



BILL DE BLASIO
Mayor

DEPARTMENT OF CITYWIDE ADMINISTRATIVE SERVICES
BUREAU OF EXAMINATIONS

LISETTE CAMILO
Commissioner

NOTICE OF EXAMINATION

COMPUTER ASSOCIATE (SOFTWARE)

Exam No. 1133

WHEN TO APPLY: From: December 2, 2020

APPLICATION FEE: \$82.00

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 Associates (Software) under direct supervision, with moderate latitude for independent initiative and judgement, are responsible for the analysis, design, development, implementation, troubleshooting, enhancement, maintenance, and security of database management systems, operating systems, data communication systems, applications, website, and/or related software functions; may supervise staff performing these functions. All Computer Associates (Software) perform related work.

Special Working Conditions:

Computer Associates (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 \$66,597 per annum. This rate is subject to change. There are three 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** one year 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, **or**
2. A four year high school diploma or its educational equivalent and five years of satisfactory, full-time computer software experience as described in "1" above; **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. In addition, 24 semester credits from an accredited college, university or graduate school in computer science or a related 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 experience. 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 as described in "1" above.

Some examples of acceptable experience include 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 include:

- 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, pure quality assurance (QA) auditing and analysis, hardware installation, call center, teaching and/or telecommunications.

READ CAREFULLY AND SAVE FOR FUTURE REFERENCE

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). 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.

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 10304

Bronx

1932 Arthur Avenue
2nd Floor
Bronx, NY 10457

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://a856-exams.nyc.gov/OASysWeb/Home/FAQ>. When you contact the evaluation service, ask for the evaluation as follows:
- 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 and/or *The Test* section, ask for a "**document-by-document**" evaluation of your foreign education.
 - If you wish to claim a diploma/degree and/or semester credits in the subject area(s) described in the *How to Qualify* section **and/or** in *The Test* section, ask for a "**course-by-course**" evaluation (which includes a "document-by-document" evaluation) of your foreign education.
 - If you wish to claim a certificate of at least 625 hours in computer programming described in the *How to Qualify* section, then ask the Evaluation Service to recommend the appropriate type of evaluation and ensure that the evaluation states the number of hours completed.
 - If you wish to claim continuing education course(s) described in *The Test* section, 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 additional credit up to a maximum of 100 points on the following basis:

Additional Points for Education:

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:

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 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 continuing education course	1 point
Two continuing education courses	3 points
Three continuing education courses	5 points

You will receive a maximum of ten additional points for education that may be credited for graduate credits, undergraduate credits, and continuing education course(s) combined.

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 of Higher Education Accreditation (CHEA). **Education used to meet the minimum requirements cannot be used to gain additional credit.**

Additional Points for Experience:

If you have satisfactory full-time computer software experience, with general supervision, performing, advising and/or supervising others 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:

At least 6 months but less than 1 year	Up to 6 points
At least 1 year but less than 2 years	Up to 12 points
At least 2 years but less than 3 years	Up to 18 points

At least 3 years but less than 4 years	Up to 24 points
4 or more years	Up to 30 points

If you have satisfactory full-time computer software experience, with close supervision, performing, advising and/or supervising others 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:

At least 6 months but less than 1 year	Up to 3 points
At least 1 year but less than 2 years	Up to 6 points
At least 2 years but less than 3 years	Up to 9 points
At least 3 years but less than 4 years	Up to 12 points
4 or more years	Up to 15 points

NOTES:

1. **Work experience with "close supervision" involves some/little latitude for independent initiative and judgement. Work experience with "general supervision" involves considerable latitude for independent initiative and judgement.**
2. **The type of acceptable experience 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.**
3. **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, pure quality assurance (QA) auditing and analysis, hardware installation, call center, teaching and/or telecommunications.**

You will receive a maximum of one year of experience credit for each year you worked. Each year of experience will be credited under only one category which will be the highest appropriate category. Experience used to meet the minimum requirements cannot be used to gain 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.

(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, registration, and experience and Final Submit your Education and Experience Exam in the Online Application System (OASys). 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.

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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 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. If you wish to apply for this Selective Certification, follow the onscreen instructions when completing the Education and Experience Exam to indicate your interest in such Selective Certification and Final Submit it in the Online Application System (OASys). **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. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. Axway SecureTransport Administration (AXA): At least two (2) years of satisfactory, full-time experience in administering the Axway SecureTransport platform.

9. 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.

10. 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.

11. 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.

12. 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 should have the ability to program in a language supported by Azure, and should be proficient in Azure SDKs, data storage options, data connections, APIs, app authentication and authorization, compute and container deployment, debugging, performance tuning, and monitoring.

- 13. 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.
- 14. Back-end Application Development (BED):** At least two (2) years of satisfactory, full-time experience in backend mainframe application development. This includes, but is not limited to Adabas/Natural or DB2.
- 15. 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.
- 16. 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.
- 17. Business Analytics for Open Source Software (BAO):** At least two (2) years of satisfactory, full-time experience in designing, developing, configuring, implementing, integrating, maintaining and/or enhancing Business Intelligence or Analytics systems. This includes (2) two years of analytical experience designing tools using R, Python or other open source tools and associated open source libraries/packages in data analytic applications.
- 18. Business Analysis Management (BAM):** 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 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.
- 19. 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.
- 20. 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, Power BI, Visual Studio, WebLogic, SQL Server, SSRS, JSON/XML/XSL/Web Services, Unix, Linux, shell scripting and SQL.
- 21. Business Intelligence/Analytics Systems Development (BID):** At least two (2) 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.
- 22. 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 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 business needs and clearly define the requirements for IT applications.
- 23. Certified Associate in Project Management (CAPM) (CAP):** A valid Certified Associate in Project Management (CAPM) certification from the Project Management Institute (PMI).
- 24. 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.
- 25. 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.
- 26. 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.
- 27. 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.
- 28. Certified Information Security Manager (CISM) (400):** A valid Certified Information Security Manager certification from ICA and five (5) years of satisfactory, full-time experience.
- 29. 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.
- 30. Certified Jenkins Engineer (14K):** At least two (2) continuous years of satisfactory, full-time experience in configuring, managing, and using Jenkins for Continuous Integration/Delivery (CI/CD) for one or more applications serving greater than 10K end users.

- 31. 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.
- 32. 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.
- 33. 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).
- 34. Cisco Certified Internetwork Expert (CCI):** A valid Cisco Certified Internetwork Expert (CCIE) certification.
- 35. COBOL Application Developer (COP):** At least two (2) 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.
- 36. CommVault Certified Professional (190):** A valid Commvault Professional Certification and /or at least two (2) years of satisfactory, full-time experience in CommVault. This includes installing, configuring, and administering a CommCell Environment using the CommVault Command Center.
- 37. CompTIA A+ (A+C):** A valid CompTIA A+ certification and at least two (2) year of satisfactory, full-time experience in, but not limited to, defining, building, deploying, or maintaining software solutions applications/systems.
- 38. CompTIA PenTest+ (22D):** A valid CompTIA PenTest+ certification from the Computing Technology Industry Association.
- 39. 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.
- 40. 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.
- 41. Computer Telephony Integration (CTI) Systems (CTS):** At least two (2) years of satisfactory, full-time experience in providing technical support and maintenance of Computer Telephony Integration (CTI) systems. Examples include, but are not limited to: Genesys, PBX, Nortel or/and Avaya Telephony system IIS, Siebel, MS Dynamics, Oracle CRM and Salesforce, Unix, Linux and SQL.
- 42. 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.
- 43. 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.
- 44. Content Strategy/Information Architecture (CSI):** At least two (2) years of satisfactory, full-time experience in information architecture design and enterprise content management systems, at least one (1) year of which must have been in content strategy, content taxonomy and/or search engine optimization.
- 45. 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.
- 46. COTS Implementation Project Management (COT):** At least two (2) 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).
- 47. 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).
- 48. 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.

49. CRM Systems Development (234): At least two (2) 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.

50. Custom Application Development Project Management (224): At least two (2) 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.

51. Customer Relationship Management (CRM) Systems (CRM): At least two (2) years of satisfactory, full-time experience in providing technical support and maintenance of industry leading Customer Relationship Management (CRM) Systems. Examples include, but are not limited to: Siebel, 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. 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.

53. 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.

54. 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.

55. 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.

56. 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.

57. Document Management System (DMS) Administrator (22C): At least two (2) years of satisfactory, full-time experience in administering, supporting, maintaining, implementing, and enhancing document management system(s) and related tools, including but not limited to maintaining system and document security; installing software versions and patches; analyzing and resolving technical problems; making recommendations for planning and budgeting; providing expertise and assistance to users; administering related systems including matter-centric workspace generation tools and automated data import and clean-up tools; monitoring system performance and storage utilization; and planning and participating in necessary hardware and software upgrades. Examples of document management systems include iManage Work and Opentext eDOCS DM.

58. 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).

59. 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).

60. E-Discovery - General (23D): At least two (2) years of satisfactory, full-time experience in administering, supporting, maintaining, implementing, and enhancing e-discovery systems, tools, and processes for the collection, processing, hosting, review, analysis, production, and/or presentation of electronically stored information in litigation and/or investigations.

61. E-Discovery - Supervision (23H): At least five (5) years of satisfactory, full-time experience, including at least three (3) years of supervisory experience, in administering, supporting, maintaining, implementing, and enhancing e-discovery systems, tools, and processes for the collection, processing, hosting, review, analysis, production, and/or presentation of electronically stored information in litigation and/or investigations.

62. Educational Environment Experience (EIT): At least two (2) years of satisfactory, full-time experience working in an educational program(s) and/or institution(s)

63. Enterprise Knowledge Sharing (EKS): At least two (2) years of satisfactory, full-time experience producing tools, events, and communication platforms that facilitate knowledge-sharing on IT topics across a large organization or municipal government. This includes, but is not limited to, managing product development user groups and incorporating technical input into software releases or delivery enhancements; coordinating technical forums focused on key enterprise IT service and product issues; and administering collaboration platforms, such as Microsoft SharePoint, to support technical reference

repositories, share resources, create a network of organizational and individual technical expertise, and develop and evaluate enterprise technology solutions.

64. 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.

65. Environment Management (ENM): At least two (2) years of satisfactory, full-time experience in environment management. This includes, but is not limited to: developing technical specifications for hosting several test and development environments, including, but not limited to, server operating systems such as Microsoft .NET , IIS servers, Red Hat Enterprise Linux, MS SQL Server, FileNet technology requirements such as network load balancing rules, firewall rules, storage size and network connectivity requirements with the focus on data integrity and security.

66. Expert Systems Manager (25K): At least two (2) years of satisfactory, full time experience in configuring and administering expert systems designed to understand text, auto-classify documents, and/or provide suggested answers based on AI engines and decision trees. Examples of expert systems include Neota Systems, Kira Systems, and IBM Watson.

67. 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.

68. Front-End Development (FED): At least two (2) years of satisfactory, full-time experience in HTML, HTML5, CSS, CSS3, JavaScript, Enterprise Content Management System, Photo/Graphics Editing Software; two (2) years of which must have been experience in CSS Frameworks, JavaScript Frameworks, AJAX, XML, JSON and/or responsive web development.

69. Functional Testing (HBN): At least two (2) 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.

70. Geographic Information Systems (GIS): At least two (2) 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; one (1) year of which must have been spent supervising GIS resources and managing or overseeing GIS tasks and/or GIS projects.

71. 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.

72. 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.

73. GIAC Certified Web Application Defender (29X): A valid GIAC Certified Web Application Defender certification from the Global Information Assurance Certification (GIAC) institute.

74. Health Information Technology Systems Experience (HIT): At least two (2) years of satisfactory, full-time 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, and such experience was not part of your baccalaureate degree program.

75. Help Desk Institute (HDI) Certified (86B): A valid HDI Support Center certification from Helpdesk Institute (HDI).

76. Help Desk Institute (HDI) Desktop Advanced Support Technician (86A): A valid HDI Desktop Advanced Support Center technician certification from Help Desk Institute (HDI).

77. Higher Education Experience (EAE): At least two (2) years of satisfactory, full-time experience working in higher education institutes.

78. IACRB CPT - Certified Penetration Tester (86H): A valid Certification of Penetration Testing from the Information Assurance Certification Review Board (IACRB).

79. 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.

80. 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.

81. 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.

82. 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.

- 83. 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.
- 84. Information Technology Process Management (383):** A valid ITIL professional certification and 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, integrate with system requirements and the inputs and outputs to other processes.
- 85. 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.
- 86. IP Telephony Design Administration (384):** At least two (2) years of satisfactory, full-time hands-on experience working with Cisco Call Manager or Cisco Contact Center.
- 87. IP Telephony Design Engineering (386):** At least two (2) years of satisfactory, full-time design experience working with Cisco Call Manager or Cisco Contact Center. Must have hands-on experience with configuring Voice Gateways, dial-plans and H.323 protocols.
- 88. 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.
- 89. IT Infrastructure Library (ITIL) Foundation Certification (39E):** A valid IT Infrastructure Library (ITIL) Foundation certification from approved vendor AXELOS Global Best Practice.
- 90. 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.
- 91. IT Release Management (42H):** 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 using tools such as, but not limited to Azure Dev Ops, Git, .NET and IIS.
- 92. 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.
- 93. 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.
- 94. Knowledge-Centered Service Certified (KCS):** A valid Knowledge-Centered Service (KCS) certification from the Knowledge-Centered Service Academy.
- 95. Land Mobile Radio (LMR) System Training/Certifications (482):** A valid Land Mobile Radio (LMR) certification and at least two (2) 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).
- 96. M.204 Mainframe Developer (MDL):** At least two (2) 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.
- 97. Mainframe Development (465):** At least two (2) 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.
- 98. Matter Management System Specialist-General (472):** If you have at least two (2) years of satisfactory, full-time experience in administering, supporting, maintaining, implementing, and enhancing matter management system(s) and generally a strong working knowledge of relational databases, including but not limited to using SQL, VB.Net, VBScript and/or other languages. Examples of enterprise-level matter management systems include Mitratech's LawManager and TeamConnect, Legal Stratus, Passport, and Entellitrak.
- 99. Microsoft Certified Applications Developer (MCAD) Certification (44A):** A valid Microsoft Certified Applications Developer (MCAD) Certification.
- 100. Microsoft Certified Professional Developer (MCPD) Certification (43Z):** A valid Microsoft Certified Professional Developer (MCPD) Certification.
- 101. Microsoft Certified Solutions Associate (MCSA) Certification (MCA):** A valid Microsoft Certified Solutions Associate (MCSA) certification from Microsoft and at least two (2) 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.
- 102. Microsoft Certified Solutions Developer (MCSD) Certification (44T):** A valid Microsoft Certified Solutions Developer (MCSD) certification from Microsoft and at least two (2) 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.
- 103. Microsoft Certified Solutions Expert (MCSE) Certification (MCE):** A valid Microsoft Certified Solutions Expert (MCSE) certification from Microsoft and at least two (2) years of satisfactory, full-time experience in, but not limited to, defining, building, and implementing software solutions using Microsoft applications/systems such as, but not limited to M365 Software Suite.

104. Microsoft MCPD Enterprise Applications Developer (435): A valid Microsoft Certified Professional Developer: Enterprise Applications Developer Certification.

105. 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.

106. Microsoft SharePoint Development (45J): At least two (2) years of satisfactory, full time experience in analysis, design, implementation, maintenance, customization, and enhancement of SharePoint applications.

107. Microsoft Technology Associate (MTA) Certification (462): A valid Microsoft Technology Associate (MTA) certification from Microsoft.

108. 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).

109. 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 over 1 million.

110. MVVM architecture (MVV): At least two (2) years of satisfactory, full-time experience in the development and maintenance of an enterprise application with C# and SQL development skills in a Microsoft .NET framework. This includes working with Visual Studio, SQL Management studio, MVVM architecture, Integration with 3rd party Rules engine, Entry Framework and/or BPM framework as well as experience working through the different stages of development and execution in an integrated Agile team.

111. Neospin technology and framework (NTF): At least two (2) years of satisfactory, full-time experience in .Net, C#, SQL technologies using a Neospin Framework in the development and maintenance of an enterprise application. This includes configuration of UI Screens, Rules, BPM's using S3 studio and integration with C#, Visual Studio, and SQL Management Studio, MVM architecture as well as experience working through the different stages of development in an integrated Agile team.

112. 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.

113. Network Design Engineering (51C): At least two (2) years of satisfactory, full-time design experience working with Cisco Catalyst and Nexus range of switches, routers and F5 load balancers. Must have hands-on experience with BGP and OSPF routing protocols.

114. 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.

115. Offensive Security Certified Expert (OSCE) (562): A valid Offensive Security Certified Expert (OSCE) certification.

116. 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.

117. Oracle SOA Suite certified implementation Specialist (58Q): A valid Oracle SOA Suite certified implementation Specialist certification.

118. 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.

119. 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; utilizing IT Service Management tools, and/or Server Monitoring tools including but not limited to BMC Remedy and/or HP SiteScope and/or NetIQ.

120. Platform Developer II (PDII) (66Q): A valid Salesforce Certified Platform Developer II (PDII) certification and at least two (2) years of satisfactory, full-time experience in developing dashboards and other reports with, and testing, implementing and maintaining modifications to applications on the Salesforce platform.

121. 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.

122. 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.).

123. 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).

124. 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.

125. 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.

126. Public Safety Software Testing (592): At least two (2) years of satisfactory, full-time experience testing distributed applications and/or systems including data validation and error handling.

127. Puppet Certified Professional (585): At least two (2) continuous years of satisfactory, full-time experience in configuring, managing, and using Puppet for automating infrastructure configuration management in a multi-application environment that serves greater than 10K end users.

128. Red Hat Certified System Administrator (RHCSA) (603): A valid Red Hat Certified System Administrator (RHCSA) certification.

129. Salesforce Certified Administrator (65A): A valid Salesforce Certified Administrator certification and at least two (2) years of satisfactory, full-time experience in the administering applications on the Salesforce platform.

130. Salesforce Certified Advanced Administrator (65B): A valid Salesforce Certified Advanced Administrator certification and at least two (2) years of satisfactory, full-time experience administering and maintaining and installing, configuring and implementing applications on the Salesforce platform.

131. Salesforce Certified Integration Architecture Designer (66K): A valid Salesforce Certified Integration Architecture Designer certification and at least two (2) years of satisfactory, full-time experience in developing, testing, implementing and maintaining integrations with applications on the Salesforce platform.

132. Salesforce Certified Platform Developer I (PDI) (66P): A valid Salesforce Certified Platform Developer I (PDI) certification and at least two (2) years of satisfactory, full-time experience in developing dashboards and other reports with applications on the Salesforce platform.

133. Script Development (611): At least two (2) 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.

134. Senior DB2 Database Administration (220): At least two (2) 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.

135. Senior IDMS Database Administration (IDM): At least two (2) 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.

136. 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 should 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.

137. 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.

138. 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.

139. Strategic Workforce Planning (SWP) Certified (807): A valid Strategic Workforce Planning (SWP) Certification from the Human Capital Institute (HCI).

140. Tableau Desktop Certified Professional (72F): A valid Tableau Desktop Certified Associate Certification and at least two (2) years of satisfactory, full-time experience in designing, developing, configuring, implementing, integrating, maintaining, publishing and/or enhancing Tableau Desktop applications and developing, maintaining, implementing, and publishing data flows.

141. Tableau Server Certified Professional (72G): A valid Tableau Server Certified Professional certification and at least two (2) years of satisfactory, full-time experience in configuring, implementing, supporting, upgrading, and maintaining Tableau Server platform including but not limited to Tableau Prep Controller, External Asset Management, and Licenses Management

142. 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.

143. 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.

144. 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.

145. Test Automation (726): At least two (2) years of satisfactory, full-time experience as a functional tester and at least two (2) years of satisfactory, full-time experience in 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.

146. Test-Driven Design Development (723): At least two (2) years of satisfactory, full-time experience working in a test-driven development environment. The experience should include, but is not limited to NUnit, Moq, Selenium, Jasmine/Mocha/Sinon, etc.

147. UCAAS and CCAS (UCS): At least two (2) years of satisfactory, full-time experience in Telecomm related products performing analysis, making recommendations, and maintaining optimal UCaaS and CCaaS services, as well as experience working in Contact Center Administration and Configuration, Analytics, Multi-Channels Quality Management, and Speech Analytics, CCaaS Advanced Topics and Troubleshooting.

148. 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.

149. 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.

150. 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.

151. VM Ware Engineering (744): A Valid VM Ware Certified Professional and at least two (2) years of satisfactory, full-time experience in Converged Network Architectures, 10 GB, NFS and/or Cisco Nexus (1k, 2k, 5k, 7k or higher).

152. 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, IBM FileNet/KOFAX, Documentum, TeamSite, WordPress, and Portal.

153. Web Data Operations (WDO): At least two (2) years of satisfactory, full-time experience managing the day-to-day operations of a data sharing tool or portal with tasks including but not limited to: working with business owners to understand and document data requirements; coordinating data delivery among external groups; design, development, maintenance, support of databases or data integration software/tools (e.g. Informatica, MS SSIS, FME); and performing data analysis.

154. 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.

155. 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.

156. 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.

157. 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.

158. 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.

159. 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.

160. 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 +.

161. Wireless Broadband Network Administration (801): At least two (2) years of satisfactory, full-time experience in supporting large scale wired and wireless networks. The experience should include, but is not limited to: administering Wi-Fi standards, commercial wireless technologies (mobile data), Wireshark, Linux, Cisco hardware/IOS, TCP/IP, Remedy.

The above Selective Certification requirements may be met at anytime during the duration of the list. If you meet this 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.

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