Web Services (AWS) Certified Solutions Architect- Associate Certification and at least two (2) years of satisfactory, full-time experience in deploying and managing applications in AWS, provisioning and configuring AWS services, developing scripts to automate tasks, and maintaining and monitoring applications in the Amazon Web.
11. **Axway SecureTransport Administration (AXA):** At least two (2) years of satisfactory, full-time experience in administering the Axway SecureTransport platform.
12. **Axway SecureTransport Application Development (AXD):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of Axway SecureTransport Application integration flows.
13. **Azure Architecture (43X):** A valid Azure Solutions Architect certification and at least two (2) years of satisfactory, full-time experience working with Microsoft Azure. Experience must include designing and implementing solutions that run on Microsoft Azure, including aspects such as compute, network, storage and security.
14. **Azure Data Engineering (43T):** A valid Azure Data Engineer certification and at least two (2) years of satisfactory, full-time experience in professional development (including work with Microsoft Azure). Experience must include a combination of implementing data storage solutions, managing and developing data processing, monitoring and optimizing data solutions. Experience must also include designing Azure data storage solutions, processing solutions, and data security and compliance solutions.
15. **Azure Development (456):** A valid Azure Developer Associate certification and at least two (2) years of satisfactory, full-time experience in professional development (including work with Microsoft Azure). In addition, the candidate must have the ability to program in a language supported by Azure, and must be proficient in Azure SDKs, data storage options, data connections, APIs, app authentication and authorization, compute and container deployment, debugging, performance tuning, and monitoring.
16. **Azure DevOps Engineer (42T):** A valid Azure Data Engineer certification and at least two (2) years of satisfactory, full-time experience working with Microsoft Azure. The candidate must have subject

matter expertise in working with people, processes and technologies to continuously deliver business value. Experience must include designing and implementing strategies for collaboration, code, infrastructure, source control, security, compliance, continuous integration, testing, delivery, monitoring, and feedback.

17. **Back-end Application Development (BED):** At least five (5) years of satisfactory, full-time experience in backend mainframe application development. The experience must include, but is not limited to Adabas/Natural or DB2.
18. **BMC Remedy Development (BMC):** At least two (2) years of satisfactory, full-time experience in analysis, design, development, implementation and maintenance of applications including BMC Remedy ITSM 7.x/8.x and/or in installation, configuration and administration of Remedy ARS 8.x, Mid-tier 8.x, ITSM 8.x, CMDB 8.x and/or higher versions.
19. **Browser-Based Client-Side Development (BAB):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of browser-based client-side web applications. The experience must include, but is not limited to: HTML, CSS, JavaScript, AJAX, XML, JSON, JQuery, Bootstrap or a similar framework, Google Maps, React and Angular.
20. **Business Analysis Management (BAM):** At least five (5) years of satisfactory, full-time experience employing User-Centered Analysis techniques (interviews, direct observations, requirement work sessions, etc.) in a variety of systems development life cycle (SDLC) methodologies, including Agile, to understand business needs and clearly define the requirements package for IT applications. Must have experience leading a team of business analysts, working on eliciting business needs and defining requirements for IT applications, and developing and formalizing software development methodology.
21. **Business Analysis (BNA):** At least two (2) years of satisfactory, full-time experience employing User-Centered Analysis techniques (interviews, direct observations, requirement work sessions, etc.) in a variety of systems development life cycle (SDLC) methodologies, including Agile, to understand and elicit business needs and clearly define the requirements package for IT applications.
22. **Business Intelligence (BI) Analysis (BIA):** At least two (2) years of satisfactory, full-time experience in the analysis, design and implementation of Business Intelligence (BI) applications and reporting solutions that includes tasks and activities utilizing BI concepts and Data Warehousing methodologies (e.g., Star Schemas, Dimensional Models, and Data marts), analyzing and designing solutions using BI Tools and/or data modeling, data copying/ETL (Extract, Transform and Load) design and developing and employing functional artifacts. Examples include, but are not limited to:
 - BI Tools: OBIEE, Jasper, Tableau, Crystal Report, SSRS, Cognos
 - Data Copying: Informatica, SSIS, Talend, Pentaho, iWay
 - Functional artifacts: Requirements Definitions, Report Mockups, Report Designs, Data Dictionary, Conceptual data models, Glossary.
23. **Business Intelligence/Analytics Systems Administration (BIS):** At least two (2) years of satisfactory, full-time experience in administering, supporting, designing, developing, installing, configuring, implementing, maintaining, monitoring, securing and/or enhancing Business Intelligence or Analytics systems. Examples include, but are not limited to Azure cloud platform, Amazon Web Services (AWS), OBIEE, Oracle cloud infrastructure, Informatica PowerCenter, Informatica Intelligent Cloud Services, SSIS, Data Warehouse, PL/SQL, BI Publisher, Looker, PowerBI, Visual Studio, WebLogic, SQL Server, SSRS, JSON/XML/XSL/Web Services, Unix, Linux, shell scripting and SQL.
24. **Business Intelligence/Analytics Systems Development (BID):** At least five (5) years of satisfactory, full-time experience in designing, developing, configuring, implementing, integrating, maintaining and/or enhancing Business Intelligence or Analytics systems. Examples include, but are not limited to: OBIEE, DAC, Informatica Power Exchange, Informatica Power Center Designer, Informatica Power Center Repository Manager, DTS, SSRS, SSIS, Data Modeling, PL/SQL, C, BI Publisher, Actuate and/or BI Publisher reports, Oracle Databases, WebTrends, SQL Server, XML/XSL/Web Services, integrations using/with Cloud APIs, IBM Messaging Queues, Customer Relationship Management (CRM) Systems, and ETL tools.
25. **Business Intelligence Development Experience (BAS):** At least two (2) years of satisfactory, full-time experience in designing, developing, configuring, testing, implementing, integrating, maintaining and/or enhancing Business Intelligence or Analytics solutions such as dashboards, reports and data visualizations. Technologies include, but are not limited to: OBIEE, BI Publisher, Business Objects, Xcelsius, Lumira, Cognos Analytics, Cognos Framework Manager, Tableau, Power BI, SSRS, Data Modeling, PL/SQL, C, Oracle, DB2 and SQL Server.
26. **Certification of Competency in Business Analysis (CCBA) (CCB):** A valid Certification of Competency in Business Analysis (CCBA) from the International Institute of Business Analysis (IIBA) and at least five (5) years of satisfactory, full-time experience employing User-Centered Analysis techniques (interviews, direct observations, requirement work sessions, etc.) in a variety of systems development life cycle (SDLC) methodologies, including Agile, to understand business needs and clearly define the requirements for IT applications.
27. **Certified Associate in Project Management (CAPM) (CAP):** A valid Certified Associate in Project Management (CAPM) certification from the Project Management Institute (PMI).
28. **Certified Associate in Software Testing (CAST) Certification (CAS):** A valid Certified Associate in Software Testing (CAST) certification from the International Software Certification Board (ISCB) **and**

at least two (2) years of satisfactory, full-time experience employing various software testing techniques in a variety of systems development life cycle (SDLC) methodologies, including Agile, to ensure the quality of the system under development for IT applications.

- 29. Certified Business Analysis Professional (CBAP) Certification (CBA):** A valid Certified Business Analysis Professional (CBAP) certification from the International Institute of Business Analysis (IIBA) **and** at least two (2) years of satisfactory, full-time experience employing User-Centered Analysis techniques (e.g., interviews, direct observations, requirement work sessions, etc.) in a variety of systems development life cycle (SDLC) methodologies, including Agile, to understand business needs and clearly define the requirements for IT applications.
- 30. Certified Electronics Technician (CET) Certification (174):** A valid Certified Electronics Technician (CET) certification **and** at least two (2) years of satisfactory, full-time experience designing, operating or maintaining public safety communication systems.
- 31. Certified Information Security Manager (CISM) (400):** A valid Certified Information Security Manager certification from ICA **and** five (5) years of satisfactory, full-time experience in security management.
- 32. Certified Information Systems Auditor (CISA) (401):** A valid Certified Information Systems Auditor certification from ISACA (with a passing score of at least 450 on the CISA exam), **and** at least five (5) years of satisfactory, full-time experience in information systems auditing, control, **or** security.
- 33. Certified Information Systems Security Professional (CISSP) (413):** A valid Certified Information Systems Security Professional Certification from ICA, **and** five (5) years of satisfactory, full-time experience in two or more of the eight domains: Security and Risk Management, Asset Security, Security Architecture and Engineering, Communications and Network Security, Identity and Access Management, Security Assessment and Testing, Security Operations, or Software Development Security.
- 34. Certified Manager of Software Testing (CMST) Certification (CMT):** A valid Certified Manager of Software Testing (CMST) certification from the International Software Certification Board (ISCB) **and** at least two (2) years of satisfactory, full-time experience leading a team of software testers in a variety of systems development life cycle (SDLC) methodologies, including Agile, to understand business needs and clearly define the requirements for IT applications.
- 35. Certified Software Tester (CSTE) Certification (CTC):** A valid Certified Software Tester (CSTE) certification from the International Software Certification Board (ISCB) **and** at least two (2) years of satisfactory, full-time experience employing various software testing techniques in a variety of systems development life cycle (SDLC) methodologies, including Agile, to ensure the quality of the system under development for IT applications.
- 36. Change Management (168):** at least two (2) years of satisfactory, full-time experience in a large-scale IT enterprise, coordinating infrastructure and application changes via a Change Advisory Board (CAB). Must have deep understanding of various change management methodologies and tools (BMC SDE SupportMagic, Remedy & ServiceNow), experience in looking across the enterprise and integrating key information from various major change initiatives, ability to manage the lifecycle of a Change Request from inception to closure, ability to ask technical questions and ensure that there are no change conflicts and that back out plans are included, and experience in facilitating meetings and asking probing questions to identify risk.
- 37. Cherwell Development (CND):** At least two (2) years of satisfactory, full-time experience in analysis, design, development, implementation and maintenance of applications including Cherwell IT Service Management (ITSM).
- 38. Cisco Certified Internetwork Expert (CCI):** A valid Cisco Certified Internetwork Expert (CCIE) certification.
- 39. ClearWell Administration (CWA):** A valid Symantec Certified Specialist (SCS) certification **and** at least two (2) years of satisfactory, full-time experience using Symantec ClearWell eDiscovery Platform; architecting, deploying, integrating an eDiscovery platform; and/or administering and supporting Symantec Enterprise Vault (eVault).
- 40. COBOL Application Developer (COP):** At least five (5) years of satisfactory, full-time COBOL programming experience for both batch and on-line (CICS) applications using VSAM QSAM, BDAM (index, sequential and direct) access methods including DB2 stored procedures, COBOL CICS Web based application development, and hands-on experience setting up batch job streams (JCL) using industry standard job schedulers such as Tivoli.
- 41. Communications Systems Programming (CTP):** At least five (5) years of satisfactory, full-time experience as a z/OS systems programmer.
- 42. CompTIA PenTest+ (22D):** A valid CompTIA PenTest+ certification from the Computing Technology Industry Association.
- 43. CompTIA Security+ (230):** A valid Computing Technology Industry Association (CompTIA) Security+ certification **and** two (2) years of satisfactory, full-time experience in assessing the security posture of an enterprise environment and recommending and implementing appropriate security solutions; monitoring and securing hybrid environments, including cloud, mobile and IoT; operating with an

awareness of applicable laws and policies, including principles of governance, risk, and compliance; identifying, analyzing and responding to security events and incidents.

- 44. Computer Aided Dispatch (CAD) Engineering (CAD):** At least five (5) years of satisfactory, full-time experience in designing and overseeing complex Computer Aided Dispatch (CAD) and/or dispatch networks within medium to large scale technology projects.
- 45. Computer Telephony Integration Systems Administration (CTI):** At least two (2) years of satisfactory, full-time experience in administering, supporting, designing, developing, installing, configuring, implementing, maintaining and/or enhancing Computer Telephony Integration systems. Examples include, but are not limited to: Genesys, PBX, Nortel or/and Avaya Telephony system IIS, MS Dynamics, Oracle CRM and Salesforce, Unix, Linux and SQL.
- 46. Configuration Management Development (CMD):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of configuration management development in a web-based environment. The experience must include, but is not limited to: TeamCity, Jenkins, Chef, Ansible and Azure DevOps, Ruby on Rail, Python, PHP, Git, Subversion, Unix and Windows.
- 47. Content Management Systems Development (MSD):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of content management systems development. The experience must include, but is not limited to: EMC Documentum, Java, ANT, TeamCity, Subversion, Rules Engine and Junit.
- 48. Continuous Process Improvement Management (216):** At least two (2) years of satisfactory, full-time experience developing and implementing enterprise-wide IT processes for a large public organization. Experience must include working with business owners and subject matter experts to define process controls, develop system requirements for integration, and identify the inputs and outputs of other processes. Must have experience in building a process from the ground up and/or developing best practice assessments for the implementation of a continual process improvement.
- 49. COTS Implementation Project Management (COT):** At least five (5) years of satisfactory, full-time IT project management experience implementing packaged (i.e., commercial off-the-shelf, or COTS) applications, systems, or integrations between multiple applications or system components; including deployment to, or provisioning of, physical, virtual or cloud-based hosting, managing multi-disciplinary teams (e.g., Business Analysts, and/or Developers, and/or Server Engineers, and/or Network Engineers, and/or Security Engineers, and/or Quality Assurance Testers, and/or Support Engineers). Acceptable implementation projects include applications running on enterprise-class technologies such as, but not limited to .Net, Oracle, SQL server, Oracle WebLogic, JBOSS, Azure, AWS Elastic Beanstalk, Docker, MS Dynamics, MS SharePoint, and mobile platforms such as iOS and Android development. All candidates must have experience with project management, project portfolio management and IT Service Management tools including, but not limited to MS Project, CA Clarity, and BMC Remedy.
- 50. CRM Solutions Design (232):** At least two (2) years of satisfactory, full-time experience in the analysis, design and implementation of Customer Relationship Management (CRM) solutions that includes analyzing and designing solutions using commercial off-the-shelf (COTS) CRM software, developing and employing functional artifacts, and supporting the solution through the systems development lifecycle (SDLC). Examples include, but are not limited to: CRM modules (Contact and Account Management, Employees, Marketing, Service, Products, Activities and Correspondence, Reporting); CRM concepts (Configuration, Customization, Workflows, System integrations, Security Administration, Data Visibility and Access Control); COTS Software (Microsoft Dynamics, Salesforce); Functional artifacts (Solution Designs, Use Cases, User Stories, Requirements Definitions, Process Definitions, and User Interface Design).
- 51. CRM Systems Administration (233):** At least two (2) years of satisfactory, full-time experience in administering, supporting, designing, developing, installing, configuring, implementing, maintaining and/or enhancing industry leading Customer Relationship Management (CRM) Systems. Examples include, but are not limited to MS Dynamics, Oracle CRM and Salesforce, Actuate and/or BI Publisher reports, Visual Studio, IIS, SQL Server, SSRS, XML/XSL/Web Services, Unix, Linux and SQL.
- 52. CRM Systems Development (234):** At least five (5) years of satisfactory, full-time experience designing, developing, configuring, implementing, maintaining and/or enhancing industry leading Customer Relationship Management (CRM) Systems (e.g., MS Dynamics, Oracle CRM, Salesforce), creating reports in Actuate and/or BI Publisher, and developing using Visual Studio, SSRS, XML/XSL/Web Services, SQL, Java Script, C++ and HTML.
- 53. Custom Application Development Project Management (224):** At least five (5) years of satisfactory, full-time IT project management experience implementing custom-built applications, systems, major system components, or integrations between multiple applications or system components; including deployment to, or provisioning of, physical, virtual or cloud-based hosting, managing multi-disciplinary teams (e.g., Business Analysts, and/or UX Designers, and/or Application Architects, and/or Developers, and/or Server Engineers, and/or Network Engineers, and/or Security Engineers, and/or Quality Assurance Testers, and/or Support Engineers); developing applications with class technologies such as, but not limited to HTML5, Java, Spring, .Net, Oracle, SQL server, MQ, Web Services, ETL, and specific product stacks such as Oracle WebLogic, JBOSS, Azure, AWS Elastic Beanstalk, Docker, OBIEE, Informatica, Socrata, Documentum, Law Manager, MS Dynamics CRM, MS SharePoint, and mobile technologies such as iOS and Android development. Experience must include project management, project portfolio management and utilizing IT Service Management

tools, including, but not limited to MS Project, CA Clarity, and BMC Remedy.

- 54. Customer Information Control System (CICS) Systems Programming (CIC):** At least five (5) years of satisfactory, full-time Customer Information Control System (CICS) systems programming experience including CICS installation and maintenance using SMP/E, and experience with MQ Series.
- 55. Data Analyst Experience (DAA):** At least two (2) years of satisfactory, full-time experience with structuring, organizing, and analyzing data.
- 56. Database Development (DDD):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of database development for web applications. The experience must include, but is not limited to Data modeling, Oracle, Microsoft SQL Server, MySQL, SQL, Stored Procedures and SQL Query Analyzers.
- 57. Data Engineer (DEX):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of application and data pipeline integrations using cloud, database, programming and ETL/ELT technologies. Examples include, but are not limited to OBIEE, Oracle Analytics Cloud (OAC), Looker, Power BI, Informatica PowerCenter, Informatica Intelligent Cloud Services, SSIS, SQL Server, AWS Redshift, AWS Glue, AWS S3, AWS Lambda, Azure Synapse, Azure Data Factory, Azure Logic Apps, Azure Databricks, Azure Storage Accounts, Azure DevOps, Kafka, Spark, Powershell, Bash scripting, Python, Snowflake, Oracle, Postgres, MongoDB and API integrations.
- 58. Data Warehousing Development (ADW):** At least two (2) years of satisfactory, full-time experience in the design, development, testing, implementation, maintenance of a Data Warehouse. The experience must include, but is not limited to Extract, Transform and Load (ETL), Data modeling, Performance tuning, Shell scripting, Oracle, DB2, SQL Server, MySQL, SQL, Stored Procedures, SQL Query Analyzers, Informatica, DataStage and SSIS.
- 59. Demand Management (DDM):** At least two (2) years of satisfactory, full-time experience in demand or intake process development and improvement related to IT service delivery. The experience must include, but is not limited to tasks such as status reporting, resource allocation, request prioritization and estimating request costs.
- 60. DevOps Engineer (22E):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of DevOps tools including, but not limited to Azure DevOps, Jenkins, JFrog, Ansible, CHEF, AWS, Azure, Linux, Bash, Shell Scripting, Python and CI/CD pipelines.
- 61. Digital Content Strategist (DCS):** At least two (2) years of satisfactory, full-time web writing and editing experience following the principles of plain language communication; content authoring and publishing using commercial Content Management Systems (CMS) and/or open-source tools; independent development of deliverables such as content audits, content matrices, site taxonomies, and style guides; troubleshooting basic HTML functions such as links, tables, and font formatting; and using Web Analytics and/or Tags (such as Webtrends or Google) to generate actionable insights.
- 62. EC-Council Certified Application Security Engineer (CASE) (24G):** A valid EC-Council Certified Application Security Engineer (CASE) certification from the International Council of Electronic Commerce Consultants (EC).
- 63. EC-Council Licensed Penetration Tester (LPT) (24H):** A valid EC-Council Licensed Penetration Tester (LPT) certification from the International Council of Electronic Commerce Consultants (EC).
- 64. Educational Environment Experience (EIT):** At least two (2) years of satisfactory, full-time experience working in an educational program(s) and/or institution(s).
- 65. EMC Proven Professional Certification (24F):** A valid EMC Proven Professional Certification **and** at least two (2) years of satisfactory, full-time experience in the installation, configuration, implementation, maintenance and enhancement of Web-Content Management Systems.
- 66. Enterprise Services Project Management (25B):** At least five (5) years of satisfactory, full-time experience project managing IT infrastructure and applications projects from start to finish.
- 67. Enterprise Web Analytics Administration (25C):** At least two (2) years of satisfactory, full-time experience in the installation, configuration, implementation, maintenance and enhancement of Enterprise Web Analytics Systems. Examples include, but are not limited to WebTrends Analytics, Google Analytics, **and** Microsoft SQL Server.
- 68. Exchange Administration (25E):** At least two (2) years of satisfactory, full-time experience in configuring and managing Microsoft Active Directory environments including installing and administering server-based production systems.
- 69. Exchange Engineering (25F):** At least five (5) years of satisfactory, full-time experience monitoring and maintaining Exchange 2010 environment and Office 365 environment, Multi Site DAG and Exchange stretch cluster technology for Exchange disaster recovery and ancillary messaging components.
- 70. Federal Communications Commission (FCC) Commercial Radio License(s) (282):** A valid FCC

Commercial Radio License **and** at least two (2) years of satisfactory, full-time experience designing, operating or maintaining public safety communication systems. Examples of FCC Commercial Radio Licenses include, but are not limited to: FCC GROL (General Radio Operator License) with or without Radar Endorsement; GMDSS (Global Maritime Distress Safety System) Operator or Maintainer License.

- 71. Front-End Development (FED):** At least two (2) years of satisfactory, full-time experience in HTML, HTML5, CSS, CSS3, JavaScript, Enterprise Content Management System, and Photo/Graphics Editing Software. Must have experience in CSS Frameworks, JavaScript Frameworks, AJAX, XML, JSON and/or responsive web development.
- 72. Functional Testing (HBN):** At least five (5) years of satisfactory, full-time experience performing functional testing tasks for applications with browser-based user interfaces and web services including, but not limited to analyzing business requirements for completeness and testability; designing requirements-based test cases; executing test cases; and registering, reporting and tracking defects using HP Quality Center as the test management system.
- 73. Geographic Information Systems (GIS):** At least five (5) years of satisfactory, full-time experience using Geographical Information Systems (GIS) in at least one (1) of the following capacities: maintenance of geospatial data, spatial analysis, map production, and/or supporting an organization's operations; must have experience supervising GIS resources and managing or overseeing GIS tasks and/or GIS projects.
- 74. Geospatial Application Development (113):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance or enhancement of responsive web or mobile geospatial and/or mapping applications and/or services. Examples include, but are not limited to ESRI, Oracle Spatial, PostGIS, Open Geo Suite, Google, Mapbox, CartoDB, Java, JavaScript and Python.
- 75. Geosupport Development (316):** At least two (2) years of satisfactory, full-time experience in the analysis, design, implementation, maintenance, customization, and enhancement of Geosupport applications using one (1) or more of the following: PL/1, C , .NET, Java, SQL Server, JCL, VSAM and CICS.
- 76. GIAC Certified Web Application Defender (29X):** A valid GIAC Certified Web Application Defender certification from the Global Information Assurance Certification (GIAC) institute.
- 77. Google Cloud Solutions Experience (32K):** A valid Professional Certificate for Google IT Support from Google, LLC, **and** at least two (2) years of satisfactory, full-time experience in the maintenance and support of Google-based software, databases, operating or data communication systems in an educational environment.
- 78. Health Information Technology Systems Experience (HIT):** At least two (2) years of full-time, satisfactory experience using health information technology systems and/or electronic health records operations for the purpose of researching, collecting and coordinating surveillance data from hospitals, community health centers, and/or private practices.
- 79. Help Desk Institute (HDI) Certified (86B):** A valid HDI Support Center certification from Helpdesk Institute (HDI).
- 80. Help Desk Institute (HDI) Desktop Advanced Support Technician (86A):** A valid HDI Desktop Advanced Support Center technician certification from Help Desk Institute (HDI).
- 81. Higher Education Experience (EAE):** At least two (2) years of satisfactory, full-time experience working in higher education institutes.
- 82. IACRB CPT - Certified Penetration Tester (86H):** A valid Certification of Penetration Testing from the Information Assurance Certification Review Board (IACRB).
- 83. IBM Certified System Administrator - WebSphere Application Server Network Deployment (341):** A valid IBM Certified System Administrator - WebSphere Application Server Network Deployment certification **and** at least two (2) years of satisfactory, full-time experience as a system administrator (system integrator, infrastructure architect, application architect or solutions architect) performing the installation, configuration and day-to-day tasks associated with ensuring the smooth, reliable, and efficient operation of an IBM WebSphere Application Server Network Deployment environment.
- 84. IBM Certified System Administrator - WebSphere MQ or - WebSphere Message Broker (342):** A valid IBM Certified System Administrator - WebSphere MQ certification **or** IBM Certified System Administrator - WebSphere Message Broker certification **and** at least two (2) years of satisfactory, full-time experience in the installation, configuration, implementation, maintenance and enhancement of Enterprise Integration Bus and its related platforms.
- 85. Incident Command Structure (ICS), Communications Leader (COML), or Communications Technician (COMT) Certification (382):** A valid Incident Command Structure (ICS) certification **or** Communications Leader (COML) certification **or** Communications Technician (COMT) certification **and** at least two (2) years of satisfactory, full-time experience designing, operating or maintaining public safety communication systems.

- 86. Informatica Intelligent Cloud Services (iPaaS) Development (395):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of IICS (Informatica Intelligent Cloud Services) integration flows.
- 87. Informatica Intelligent Cloud Services Secure iPaaS Administration (396):** At least two (2) years of satisfactory, full-time experience in installing, configuring, monitoring and administering the IICS (Informatica Intelligent Cloud Services) integration platform.
- 88. Information Technology Process Management (383):** A valid ITIL professional certification **and** at least five (5) years of satisfactory, full-time experience developing and implementing enterprise-wide IT processes for a large public organization. Experience must include working with business owners and subject matter experts to define process controls, integrate with system requirements and the inputs and outputs to other processes.
- 89. Integration Development (IDD):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of application and data integrations using enterprise service bus, messaging middleware technologies and ETL technologies. Examples include, but are not limited to WebSphere Message Broker, WebSphere MQ, WebSphere DataPower, iWay Service Manager, Informatica, and Talend.
- 90. IP Telephony Design Architecture (385):** At least five (5) years of satisfactory, full-time design experience working with Cisco Call Manager or Cisco Contact Center, with hands-on experience configuring Voice Gateways, dial-plans and H.323 protocols.
- 91. ISTQB (International Software Testing Qualifications Board) Certified Tester (405):** A valid Certified Tester Foundation Level (CTFL) certification and/or Certified Tester Advanced Level (CTAL) certification and/or Certified Tester Expert Level (CTEL) certification from the ISTQB and at least two (2) years of satisfactory, full-time experience employing various software testing techniques in a variety of systems development life cycle (SDLC) methodologies, including Agile, to ensure the quality of the system under development for IT applications.
- 92. ITIL Foundation Certification (39E):** A valid IT Infrastructure Library (ITIL) Foundation certification from approved vendor AXELOS Global Best Practice
- 93. ITIL Certification (39F):** A valid ITIL Practitioner certification and at least two (2) years of satisfactory, full-time experience with implementation, configuration, change and incident management and process support in an IT enterprise-level environment.
- 94. IT Infrastructure Project Management (42B):** At least five (5) years of satisfactory, full-time IT project management experience implementing technical infrastructure projects including provisioning new environments, upgrading technical infrastructure, migrating between environments, and provisioning of new technical services; working with customers to define and develop complete technical requirements and specifications; coordinating the overall solutioning process and approval process; working with various technical oversight stakeholders, and working with multiple cross-functional service delivery teams to complete technical implementations. Experience must include project management, project portfolio management and utilizing IT Service Management tools including, but not limited to MS Project, CA Clarity, and BMC Remedy.
- 95. IT Infrastructure: Implementation, Release & Deployment Management (42C):** A valid Portfolio Management Professional (PMP) certification from the Project Management Institute (PMI) **and** at least five (5) years of satisfactory, full-time IT release management experience implementing technical infrastructure projects, including planning, scheduling and controlling the migration life cycle of all new and changed assets from Test to Live environments.
- 96. IT Infrastructure: Implementation, Release & Deployment Support (42A):** At least two (2) years of satisfactory, full-time IT release management experience implementing technical infrastructure projects, including planning, scheduling and controlling the migration life cycle of all new and changed assets from Test to Live environments.
- 97. IT Problem Management (42D):** At least five (5) years of satisfactory, full-time experience in a large-scale IT enterprise managing a team of Problem Analysts/Support Problem Managers who manage the lifecycle and process of problems to stabilize IT service delivery and prevent reoccurrence of IT impacting critical systems.
- 98. IT Program Management (42E):** At least five (5) years of satisfactory, full-time IT project management experience implementing packaged or custom-built applications, systems, major system components or integrations between multiple applications or system components; provisioning of physical, virtual or cloud-based hosting; implementing Scrum to manage projects using the Agile software development methodology by conducting daily Scrum meetings as the Scrum master with multi-disciplinary teams (e.g., Business Analysts, and/or Developers, and/or Server Engineers, and/or Network Engineers, and/or Security Engineers, and/or Quality Assurance Testers, and/or Support Engineers) and managing programs consisting of multiple, related, IT projects including direct management of project manager employees and/or consultants; utilizing technologies such as, but not limited to HTML5, Java, Spring, .Net, Oracle, SQL server, MQ, Web Services, ETL, and specific product stacks such as Oracle WebLogic, JBOSS, Azure, AWS Elastic Beanstalk, Docker, OBIEE, Informatica, Socrata, Documentum, Law Manager, MS Dynamics CRM, MS SharePoint, and mobile technologies such as iOS and Android development. Must have experience with project management, project portfolio management and IT Service Management tools, including, but not limited to MS Project, CA Clarity, and BMC Remedy.

- 99. IT Project Administration (42F):** At least two (2) years of satisfactory, full-time IT project administration experience using Agile and/or Waterfall systems development life cycle (SDLC) methodologies, including tracking and reporting project progress and adherence to Project Management Office standards. Must have experience participating in projects involving multi-disciplinary teams (e.g., Business Analysts, and/or UX Designers, and/or Application Architects, and/or Developers, and/or Server Engineers, and/or Network Engineers, and/or Security Engineers, and/or Quality Assurance Testers, and/or Support Engineers). Must also have experience with project management, project portfolio management and IT Service Management tools, such as MS Project, CA Clarity, and BMC Remedy.
- 100. IT Project Management Supervision (42G):** At least five (5) years of satisfactory, full-time IT project management experience implementing packaged or custom built applications, systems, major system components, or integrations between multiple applications or system components; including deployment to, or provisioning of, physical, virtual or cloud-based hosting, managing multi-disciplinary teams (e.g., Business Analysts, and/or Developers, and/or Server Engineers, and/or Network Engineers, and/or Security Engineers, and/or Quality Assurance Testers, and/or Support Engineers). Experience must include supervising IT project management staff in an IT organization's Project Management Office (PMO) and providing strategic direction on project management methodologies, best practices and standards.
- 101. IT Scheduling (42I):** At least five (5) years of satisfactory, full-time experience in IT Public Safety project planning and/or integrated scheduling experience.
- 102. IT Security Project Management (42J):** At least two (2) years of satisfactory, full-time experience in project management of IT infrastructure and applications, working as part of a large scale enterprise IT program and on mission critical projects including one or more of the following: Security Log Collection; APT Detection; Database Activity Monitoring; Network access control; Identify and Access Management; Firewalls (Implementation and Upgrades); Data Loss Prevention; Security Control (Third Party Access); Network Monitoring; and/or PCI Compliance.
- 103. Jamf Certified Tech (JCT):** A valid Jamf Certified Tech certificate and at least two (2) years of satisfactory, full-time experience in building and managing content (packages) for deployment to macOS devices, setup and configuration of macOS devices, creating configuration profiles, setup and reimaging of macOS devices, and security for macOS devices.
- 104. Kinetic Development (KDE):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation and maintenance of applications including Kinetic Requests 5.x, Kinetic Survey 5.x or higher versions.
- 105. Knowledge-Centered Service Certified (KCS):** A valid Knowledge-Centered Service (KCS) certification from the Knowledge-Centered Service Academy.
- 106. Land Mobile Radio (LMR) System Training/Certifications (482):** A valid Land Mobile Radio (LMR) certification **and** at least five (5) years of satisfactory, full-time experience designing, operating or maintaining public safety communication systems. Examples of certifications include, but are not limited to: P25 Trunking Radio Networks, Microwave Backhaul Links, MCC 7500 Console Systems, Subscriber programming Training (APX, XTS, XTL line of subscribers).
- 107. Linux Engineering (LNE):** At least five (5) years of satisfactory, full-time experience with UNIX & Linux System administration/engineering, including but not limited to experience administering, structuring, architecting, and supporting multi-tier web-based systems that are highly available and capable of handling large throughput and concurrency; and experience with Veritas products including Cluster Server, Volume Manager, File System, and/or other clustering and replication technologies.
- 108. M.204 Mainframe Developer (MDL):** At least five (5) years of satisfactory, full-time experience in the analysis, design, implementation, maintenance and enhancement of Model 204 (M204) Mainframe environment. Experience must include working with M204 backup and recovery, installation of M204 software and Early Warnings.
- 109. Mainframe Development (465):** At least five (5) years of satisfactory, full-time experience in the analysis, design, implementation, maintenance and enhancement of application programs using Adabas/Natural, SAS, Assembler, MVS/TSO, CICS and/or JCL.
- 110. Mainframe Storage Engineering (466):** At least five (5) years of experience in storage management in the z/OS arena provisioning, deploying, and maintaining heterogeneous mainframe storage environments, including administration and use of DFSMS/RMM, DFHSM, DFSMS, FlashCopy, PPRC, and ICF catalogs.
- 111. Messaging & Collaboration Engineering (467):** At least five (5) years of satisfactory, full-time experience working with Microsoft Office 365, Exchange, Teams, and SharePoint; Storage Devices (including NetApp and EMC), BES, Windows Server, Archiving Solutions (including Enterprise Vault), eDiscovery, Scripting languages such as VBScript, and PowerShell.
- 112. Microsoft Certified Applications Developer (MCAD) Certification (44A):** A valid Microsoft Certified Applications Developer (MCAD) Certification.
- 113. Microsoft Certified Applications Developer for .Net (MCAD) Certification (430):** A valid Microsoft Certified Applications Developer for .Net (MCAD) Certification.

- 114. Microsoft Certified Professional Developer (MCPD) Certification (43Z):** A valid Microsoft Certified Professional Developer (MCPD) Certification.
- 115. Microsoft Certified Professional Developer: Enterprise Applications Developer Certification (435):** A valid Microsoft Certified Professional Developer: Enterprise Applications Developer Certification.
- 116. Microsoft Certified Solutions Associate (MCSA) Certification (MCA):** A valid Microsoft Certified Solutions Associate (MCSA) certification from Microsoft **and** at least five (5) years of satisfactory, full-time experience in, but not limited to defining, building, and implementing software solutions using Microsoft .Net Framework, Microsoft SQL Server and various systems development life cycle (SDLC) methodologies, including Agile.
- 117. Microsoft Certified Solutions Developer (MCSD) Certification (44T):** A valid Microsoft Certified Solutions Developer (MCSD) certification from Microsoft and at least five (5) years of satisfactory, full-time experience in, but not limited to building and implementing software solutions using Microsoft .Net Framework, Microsoft SQL Server and various systems development life cycle (SDLC) methodologies, including Agile.
- 118. Microsoft Certified Solutions Developer for .Net Certification (436):** A valid Microsoft Certified Solutions Developer for .Net Certification.
- 119. Microsoft Office 365 Administrator (OFF):** A valid Microsoft Office 365 Administrator Certification **and** two (2) years of satisfactory, full-time experience in evaluating, planning, migrating, deploying, and managing Microsoft 365 services such as email, SharePoint, MS Teams, OneDrive, and associated Policies.
- 120. Microsoft Technology Associate (MTA) Certification (462):** A valid Microsoft Technology Associate (MTA) certification from Microsoft.
- 121. Mobile Application Development (475):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of mobile application development. The experience must include, but is not limited to Swift, Objective-C, Java, Kotlin, Android API, xCode, MAC OS X, Google Maps, and Test-Driven Development (TDD).
- 122. MS SharePoint Development (476):** At least two (2) years of satisfactory, full-time experience in the analysis, design, implementation, maintenance, customization, and enhancement of SharePoint applications.
- 123. Municipal Government Experience (MGE):** At least two (2) years of satisfactory, full-time experience working within a municipal government, in a similar position, which provides services for a city with a population of over 1 million.
- 124. Network Design Administration (51A):** At least two (2) years of satisfactory, full-time experience working with TCP/IP subnetting and basic configuration of Cisco routers and switches.
- 125. Network Design Architecture (51B):** At least five (5) years of satisfactory, full-time design experience working with Cisco Optical devices, Catalyst and Nexus range of switches, routers and F5 load balancers. Must have hands-on experience.
- 126. NoSQL Developer (540):** At least two (2) years of satisfactory, full-time experience in NoSQL Technologies including, but not limited to Redis, CouchDB, MongoDB, etc.
- 127. Offensive Security Certified Expert (OSCE) (562):** A valid Offensive Security Certified Expert (OSCE) certification.
- 128. Oracle Database 12c Administrator certified Associate (58J):** A valid Oracle Database 12c Administrator certified Associate certification, including completion of the Oracle Database 12c: Admin, Install & Upgrade Accelerated course.
- 129. Oracle DBA (580):** At least five (5) years of satisfactory, full-time experience as an Oracle DBA implementing and managing Oracle RAC environments and non-RAC environments, implementing Grid Infrastructure release 12 or higher on a Unix/Linux environment, or ASM cluster Filesystem implementation/maintenance.
- 130. Oracle SOA Suite certified implementation Specialist (58Q):** A valid Oracle SOA Suite certified implementation Specialist certification.
- 131. Oracle WebLogic Server Administration Certification (581):** A valid Oracle Certified Associate – Oracle WebLogic Server System Administrator or Oracle Certified Associate - Oracle WebLogic Server Administrator or Oracle Certified Professional (Expert) or Oracle Weblogic Server Administrator or Oracle Certified Professional (Expert) or Oracle WebLogic Server Administrator certification and at least two (2) years of satisfactory, full-time experience in the implementation, maintenance and enhancement of Web-Content Management Systems.
- 132. OSX and iOS Development (582):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of programs using OSX, Objective C, Swift, iOS 10 and Xcode.

- 133. Performance Testing (583):** At least two (2) years of satisfactory, full-time experience as a functional tester performing testing activities such as analyzing application functionality and architecture; script creation; execution, analysis, and reporting of results; troubleshooting application issues; and deep diagnostics using Micro Focus LoadRunner and Performance Center for applications with a browser-based user interface. Experience must include utilizing IT Service Management tools, and/or Server Monitoring tools including but not limited to BMC Remedy and/or HP SiteScope and/or NetIQ.
- 134. PMI Agile Certified Practitioner (PMI-ACP) Certification (586):** A valid PMI Agile Certified Practitioner (PMI-ACP) Certification from the Project Management Institute (PMI) **and** at least two (2) years of satisfactory, full-time Agile IT project management experience.
- 135. Portfolio Management Professional (PfMP) Certification (587):** A valid Portfolio Management Professional (PfMP) certification from the Project Management Institute (PMI) and at least two (2) years of satisfactory, full-time experience modeling, designing, executing and monitoring project portfolio management processes and procedures and administering and implementing project and portfolio management tools.
- 136. Problem Analysis (588):** At least two (2) years of satisfactory, full-time experience analyzing and responding to known high-impact and recurring IT service issues in a large, complex IT enterprise environment (servers, applications, networks, storage, end-user support, etc.).
- 137. Production Batch Support Analyst (589):** At least five (5) years of satisfactory, full-time experience as a production batch support analyst on an IBM Mainframe z/OS environment with an in-depth knowledge of IBM Tivoli Workload Scheduler, Tivoli Enterprise Portal, TSO/ISPF, JCL, IBM utilities, OMEGAMON, and NETVIEW.
- 138. Product Manager (PRX):** At least two (2) years of satisfactory, full-time product management experience, utilizing product management techniques and demonstrating the application of the following skills: Agile Work; DDaT Perspective - understanding of design, data, and technology (DDaT); Product Lifecycle Management; Operational Management; Problem, Product and Strategic Ownership; and User Focus; **AND** at least two (2) years of satisfactory, full-time experience participating in products involving multi-disciplinary teams (e.g., Business Analysts, and/or UX Designers, and/or Application Architects, and/or Developers, and/or Server Engineers, and/or Network Engineers, and/or Security Engineers, and/or Quality Assurance Testers, and/or Support Engineers).
- 139. Professional Customer Relationship Management (CRM) Tools Certification (590):** A valid professional certification in one or more Customer Relationship Management (CRM) tools (e.g., Oracle Microsoft Dynamics, Oracle CRM, Salesforce) **and** at least two (2) years of satisfactory, full-time experience administering, supporting, designing, developing, installing, configuring, implementing, maintaining and/or enhancing industry leading Customer Relationship Management (CRM) Systems.
- 140. Program Management Professional (PgMP) Certification (591):** A valid Program Management Professional (PgMP) certification from the Project Management Institute (PMI) and at least five (5) years of satisfactory, full-time IT project management experience.
- 141. Programmer Analyst (PGM):** At least two (2) years of satisfactory, full-time experience reviewing and analyzing business requirements to transform into technical specifications for the creation and maintenance of complex reporting systems/data warehouses/data marts to serve various reporting and/or data needs.
- 142. Project Management Professional Certification (PMP):** A valid Project Management Professional (PMP) certification from the Project Management Institute (PMI) and at least two (2) years of satisfactory, full-time IT project management experience.
- 143. Project Portfolio Management (PPM):** At least two (2) years of satisfactory, full-time experience modeling, designing, executing and monitoring project portfolio management (PPM) processes and procedures, including management of project portfolios, project prioritization, resource management and administering, monitoring, designing, developing, implementing and/or enhancing PPM tools for tasks such as user administration, report development and screen design.
- 144. Quality Assurance/Tester (60I):** At least two (2) years of satisfactory, full-time experience leading testing and debugging efforts of information systems including analyzing problems and errors, monitoring and maintenance of controls on information system subordinate activities, and observation and review of systems reports and logs.
- 145. RACF Security Administration (RSA):** At least five (5) years of satisfactory, full-time experience in processing access requests in a large mainframe environment including Mainframe security – RACF (IBM) administration.
- 146. Radio Frequency Engineering (607):** At least five (5) years of satisfactory, full-time experience in Radio Frequency technology specifically related to wireless communications (voice & data) and associated applications along with quality assurance expertise in large, integrated radio frequency implementations.
- 147. Red Hat Certified System Administrator (RHCSA) (603):** A valid Red Hat Certified System Administrator (RHCSA) certification.

- 148. Risk and Issue Management (608):** At least five (5) years of satisfactory, full-time experience performing risk and issue related tasks including, but not limited to identification, measurement, mitigation and/or monitoring of ongoing risk and issues for medium to large-scale technology projects.
- 149. Script Development (611):** At least five (5) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of programs using scripting languages. Examples include, but are not limited to Python, VBScript, JavaScript, Perl, Ruby, and AppleScript.
- 150. Senior DB2 Database Administration (220):** At least five (5) years of satisfactory, full-time experience as a DB2 Database Administrator in an IBM Mainframe z/OS environment (DB2 Installs, SMP/E, DB2 Connect for Windows and Z/Linux, DB2 Utilities, DB2 Version 8+), which must include in-depth knowledge of TSO/ISPF, JCL, IBM utilities, and COBOL.
- 151. Senior IDMS Database Administration (IDM):** At least five (5) years of satisfactory, full-time experience as an IDMS Database Administrator in an IBM Mainframe z/OS environment (Installs, SMP/E, IDMS backup and recovery, monitoring and adjusting IDMS databases for optimal performance, as well as area resizing). The experience must include in-depth knowledge of TSO/ISPF, JCL, IBM Utilities, and COBOL.
- 152. Server-Side Development for Web Applications (61A):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of server-side applications in a web-based environment. The experience must include, but is not limited to Java/J2EE, .NET, Python, PHP, Spring, Hibernate, Test-Driven Development (TDD), Junit, Eclipse, IntelliJ, Tomcat, JBoss, Oracle WebLogic, Visual Studio, Azure DevOps, AWS, Git, Subversion and CVS.
- 153. ServiceNow Certified Application Developer (612):** A valid ServiceNow Certified Application Developer Certification and at least two (2) years of satisfactory, full-time experience in the development of ServiceNow applications, including designing and developing tables, forms and workflows. Must have developed custom web applications and have an understanding of HTTP protocol.
- 154. ServiceNow Certified System Administrator (614):** A valid ServiceNow Certified System Administrator Certification and at least two (2) years of satisfactory, full-time experience in designing, developing and customizing ServiceNow applications, providing support to end-users, administrating workflows, implementing new add-ons, and assisting in problem resolution.
- 155. Solution Architecture (626):** At least five (5) years of satisfactory, full-time hands-on architectural experience in complex information technology assessments and implementations, such as experience in architecting complex large-scale systems incorporating packaged and custom applications. The experience must include knowledge of application architectures, enterprise architecture, release methodologies, project management, infrastructure support, production support, client/server applications, internet and intranet applications, operating systems (Solaris, Windows, etc.), database platforms (Oracle, Microsoft, IBM, etc.), desktop platforms, mobile platforms, web platforms, application frameworks (Java, .NET, etc.), content managers, portal products, application integration, SOA, and development methodologies and environments.
- 156. Solutions Design Management (627):** At least five (5) years of satisfactory, full-time experience implementing off-the-shelf (COTS) applications for business areas like Customer Relationship Management (CRM) and Business Intelligence (BI). Experience must include leading a team of solution designers and analysts performing solutions design work; defining high-level design principles and approaches for the team; setting the agenda for the quality of solutions design work; mentoring and managing design resources to support the delivery of software solutions to time, budget and quality targets; monitoring and maintaining standards and practices as design methodologies and industry best-practices evolve; collaborating with the project team and key stakeholders to ensure design work is consistent with organization and project goals, strategy and roadmaps; and managing relationships with other teams and personnel.
- 157. SQL DBA (718):** At least five (5) years of satisfactory, full-time experience in Microsoft SQL Server Administration and Development including SQL Server Database performance management and tuning, database fault analysis and resolution, and effective Database Backup/Recovery strategy deployment.
- 158. Storage Engineering (SAN):** At least two (2) years of satisfactory, full-time experience in Storage Area Network design, configuration and administration.
- 159. Strategic Workforce Planning (SWP) Certified (807):** A valid Strategic Workforce Planning (SWP) Certification from the Human Capital Institute (HCI).
- 160. Technical Environment Review (TEM):** At least two (2) years of satisfactory, full-time experience in reviewing and approving technical specifications for hosting environments including, but not limited to server operating systems such as Microsoft Windows, Red Hat Enterprise Linux, SUSE Linux Enterprise, and Oracle Solaris; database platforms such as Oracle, MS SQL Server, NoSQL, NewSQL, or various open source databases; technology requirements such as network load balancing rules, firewall rules, storage size and IOPS needs; and network connectivity requirements.
- 161. Technical Environment Specification (TES):** At least two (2) years of satisfactory, full-time experience in developing technical specifications for hosting environments, including, but not limited to server operating systems such as Microsoft Windows, Red Hat Enterprise Linux, SUSE Linux

Enterprise, and Oracle Solaris; database platforms such as Oracle, MS SQL Server, NoSQL, NewSQL, or various open source databases; technology requirements such as network load balancing rules, firewall rules, storage size and IOPS needs; and network connectivity requirements.

- 162. Technical Software Quality Assurance (722):** At least two (2) years of satisfactory, full-time experience as a user interface functional tester writing object-oriented code for: automated processing of files in various formats like flat files and .csv; XML, JSON file format and concept; programmatically handling and parsing XML, JSON files for the purpose of automated testing; testing data transformation processes for large amounts of data using ETL tools including Informatica; handling manually and programmatically testing for various integration protocols (e.g., SOAP and REST web services, FTP, MQ); and querying databases using complex SQL queries. Experience must include working with OLAP systems (e.g., OBIEE), reporting engine development tasks, execution of prebuilt and ad-hoc queries and testing various reporting objects.
- 163. Test Automation (726):** At least two (2) years of satisfactory, full-time experience as a functional tester automating functional test cases for applications with browser-based user interfaces using UFT/QTP including, but not limited to test automation methods like recording/parametrization/play back; descriptive programming and manual coding in VBScript; open source test automation tools (e.g., Selenium WebDriver); UI object recognition with tools like Object Spy, Firebug, and Chrome Developer; and data driven testing with various file formats like flat files, XML, JSON, Excel and SQL for data verification purposes.
- 164. Test-Driven Design Development (723):** At least two (2) years of satisfactory, full-time experience working in a test-driven development environment. The experience must include, but is not limited to NUnit, Moq, Selenium, Jasmine/Mocha/Sinon, etc.
- 165. UNIX/LINUX Server Administration (DAX):** At least two (2) years of satisfactory, full-time experience in UNIX/LINUX System administration, including, but not limited to in-depth installation, configuration, administration and tuning of enterprise class servers.
- 166. User Experience Design Management (730):** At least five (5) years of satisfactory, full-time experience working on software interaction design (also called user experience design or information architecture) and graphic/visual design using communication and visual design software (e.g., OmniGraffle, Visio, Adobe Creative Suite, Microsoft Office, Apple productivity applications); front-end coding (e.g., HTML5, CSS3, JS, JQuery); and Agile and Waterfall software development methodologies. Experience must include managing UX or visual design resources. Must present a design portfolio that demonstrates visual design and working within established branding directions, designing for information-rich or complex technology projects, and working within technology constraints and/or a UX portfolio that demonstrates interaction design for complex web applications.
- 167. User Experience Interaction/Human Centered Design (731):** At least two (2) years of satisfactory, full-time experience with software interaction design (also called user experience design or information architecture) including, but not limited to: interaction design for complex, large-scale transactional software implementations; responsive/device-independent web implementations; visual and UI design; rapid prototyping, iterative testing and definition of Minimum Viable Products (MVPs); usability best practices including ADA accessibility, user research, prototyping and user testing; utilizing communication and visual design software (e.g., OmniGraffle, Visio, Adobe Creative Suite, Microsoft Office, and/or Apple productivity applications); front-end coding (e.g., HTML5, CSS3, JS, JQuery); service or human-centered design methodologies, encompassing design facilitation skills on public-facing projects; and both Agile and Waterfall software development methodologies. All candidates must provide a design portfolio demonstrating their visual, interaction, and human-centered design skills.
- 168. User Interface/User Experience Design (UIE):** At least two (2) years of satisfactory, full-time experience with software interaction design (also called user experience design or information architecture) and graphic design including: visual and UI design for complex, large-scale transactional software implementations; responsive/device-independent web implementations; usability best practices including ADA accessibility, user research, prototyping and user testing; and utilizing communication and visual design software (e.g., OmniGraffle, Visio, Adobe Creative Suite, Microsoft Office, Apple productivity applications). All candidates must provide a design portfolio demonstrating visual and interaction design skills.
- 169. VMware Engineering (744):** At least five (5) years of satisfactory, full-time experience in Converged Network Architectures, 10 GB, NFS and/or Cisco Nexus (1k, 2k, 5k, 7k or higher).
- 170. WAN Network Engineering (781):** At least five (5) years of satisfactory, full-time experience with IP switched/routed based network; HSRP, GLBP, QOS multicasting, VLANs, VTP, NTP, load balancing and optical networking (DWDM, ROADM, RPR and SONET); IP addressing and subnetting (1Pv4/6), routing protocols, including BGP, EIGRP, OSPF and MPLS; implementation of BGP (internal and external); advanced troubleshooting experience of Cisco hardware/OS software, including 72xx, 39xx, and 29xx series routers, 65xx, 37xx, and Nexus platform layer 2/3 switches.
- 171. Web Application Development Management (782):** At least five (5) years of satisfactory, full-time experience managing a web applications development team. The experience must include, but is not limited to Solution/application architecture, Iterative and Agile development methodologies, Resource hiring and management and establishing development guidelines and standards.
- 172. Web Content Management Systems Administration (WMS):** At least two (2) years of satisfactory,

full-time experience in the installation, configuration, implementation, maintenance and enhancement of Web-Content Management Systems. Examples include, but are not limited to Apache Web Server, Microsoft IIS, Tomcat, JBOSS, WebLogic, WebSphere, IBM MQ, iWay, FileNet, Documentum, TeamSite, WordPress, and Portal.

- 173. Web Design (WDE):** At least two (2) years of satisfactory, full-time experience in web design, photo and graphics editing, user experience design, user interaction design, and information architecture design. Must have been experience in responsive web design, HTML5 and CSS3.
- 174. Web Infrastructure System Administration (784):** At least two (2) years of satisfactory, full-time experience in the installation, configuration, implementation, maintenance and enhancement of Enterprise Integration Bus and its related platforms. Examples include, but are not limited to IBM WebSphere Broker, IBM MQ, IBM DataPower, WebLogic, iWay, and Oracle BPM.
- 175. WebTrends Certified Analytics Professional (786):** A valid WebTrends Certified Analytics Professional certification **and** at least two (2) years of satisfactory, full-time experience in the installation, configuration, implementation, maintenance and enhancement of Enterprise Web Analytics Systems.
- 176. Windows Desktop Engineering (790):** At least two (2) years of satisfactory, full-time experience in the design, development, implementation, maintenance and enhancement of systems, applications, operating systems and computer imaging in a Microsoft Windows environment including Microsoft Office Suite, Microsoft Operating Systems, Browser-based applications (.NET Framework, Java), Adobe Suite, McAfee, Active Directory, Microsoft Deployment Tool Kit, SCCM and BladeLogic Client Management.
- 177. Windows Security Engineering (791):** At least two (2) years of satisfactory, full-time experience administering Windows servers in a large-scale environment including building and/or administering products such as Blue Coat proxies for internet access; administering Privilege Integrity Management of accounts and access; and administering anti-virus products for protection of data, malware and/or spyware in prevention of intrusion.
- 178. Windows Systems Administration (792):** At least two (2) years of satisfactory, full-time experience administering Windows servers in a large-scale environment with Windows 2003/2008/2012 Enterprise Server Platform or more recent versions, Active Directory, Microsoft Clustering, and/or Remote Installation Services.
- 179. Windows Systems Engineering (793):** At least two (2) years of satisfactory, full-time experience administering Windows servers in a large-scale environment with Windows 2003/2008/2012 Enterprise Server Platform or more recent versions, Active Directory, Microsoft Clustering, and/or Remote Installation Services.
- 180. Wireless and Public Safety Communications Certification(s) (800):** A valid IT/Wireless certification **and** at least two (2) years of satisfactory, full-time experience designing, operating or maintaining public safety communication systems. Examples of IT/Wireless certifications include, but are not limited to CWNA, CWNP, CCNA, CCNP, CCIE, A+, and Network +.
- 181. z/OS Systems Engineering (ZOS):** At least five (5) years of satisfactory, full-time Mainframe experience in z/OS operating systems programming and administration.
- 182. z/VM and z/Linux Systems Engineering (810):** At least five (5) years of satisfactory, full-time programming experience in IBM Assembler Language, including REXX, CMS Pipelines, RSCS, and TCP/IP.

The above Selective Certification requirements may be met at any time during the duration of the list. If you meet the Selective Certification requirement at some future date, please submit a request by mail to:

DCAS Bureau of Examinations - Exam Development Group, 1 Centre Street, 14th Floor, New York, NY 10007. Please include the examination title and number, your social security number, and the selective certification you are requesting on your correspondence.

Application Receipt:

You will be emailed a receipt immediately after you have applied for the examination. If you do not receive this receipt, check "Junk", "Trash", or "Spam" folders for the primary email linked to your Online Application System (OASys) account. If you are unable to locate the email, you can view a summary of the notification email to you on your OASys Dashboard, then Notifications. If you are still unable to find the email, please email DCAS via the Contact feature available in OASys with a description of the issue and include the exam number and your profile number located on your Profile page. While on your Profile page, check that the email addresses you provided are correct and/or updated.

Promotion Test: A promotion examination for this title is being held for eligible employees. The names appearing on the promotion list will be considered first in filling vacancies.

PENALTY FOR MISREPRESENTATION:

Any intentional misrepresentation on the application or examination may result in disqualification, even after appointment, and may result in criminal prosecution.

The General Examination Regulations of the Department of Citywide Administrative Services (DCAS) apply to this examination and are part of this Notice of Examination. They are posted at nyc.gov/dcas, and copies are available at the DCAS Computer-based Testing & Applications Centers.

The City of New York is an Equal Opportunity Employer.
Title Code No. 13632; Computer Software Occupational Group.

**For information about other exams, and your exam or list status, call 212-669-1357.
Internet: nyc.gov/dcas**