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POSITION CLASSIFICATION STANDARD FOR

COMPUTER CLERK AND ASSISTANCE SERIES, GS-0335

Workforce Compensation
and Performance Service

Theodore Roosevelt Building 1900 E Street, NW Washington, DC 20415-8330 Classification Programs Division

Computer Clerk and Assistant

GS-0335

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SERIES DEFINITION

This series covers positions involving performance or supervision of data processing support and services functions for users of digital computer systems including such work as: (1) receiving, maintaining, and issuing data storage media for computer operations; (2) collecting and sequentially staging input media with associated program instructions for processing; (3) scheduling the use of computer time for program processing; (4) collecting, maintaining, and distributing program and systems documentation; and (5) collecting raw information, preparing flow charts, and coding in program languages; or, (6) other support functions. This work requires knowledge of external data processing sequences, controls, procedures, or user and programming languages, rather than in-depth knowledge of computer requirements or techniques associated with development and design of data processing systems.

This standard cancels and supersedes the fly sheet for the Computer Aid and Technician Series, GS-0335 which was issued in October 1965 (TS 58).

EXCLUSIONS

1. Positions operating or supervising the operation of the control console of a digital computer system are classified in the Computer Operation Series, GS-0332.

2. Positions requiring knowledge and ability to operate peripheral computer equipment (card readers/punches, tape and disk drives, high speed printers, etc.) or other related equipment as paramount qualification requirements in support of computer production services are classified to the Equipment Operator Series, GS-0350.

3. Positions involved in operating keyboard controlled equipment to transcribe, verify or input data in a form acceptable to data processing systems are classified in the Data Transcribing Series GS-0356.

4. Positions involved in verifying, coding or correcting information according to numerical, alphabetical, or alphanumeric symbols for input to data processing systems are classified in the Coding Series, GS-0357.

5. Positions involving responsibility for information technology systems and services used in the automated acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, assurance, or reception of information. Such positions are classified in the Job Family Position Classification Standard for Administrative Work in Information Technology, GS-2200.

6. Positions operating telecommunications equipment in transmitting and receiving computer data, primarily requiring knowledge of communications systems, operations, and procedures are classified in the appropriate communications equipment operating series: Teletypist, GS-0385; or General Communications Series, GS-0392.

7. Positions involved in general clerical support in a data processing organization; AND/OR, clerical positions which involve incidental operation of data processing related or computer connected equipment (e.g., keypunch, terminals) that do not require knowledge of data processing methods, procedures, or languages as paramount qualifications requirements, are classified to an appropriate clerical series.

OCCUPATIONAL INFORMATION

Employees in this occupation support or assist other employees who design, operate, or use automatic data processing systems applications and products. Most positions involve work in one or a mix of functional areas typically identified as tape library, production control, scheduling or direct support to subject matter or computer specialists. Descriptions of the work and the qualifications required are discussed under those headings.

Tape Library

Employees in tape libraries store, control, clean, repair and issue magnetic tapes and other portable storage media.

Tape libraries are storage and control centers for processing media, most commonly magnetic tapes, although disk packs, punched cards, and other materials or documents used in computer processing may also be stored in the library. Typically, the library work includes a variety of duties such as applying labels, flashers, and protection rings to tapes; cleaning and repairing tapes; recording changes in tape inventory; and, issuing tapes for use in program processing. Performance of some duties requires operation of equipment such as a tape verifier/cleaner to check tape condition and remove excess oxide build-up; a degausser to demagnetize tapes so they can be re-used; and on-line remote terminals to transcribe or verify tape inventory entries. This work requires knowledge of data processing terminology and abbreviations related to program identification, tape selection, and inventory entries. This knowledge is also used to interpret and follow abbreviated instructions concerning tape sequencing for multiple use during operations, and similar instructions represented by abbreviated or coded instructions.

Production Control

Employees working in production control gather, check and annotate processing material and instructions prior to submission to computer operations. Some employees resolve tape, card or control problems during processing and some review products for quality and accounting purposes or for indications of processing problems. Typically this work involves some operation of equipment such as card readers, optical character readers and remote terminals.

Production control work requires knowledge of data processing codes and abbreviations, production schedules, system control languages and security controls over access to computers and products. Some employees follow step by step instructions to identify tapes, change a few specified control cards and pass along operator instructions. Others advise users on how to prepare requests and then plan and insert control streams, establish priorities and write special instructions for operators. Many employees review computer products for a variety of purposes. This ranges from checking

for proper number of copies and proper print alignment through reviewing system reports and dumps for flow and control problems and to work analyzing and writing production preparation, control and review procedures for accepting new processing work.

Scheduling

Some employees prepare computer operating schedules specifying the sequence for processing a number of programs or jobs. Effective use of computer operating time and processing capacity must be considered in writing schedules. Capacity considerations include the available combinations of equipment, operating speeds, number of units of core, number of core partitions and other similar features. Time considerations include set-up, run and output times required to complete each job. Also, schedulers consider job priorities and needed input from prior processing. Schedulers for multiprograming systems consider job separation within parallel schedules to preclude programs from contending for data bases, system utilities or core capacity. Some employees may do little scheduling because processing is primarily controlled by a detailed master schedule or the operating system includes a scheduling software routine. These employees commonly enter ad hoc jobs in time gaps in the master schedule or assign priorities, adjust controls and enter such jobs to an automated queue. They may also use override commands to restructure master or automated schedules in solving operating or production problems.

Support to Computer Specialists

Some computer assistants at full performance levels perform duties much like those assigned to entry and trainee level computer specialists. They assist computer specialists in collecting, organizing and maintaining computer program documentation and manuals. As directed they code programs, draw flowcharts and diagrams and perform other similar duties. Within prescribed limits, some employees write small link, merge or edit programs or work directly from user instructions to write modifications to existing programs.

Such support work typically requires knowledge of the scope, contents and purposes of program documentation (e.g., project proposals, data sources, report exemplars, access methods, etc.). Many positions include work requiring knowledge of programming languages (COBOL, FORTRAN PL/1) and job control languages for coding and program testing duties. In addition, some work requires knowledge of system hardware such as the number and kind of devices, operating speeds, amount of core and other equipment characteristics. Knowledge of equipment is often supplemented by knowledge of internal software routines such as schedulers, reports generators, link, merge or other built in routines. Typically, computer assistants acquire knowledge for these support positions through a mix of experience in related computer clerk or assistant positions and, training in on-the-job or after hours programs of study and experience.

Support to Subject Matter Users

Some computer clerks and assistants provide data processing support to subject matter specialists through distributed processing networks. They work at remote terminal stations entering raw data to update or change information files, preparing and entering commands to execute established programs and performing non-routine data searches. Some remote processing stations contain "mini-computers" in addition to terminals and related peripheral equipment. Such minis serve as intermediate storage and control devices (buffers) or may provide local ability to structure and manipulate data. Work involving support to subject matter users varies in difficulty ranging for example, from highly structured input and retrieval methods and procedures for recurring production jobs to tailored search and manipulation strategies for special purpose products. Some employees discuss product requirements with users and give advice on how to structure job requests to obtain data desired.

Computer clerks or assistants use knowledge of data base contents, access authorizations, control methods and program output options to structure coded retrievals through a terminal and provide video display or printed reports, graphs or charts. Data manipulation and information retrieval work requires the same kind of knowledges, skills and abilities whether executed through a remote central computer or through a local mini-computer. This work is distinguished from computer and other equipment operations work in the requirement for paramount knowledges of program contents and retrieval methods rather than paramount knowledges of equipment operation techniques.

Computer Languages

Computers function on the basis of instructions developed in an artificial form of language acceptable for electronic translation and execution within the machine system. There are many languages and variations used for general and special purposes. Most computer clerks and assistants commonly use at least some terminology from programming, system control and user access languages. Some employees, especially those supporting computer programming work, use higher level languages extensively. Requirements for knowledge of computer language are evaluated according to the degree and manner of use or application rather than the language from which applied terminology is derived.

Quality Control

Most computer clerks and assistants perform quality control duties and responsibilities before, during or after computer processing. Typically this work is included with other duties and responsibilities although there are some fulltime quality control positions.

Quality control prior to processing involves checking set-up packages of tapes, run sheets, special instructions and schedules. During processing quality is maintained through such work as adjusting priorities, correcting run controls, adding jobs or accommodating run specifications to most current data. Post processing quality review and control encompasses a wide range of considerations. This work may involve readily apparent conditions such as print clarity or alignment, number of copies

and user identity. Quality control extends to employees who examine operator logs, system reports and dumps and program documentation to identify trends and recurring problems and to develop new operating controls and procedures.

Quality control work requires many of the knowledges of programs, equipment, languages and processing procedures and methods needed for production control and scheduling work.

DEFINITIONS

Some data processing terms and abbreviations common to this occupation are provided below. For a more comprehensive list of data processing terminology and definitions, refer either to the Job Family Position Classification Standard for Administrative Work in the Information Technology Group, GS-2200, or, the Federal Information Processing Standards publication 11-1 (American National Dictionary for Information Processing, X3/TR-1-77, Computer and Business Machine Manufacturer's Association, Washington, D.C. September 1977)

BLOCK DIAGRAM -- A diagram of a system, instrument, or computer in which the principal parts are represented by suitably annotated geometrical figures to show both the basic functions of the parts and the function interrelationships between them.

CODE -- To represent data or a computer program in a symbolic form that can be accepted by a data processor.

CODER -- A person who writes but does not usually design computer programs.

CONTENTION -- Program or data requirements needed by two or more programs within the same scheduling period, requiring adjustment of processing sequence.

CORE -- A magnetic storage in which the data medium consists of magnetic cores (also referred to as "main storage").

CORE DIVISION/SEGMENT/PARTITION -- Separate portions of core capacity, each capable of accepting and processing different programs or jobs for multi-programming within a single computer.

DATA BANK -- A set or comprehensive collection of libraries of data.

DATA BASE -- A set of data, part or the whole of another set of data, and consisting of at least one file that is sufficient for a given purpose or for a given data processing system.

DEBUG -- To detect, trace and eliminate mistakes in computer programs or in other software.

DEPENDENCY -- Processing in which output from one program or job becomes input for another program or job.

DISTRIBUTED PROCESSING -- A method to provide direct computer access to users located outside the data processing center, normally through a remote terminal communications network.

FAILURE -- (Also, abnormal termination, unscheduled halt) Unanticipated termination of processing due to a fault or error.

FILE -- A set of related records treated as a unit.

FILE MAINTENANCE -- The activity of keeping a file up to date by adding, changing or deleting data.

FLOWCHART -- A graphical representation of the definition, analysis, or method of solution of a problem, in which symbols are used to represent operations, data, flow, equipment, etc.

JOB CONTROL LANGUAGE -- A problem-oriented language designed to express statements in a job that are used to identify the job or describe its requirements to operating system.

JOB -- A set of data that completely defines a unit of work for a computer and usually includes all necessary computer programs, linkages, files, and instructions to the operating system.

MODEM -- (Modulator-demodulator) -- A device that modulates and demodulates signals transmitted over data communications facilities.

MULTI-PROCESSOR -- A computer employing two or more central processing units under integrated control.

MULTI-PROGRAMMING -- A mode of operation that provides for the interleaved execution of two or more computer programs by a single central processing unit.

PROGRAM -- The full collection of instructions that serve to cause the computer to use and manipulate data to solve a problem.

PROGRAMMING LANGUAGE -- An artificial language established for expressing computer programs.

REMOTE JOB ENTRY (RJE) -- Submission of jobs through an input unit that has access to a computer through a data link.

REMOTE STATION -- Data terminal equipment for communicating with a data processing system through a data link.

ROUTINE -- An ordered set of instructions that may have some general or frequent use.

SETUP -- An arrangement of data or devices to solve a particular problem.

SOFTWARE -- Computer programs, procedures, rules, and possibly associated documentation concerned with the operation of a data processing system.

SPOOLING -- The reading of output from and the writing of input onto auxiliary storage concurrently with job execution in a form suitable for later processing or output operations.

STAGING -- The manual process of collecting, checking and placing in a designated location all the instructions and materials (tapes, disks, cards, instructions, etc.) needed by a computer operator to set up and run a program.

SYSTEM -- 1. The total collection of interconnected and interrelated equipment and its processing capabilities available to perform data processing functions. 2. A collection of interrelated computer processing programs, typically using a common data base or interconnected data bases to produce output for a functional program such as personnel, supply, finance and others.

TIME SHARING -- The interleaved use of time on a computing system that enables two or more users to execute computer programs concurrently.

USER LANGUAGE -- Essentially conversational languages constructed specifically, or by extraction from higher level languages to enable lay users to communicate with and execute established programs, normally through a remote terminal.

USER TERMINAL -- An input-output unit by which a user communicates with an automatic data processing system.

UTILITY PROGRAM -- A computer program in general support of the processes of a computer (e.g., a diagnostic program, trace program, sort program).

UTILITY ROUTINE -- A routine in general support of the processes of a computer (e.g., input routine).

DISTINGUISHING FACTORS

Positions classified in this series are typically distinguished from related computer specialist positions in that they do not require: (a) a knowledge of overall program or system design and logic; (b) the use of the principles for managing and organizing work for computer processing; or, (c) an intensive understanding of the work processes to be automated. Distinctions between positions in this occupation and work in the computer specialist and other occupations are described below:

Computer Clerk & Assistant, GS-0335	**Information Technology Specialist, GS-2210**
Uses practical knowledge of data processing system, workflow, and controls.	Uses in-depth knowledge of requirements, techniques, applications, and practices of automatic data processing equipment systems and methods.
Collects raw information, records specifications as designed by others, draws flow charts, and codes programs to machine acceptable language according to a specialist's design specifications and instructions.	Collects and analyzes information, coordinates and defines requirements, conducts feasibility studies, designs systems, programs, and equipment configurations.
Prepares rough scale drawings of floor plans and equipment arrangement for new installation. Coordinates with manufacturer's representative regarding installation plans and timing.	Reviews and recommends acquisition of hardware and software based on technical evaluation of cost, capability, speeds, capacities, etc. in relation to known and anticipated processing requirements.
Codes standardized applications (merge, edit, etc.) as supplements to programs. Adds, changes, or removes control language instructions according to instructions.	Designs program content for new applications, modifies existing applications, provides for standardized routines, incorporates comprehensive run stream to provide for recurring fixed and variable applications.
Responsible for data element accuracy.	Responsible for system and program design integrity.
Typically schedules applications on a daily basis, ensures master schedule processing, and provides time in schedules for demand processing. May develop long term schedules based on general statements of processing frequency.	Responsible for system and program design integrity. Designs and controls master data flow and processing schedule to meet known recurring requirements, and to provide system readiness for demand processing.

Computer Clerk & Assistant, GS-0335	**Computer Operator, GS-0332**
Provides tapes, sometimes disks, and program documentation to operators, may mount tapes.	Mounts and dismounts tapes and disks, sets up and runs programs on the computer according to run instructions.
Uses remote terminal to update and query automated tape inventory system or to support subject matter information needs. Requires knowledge of program contents and access methods.	Operates control console to control computer and all peripherals during processing. Requires knowledge of internal computer and peripheral equipment flow and work processes.
Follows run sheet instructions to provide input tapes and to receive, label, control, and store output tapes. Maintains tapes by cleaning, degaussing, and making minor repairs.	Uses run book or run sheet to monitor run in progress to ensure that hardware and software systems are working according to design and program specifications. (In a small processing center, the computer operator may perform all tape library functions in addition to operating the computer system.)
Operates some peripherals as an incidental part of processing preparation and control functions.	Operates mainframe computer and controls peripherals as a regular, recurring part of program processing.
	Peripheral Equipment Operator, GS-0350
May operate some of the same equipment as the Peripheral Equipment Operator, incidental to primary duties.	Essentially full time operation of peripheral and related equipment.
Computer Clerk & Assistant, GS-0335	**Other Occupations**
Performs some general, clerical and equipment operating duties as elements of work that supports data processing operations, or computer specialists. Paramount qualifications requirements are based on knowledge of data processing methods, controls or languages, and an understanding of how data processing systems operate.	Perform some duties associated with data processing occupations such as operate terminals to input, format, and retrieve data, or to store, edit, and produce finished textual material. Such work normally requires use of specified controls and commands in a subject oriented user language. However, paramount qualifications relate to clerical skills in support of functional or subject matter specialist.

TITLES

The title Computer Clerk is established for non-supervisory positions in grades GS-1 through GS-4.

The title Computer Assistant is established for non-supervisory positions in grade GS-5 and above.

Positions which meet the criteria of the General Schedule Leader Grade Evaluation Guide for evaluation as leaders should have the titles listed above prefixed by the word "Lead."

Positions which meet or exceed the criteria of the General Schedule Supervisory Guide for evaluation as supervisors should have the titles listed above, prefixed by the word "Supervisory" (e.g., Supervisory Computer Clerk).

EVALUATION OF POSITIONS

Non-supervisory positions should be evaluated on a factor-by-factor basis using, to the extent possible, one or more of the Office of Personnel Management benchmarks for GS-3 through GS-9 contained in this standard. The benchmarks are representative of positions in the occupation. The factor levels contained in this standard are used to point rate positions that cannot be matched to the benchmarks provided. The primary standard may be used to evaluate factors of positions that significantly exceed the factor level descriptions contained in this standard. (See "Introduction to the Position Classification Standards.

GRADE CONVERSION TABLE

GRADE	POINT RANGE
1	190-250
2	255-450
3	455-650
4	655-850
5	855-1100
6	1105-1350
7	1355-1600
8	1605-1850
9	1855-2100
10	2105-2350

FACTOR LEVEL DESCRIPTIONS

FACTOR 1, KNOWLEDGE REQUIRED BY THE POSITION

Factor 1 measures the nature and extent of information or facts which the worker must understand to do acceptable work (e.g., steps, procedures, practices, rules, policies, theories, principles and concepts) and the nature and extent of the skills needed to apply those knowledges. To be used as a basis for selecting a level under this factor, a knowledge must be required and applied.

Level 1-1 -- 50 points -

The work at this level involves routine repetitive tasks requiring knowledge of: (1) a numeric, alphabetic or alphabetic-numeric filing system in order to hang, pull-stack-place, and rehang tapes in a tape library by following step by step instructions and tape identification lists; or, (2) a log control system in order to receive input media make in/out log entries, and to sort and place finished work in pick-up bins for across the counter processing requirements.

Many positions require knowledge of step-by-step instructions to set-up and operate equipment that perform repetitive operations (e.g., decollator, burster, electro-static copies, tape degausser).

Level 1-2 -- 200 points -

Employees at this level perform clerical support duties such as storage, control, distribution and records work requiring knowledge of established rules such as those for: collecting and staging tapes, instructions and other items needed for processing programs; accepting and controlling priority jobs; or, monitoring retention periods for computer tapes.

Employees at this level also use knowledge of procedures and control systems to ensure that work steps are performed in proper sequence (i. e., work that directly supports processing is performed before maintenance work) and that log and inventory entries are current and accurate.

The work also requires knowledge of a few standard codes and abbreviations such as those: on tape labels and inventory records; that define repetitively used control language entries; and used for entries to production reports.

Many employees use knowledge of codes, basic keyboarding techniques and operating instructions to set-up and operate equipment such as computer terminals, tape and disk cleaners or input devices (card reader, optical character reader).

Level 1-3 -- 350 points -

The work at this level requires knowledge of standardized data processing rules, operations and procedures enabling employees to resolve common or recurring problems or to perform standardized variations in work methods. For example:

-- To resolve a request when Privacy Act restriction apply, a control unit employee works with the requester to satisfy statistical data requirements and amends the request to suppress personal identifications in the output.

-- Employees in production control or the tape library recognize conflicting or overlapping use of tape or other input needed for more than one job and annotate operator instructions accordingly.

Employees use knowledge of a system control language to adjust data definition and command variables during each processing cycle for an assigned block of programs. This knowledge is also used to identify and resolve control related processing problems involving options in format, content and dependency. For example, production controllers follow run instructions to insert controls providing for variations in product format, annotate run sheets to make allowance for dependent and follow-up processing and correct control and sequence problems during processing.

Some employees use knowledge of computer equipment characteristics and constraints (e.g., number and kind of devices, operating speeds, memory sizes) in basic scheduling, production control and programming support work. For example, jobs are spaced in an operating schedule according to the number of input and output devices available, the amount of core available for sequential or parallel processing, need for single or multiple tape passes and the amount of time needed for each job.

Some employees use knowledge of a user oriented processing language in order to provide output support to subject matter users.

Such work involves using entry, command and action codes to retrieve standardized reports, schedule and control a number of job requests and produce and distribute products according to job priorities.

Level 1-4 -- 550 points -

Employees at this level perform a wide range of preparing, advising, assisting, coding and procedure related problem solving duties using knowledge of data processing rules, operating procedures and processing methods similar to those described at the 1-3 level. In addition, work at this level involves knowledge of one or more of the following:

-- at least one programming language such as COBOL, FORTRAN, PL/1 or ALGOL;

-- system control language at a level that provides for devising run control streams according to general instructions and review of product specifications;

-- system hardware, software and program capabilities and limitations for multi-programming systems operating in more than two partitions.

-- terminology, codes, abbreviations and graphics for preparing systems documentation or programs;

-- program data contents, standardized jobs within programs and methods for defining and retrieving non-standard data and reports.

Some or all of these knowledges are used in assisting programmers and other users or in scheduling, controlling and problem solving work. For example, work at this level includes:

-- assisting computer specialists by coding programs from detailed specifications or, arranging for test runs and checking results for flow, control and specified kinds of coding errors,

-- explaining program, job and random access production capabilities, discussing information requirements, advising users about how to write product specification and setting up and scheduling jobs,

-- scheduling a mix of programs for a multi-program system or, resolving priority, product options, multiple dependency, job control and related problems,

-- setting up job control streams for multi-program systems, annotating operator instructions to define special conditions, providing input media for each job and resolving failures caused by control stream, tapes or disks, or

-- preparing coded retrieval strategies, executing jobs through a remote terminal, storing and retrieving data in a buffer computer and advising users on how to define and structure non-routine data and product requirements.

Some employees use knowledge of languages and equipment in conducting system record searches to identify and/or resolve procedural errors. They review system reports, operating schedules, operator logs, selected system dumps and other documents and sources. They compare processing plans against experience, identify scheduling, input, data, tape, disk or other sources of errors or delays in processing. They record patterns of recurring conditions or combinations of conditions contributing to processing failures or delays and find other indicators that operating conditions, equipment or methods are causing problems in processing. They amend schedules and set-up procedures. They also prepare summaries of problem conditions and, for program or system corrections they report their findings to specialists.

Level 1-5 -- 750 points -

At this level employees carry out limited specialized projects and assignments using knowledge of fundamental data processing methods, practices and techniques in work involving development, test, implementation and modification of computer programs and operating procedures.

In addition, employees use knowledge of data content and output options for a variety of administrative, scientific and/or technical program applications that are processed on any of several multi-program operating systems. These knowledges are used in coding program segments for several computers or in such duties as developing control streams and schedules for a mix of independent and interdependent programs.

Employees also use knowledge of time sharing, RJE, batch and demand processing in work such as allocating core, assigning input/output channels, describing scheduling conventions, preparing limited subject matter data base routines or programs or writing new program documentation and operating procedures.

Employees use the knowledges at this level as the bases for analysis and decision making in several functional settings. For example, they: accept, reject or modify work requests in developing new or projected schedules; explain to and advise users about schedules, codes, operating variations (including coded shortcutting techniques) and product options; maintain, interpret and write portions of program and operational manuals for programming, scheduling and production control functions; and similar duties when decisions are based on in-depth knowledge of the systems and programs.

Level 1-6 -- 950 points -

In addition to the knowledges previously described, at this level employees use extensive knowledge of at least one multi and, typically several single processor computer systems. They monitor processing work flow and diagnose and resolve error and problem conditions involving many program interrelationships and interlocking computer systems. The work at this level encompasses many of the problem solving aspects of computer specialist work concerned with effective program implementation and processing except those requiring programming corrections or equipment repair. This work requires extensive knowledge of computer equipment, internal computer processes, applications and utility programs and magnetic media. It also requires knowledge of a wide range of analytical and diagnostic methods, procedures and principles. In addition knowledge is required of some elements of programming, systems analysis and equipment operations.

These knowledges are used to identify the nature and source of problems occurring during processing and to plan and implement solutions. Employees at this level commonly use these knowledges to advise specialists in setting up run instructions and developing effective operating methods.

The work at this level commonly involves taking action to order and interpret system dumps, order and implement back-up recovery procedures to replace faulty tapes or disks, reallocating equipment usage in order to work around equipment malfunctions, recognizing priority contentions and removing work from an operating schedule and other similar actions involving knowledge of the equipment, programs and operating options. This work often requires that the employee implement decisions by taking action to change run streams, correct operating instructions, restructure full or partial schedules after system failures are resolved and other actions involving analysis and decision making responsibilities.

FACTOR 2, SUPERVISORY CONTROLS

"Supervisory Controls" covers the nature and extent of direct or indirect controls exercised by the supervisor, the employee's responsibility, and the review of completed work. Controls are exercised by the supervisor in the way assignments are made, instructions are given to the employee, priorities and deadlines are set, and objectives and boundaries are defined. Responsibility of the employee depends upon the extent to which the employee is expected to develop the sequence and timing of

various aspects of the work, to modify or recommend modification of instructions, and to participate in establishing priorities and defining objectives. The degree of review of completed work depends upon the nature and extent of the review, e. g., close and detailed review of each phase of the assignment; detailed review of the finished assignment; spot-check of finished work for accuracy; or review only for adherence to policy.

Level 2-1 -- 25 points -

The supervisor makes assignments and gives specific directions as to what is to be accomplished; how it is to be done and the deadline for completion. Duties are performed within the specific instructions. Work is spot checked or reviewed in progress. Completed work is reviewed for adherence to schedule and compliance with detailed instructions. The supervisor or a senior worker is normally available to provide direction or assistance.

Level 2-2 -- 125 points -

The supervisor gives instructions for non-recurring work assignments, deviations from normal schedules or new procedures. Within established procedures the employee independently performs recurring work making adjustments to accommodate deviations in work methods based on experience and precedent actions. Unfamiliar situations or deviations from established practices are referred to the supervisor or computer specialists for resolution.

Completed work is reviewed on the basis of system reports, customer comments, specialist or operator notification of problems during processing. Review is to determine that the employee has used proper procedures and methods, and that the work is completed within established deadlines.

Level 2-3 -- 275 points -

The supervisor provides direction on objectives and priorities for new work, deadlines and deadline changes for new and established work.

The employee identifies the work to be done, plans and carries out the steps required and submits completed work to users (programmers, operators, functional users) without supervisory review. Independently deviates from instructions to provide for unspecified dependencies, lower or higher priorities, extended run time, additional core and other changes based on past experience and flexibility within processing specifications. Incumbent commonly adapts or develops new work procedures and instructions for application by self and others.

Incumbent seeks supervisory assistance and discusses problems related to the work when processing requests appear to exceed system capacity (I/O requirements, excessive core, throughput time) or could have adverse effect on other processing requirements (excessive level of priority, equally important but conflicting requirements against the same data base or program).

Completed work is reviewed for conformity to deadlines and accepted practices on the basis of end of shift reports, operator log notes, and responses from technical and functional users regarding the

quality and accuracy of work products. Work methods are not normally reviewed unless a recurring, common pattern of problems develops.

FACTOR 3, GUIDELINES

This factor covers the nature of guidelines and the judgment needed to apply them. Guides used in General Schedule occupations include, for example: desk manuals, established procedures and policies, traditional practices, and reference materials such as dictionaries, style manuals, engineering handbooks, the pharmacopeia, and the Federal Personnel Manual.

Individual jobs in different occupations vary in the specificity, applicability and availability of the guidelines for performance of assignments. Consequently, the constraints and judgmental demands placed upon employees also vary. For example, the existence of specific instructions, procedures, and policies may limit the opportunity of the employee to make or recommend decisions or actions. However, in the absence of procedures or under broadly stated objectives, employees in some occupations may use considerable judgment in researching literature and developing new methods.

Guidelines should not be confused with the knowledges described under Factor 1, Knowledge Required by the Position. Guidelines either provide reference data or impose certain constraints on the use of knowledges.

Level 3-1 -- 25 points -

Guidelines are available and are written in step by step sequence, or are presented orally in detail and are readily memorized. They are complete, specific and permit no deviation in their application. Employees work strictly according to the guidelines, referring all exceptions to the supervisor.

Level 3-2 -- 125 points -

The guidelines at this level are in the form of terminal and other equipment manuals, program run books or run sheets, flow charts, master schedules, and others that are detailed as to what is to be done. Selection of an appropriate guideline is usually clear. However, the guidelines may provide for judgmental deviations in the work processed, such as alternative methods for coding, applying system control language, or performing a retrieval through a terminal. Digression from guidelines which has not been established by experience and precedent actions is referred to the supervisor.

Level 3-3 -- 275 points -

The employee works with new requirements or new applications for which only general guidelines are available. The employee uses judgment in adjusting the most appropriate guidelines to fit new processing requirements or develops new methods for accomplishing the work. Guidelines may require modification to provide for adding new forms of input, allowing for flexible as opposed to fixed scheduling, adjusting to new or conflicting requirements, or to adapting to a new hardware/software capability.

FACTOR 4, COMPLEXITY

This factor covers the nature, number, variety, and intricacy of tasks, steps, processes, or methods in the work performed; the difficulty in identifying what needs to be done; and the difficulty and originality involved in performing the work.

Level 4-1 -- 25 points -

Employee performs tasks that are clear-cut, repetitive and directly interrelated, such as the basic pull, stage, label, and hang stages of tape library functions; the input/output control functions in a production control unit; and similar structured work processes. While several kinds of duties may be included in each position, the work is segmented so that performance of each step is separate and discrete from others. The nature of the work provides little opportunity for the employee to decide what is to be done, or the methods to be used.

Level 4-2 -- 75 points -

The employee performs a few different although related tasks, using specified procedures and methods such as: (1) inventorying, cleaning and repairing tapes, and annotating run sheets to show multiple use of tapes; (2) arranging for input conversion from one medium to another, modifying job control stream to provide for product variations, and adjusting priorities; (3) adjusting schedules to accept late requirements, shifting programs between systems, and adding new recurring requirements to a master schedule; or, (4) relating flow chart, block diagram, logic specifications and control requirements to a program coding assignment.

The employee decides what needs to be done, identifies and carries out methods and variations within established procedures, and makes other similar decisions to perform such work.

The actions to be taken are determined by the product description on each job request. The employee selects and applies established procedures and methods to satisfy product requirements.

Level 4-3 -- 150 points -

The employee performs a variety of tasks involving discrete methods and procedures, or a variety of related tasks that require a sequence of actions involving differing methods and procedures.

The decision regarding what is to be done results from studying each job order, assignment or processing problem situation. The employee identifies the sequence of standard and variable procedures and methods needed to prepare and process the request, or to resolve error conditions.

Actions to be taken differ according to the equipment or program system appropriate to satisfy the request, and whether the job is processed in batch or time sharing mode.

For example, work involving this level of complexity includes the following.

-- In work directly supporting specialists, employees participate in each phase of a project ranging from problem definition by the user through implementation of a program. This includes working in such phases of program development as information collecting, analyzing, charting, designing, coding, testing, documenting and implementing.

-- In scheduling work employees consolidate several schedules for different computer systems into a comprehensive operating schedule. Such work involves trading off and adjusting processing time between systems to balance overall utilization, and other similar work requiring consideration of a variety of operating schedules, systems specifications and processing demands. This level of scheduling requires relating a number of program characteristics to a variety of computer systems and deciding how an effective and balanced use of facilities can be accomplished.

-- In production control employees work with a variety of subject matter program applications and a wide variety of output options. The employee explains system capabilities, limitations and output variations to users, advises on the formulation of job requests based on customer description of product requirements, describes remote entry methods and language variations, and resolves problems for terminal users who encounter system related problems during remote processing.

Level 4-4 -- 225 points -

This level is distinguished from the previous level by: (1) the variety and complexity of operating systems monitored (2) the nature and variety of problems encountered and resolved; and, (3) the nature of independent decisions made by the employee. At this level the employee typically monitors the operations of several major computer systems (e.g., a multi-processor with four interconnected CPU's and two multi-program systems each operating in 5-10 partitions). Programs run on these systems are a mix of independent and interdependent applications. Specifically, employees at this level perform problem solving duties involving a wide range of problem or error conditions in equipment, program data and processing methods and procedures. This diagnosis and resolution of error and problem conditions involves equipment configurations having different operating characteristics, a wide variety of data and programs and many different processes and methods to arrive at solutions or develop new procedures.

Decisions regarding what needs to be done include assessing unusual circumstances or conditions, developing variations in approach to fit the specific problems or dealing with incomplete or conflicting data. For example, in cases of major equipment failure or excessive/ unexpected amounts of input data, the employee commonly takes a series of actions affecting a number of programs. This can include transferring programs to other computer systems, removing jobs from an operating schedule, reassigning equipment allocations to work around program software or equipment deficiencies and other similar actions.

The employee makes decisions and devises solutions based on program, equipment and systems knowledge. This involves interpreting considerable data to identify the problems, planning and implementing solutions and refining or designing operating methods or techniques.

FACTOR 5, SCOPE AND EFFECT

Scope and effect covers the relationship between the nature of the work, i.e., the purpose, breadth, and depth of the assignment, and the effect of the work products or services both within and outside the organization.

In General Schedule occupations, effect measures such things as whether the work output facilitates the work of others, provides timely services of a personal nature, or impacts on the adequacy of research conclusions. The concept of effect alone does not provide sufficient information to properly understand and evaluate the impact of the position. The scope of the work completes the picture, allowing consistent evaluations. Only the effect of properly performed work is to be considered.

Level 5-1 -- 25 points -

Employees perform specific, repetitive operations that are designed to provide tapes or other media for operations, to receive job orders and distribute products, or comparable levels of work. The work facilitates the timeliness of other work processes in operations, scheduling, production control and staging functions.

Level 5-2 -- 75 points -

Employees at this level perform a range of duties in scheduling, production control, library or other computer support positions according to established procedures and methods. The results of the work are complete products or complete segments of other products or work processes.

Examples of work at this level are: (1) Tape library employees who regularly perform the full range of inventory, staging, annotating instructions and maintenance duties in the library; (2) production controllers who review and amend control streams according to instructions, perform staging functions for a number of applications, and monitor and correct control language coding errors for jobs in process; (3) schedulers responsible for a range of programs with variable I/O, core, runtime and dependency requirements; and (4) assistants to specialists who collect raw information, prepare finished flowcharts, code programs and other similar kinds of work on a variety of projects.

The work affects the accuracy of processing by providing the required tapes; applying complete control amendments; providing for data contention and other potential conflicts during processing; and, coding according to specifications. Reliability and acceptability are affected by completion of the work within deadlines; ensuring against media and control related processing failures, and providing the requested output.

It also affects the reliability and acceptability of subsequent processes by providing requested output and project segments within established deadlines.

Level 5-3 -- 150 points -

This level is distinguished from the next lower level by addition of requirements for solving problems and answering technical questions about control, scheduling and/or direct support functions. The problems and error conditions encountered are conventional to data processing although solutions are not always covered by established or standardized procedures. Results of the work affect the efficiency of processing services, adequacy of products used in subsequent activities and processing procedures and methods. Examples of work at this level are:

-- Explaining to and assisting customers in the application of system capabilities when the customer has unusual or unique processing requirements that are difficult to formulate.

-- Maintaining established applications programs and modifying program contents to provide for new data and output when such changes do not modify the original programming logic and techniques.

-- Adjusting and rebalancing a number of single system schedules to enhance processing services by using the capacities of several computer systems.

-- Reviewing, testing, and correcting control and run stream procedures to resolve processing delays or failures.

FACTOR 6, PERSONAL CONTACTS

This factor includes face-to-face contacts and telephone and radio dialogue with persons not in the supervisory chain. (NOTE: Personal contacts with supervisors are covered under Factor 2, Supervisory Controls.) Levels described under this factor are based on what is required to make the initial contact, the difficulty of communicating with those contacted, and the setting in which the contact takes place (e.g., the degree to which the employee and those contacted recognize their relative roles and authorities).

Above the lowest level, points should be credited under this factor only for contacts which are essential for successful performance of the work and which have a demonstrable impact on the difficulty and responsibility of the work performed.

The relationship of Factors 6 and 7 presumes that the same contacts will be evaluated for both factors. Therefore, use the personal contacts which serve as the basis for the level selected for Factor 7 as the basis for selecting a level for Factor 6.

Level 6-1 -- 10 points -

Personal contacts are with other employees in the immediate unit, with computer operators, or user representatives such as clerical personnel who drop off program and processing requests. The contact typically takes place at the work station, over the counter, or by telephone.

Level 6-2 -- 25 points -

Contacts are with specialists and other recipients of DPC services who are employees of the same agency, but outside the data processing organization; or, contact with employees of other agencies or non-governmental organizations who use the DPC facility on a direct submission, RJE or time sharing basis; or, contacts with contractors representatives such as vendor repair technicians or customer engineers. The contacts are structured and routine and the role of each participant is readily determined.

FACTOR 7, PURPOSE OF PERSONAL CONTACTS

In General Schedule occupations, purpose of personal contacts ranges from factual exchanges of information to situations involving significant or controversial issues and differing viewpoints, goals, or (()) objectives. The personal contacts which serve as the basis for the level selected for this factor must be the same as the contacts which are the basis for the level selected for Factor 6.

Level 7-1 -- 20 points -

The purpose of contacts is to exchange factual information such as processing status, deadline for input submissions, tape or disk availability or condition and similar kinds of factual information; or to explain established work methods and processes.

Level 7-2 -- 50 points -

The purpose of contacts is to plan or coordinate changes in scheduling requirements or priorities due to data or equipment related problems; to participate with users in planning and coordinating new or modified requirements when the work fits generally within system options, schedules, etc., or, to plan user participation, methodology and deadlines for new projects.

FACTOR 8, PHYSICAL DEMANDS

The "Physical Demands" factor covers the requirements and physical demands placed on the employee by the work assignment. This includes physical characteristics and abilities (e.g., specific agility and dexterity requirements) and the physical exertion involved in the work (e.g., climbing, lifting, pushing, balancing, stooping, kneeling, crouching, crawling or reaching). To some extent the frequency or intensity of physical exertion must also be considered, e.g., a job requiring prolonged standing involves more physical exertion than a job requiring intermittent standing.

NOTE: Regulations governing pay for irregular or intermittent duty involving unusual physical hardship or hazard are in Chapter 550, Federal Personnel Manual.

Level 8-1 -- 5 points -

The work is generally sedentary, although there may be some nominal walking or standing for short periods of time, or carrying of light loads of papers, books, reports and the like that require only moderate physical ability and physical stress.

Level 8-2 -- 20 points -

The position requires extended periods of standing, walking, stretching, bending, stooping or carrying of loads of paper, tapes, or cards that may weigh as much as 20 kilograms (45 pounds).

Level 8-3 -- 50 points -

The work requires regular and recurring lifting and carrying of objects of heavy weight (over 50 pounds) and occasional lifting and carrying of heavier materials.

FACTOR 9, WORK ENVIRONMENT

The "Work Environment" factor considers the risk and discomforts in the employee's physical surroundings or the nature of the work assigned and the safety regulations required. Although the use of safety precautions can practically eliminate a certain danger or discomfort, such situations typically place additional demands upon the employee in carrying out safety regulations and techniques.

NOTE: Regulations governing pay for irregular or intermittent duty involving unusual physical hardship or hazard are in Chapter 550, Federal Personnel Manual.

Level 9-1 -- 5 points -

The work involves the common risks or discomforts, requiring normal safety precautions typical of offices, meeting rooms, libraries and the like. The work area is adequately lighted, heated, and ventilated. Employees in or adjacent to computer rooms may be within environmentally controlled areas and, although relatively cool, require only normal clothing to compensate for minor discomfort.

Level 9-2 -- 20 points -

Some work involves moderate risk requiring exercise of safety precautions when operating or working around equipment with exposed moving parts such as decollators, bursters and others. Special clothing or protective equipment is not normally required although there is moderate risk of bodily injury.

OPM BENCHMARK DESCRIPTIONS

COMPUTER CLERK, GS-0335-2, BMK #1

Duties

This position, in the tape library, has the following duties.

-- Places labels on and removes labels from magnetic tapes according to instructions from the supervisor.

-- Files tapes in assigned location and pulls requested tapes for processing as instructed.

-- Delivers and retrieves tapes from the computer room.

-- Serves on a team to conduct physical inventory by locating and identifying tapes in the library.

-- Makes entries on forms and log books to control tapes.

-- Unpacks new tapes and packs tapes for shipment.

Factor 1, Knowledge Required by the Position -- Level 1-1 -- 50 Points

-- Knowledge of the procedures used to file and retrieve tapes from the library and to deliver them to the computer room, change labels on tapes and post entries to inventory records, as well as methods for packing and unpacking tapes.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 points

-- The supervisor explains assignments and any unusual instructions. After initial instruction, employee performs recurring assignments independently but asks questions to clarify unfamiliar situations. The supervisor insures that finished work is completed according to instructions.

Factor 3, Guidelines -- Level 3-1 -- 25 Points

-- Written guidelines or easily memorized verbal instructions cover most library practices including labeling, filing, inventory, distribution and control of tapes. The employee must adhere to the guidance and has no authority to deviate or exercise personal judgment without approval of the supervisor.

Factor 4, Complexity -- Level 4-1 -- 25 Points

-- Performs repetitive duties such as tape handling, labeling and filing where there is little choice in deciding what is to be done. Variations in the performance of the work are few because of the structured nature of the work.

Factor 5, Scope and Effect -- Level 5-1 -- 25 Points

-- The purpose of the work is to route tapes between the library and data processing users as well as to record the use and location of tapes through logs and inventory sheets. The work services and supports the work of others within the data processing facility.

Factor 6, Personnel Contacts -- Level 6-1 -- 10 Points

-- Contacts are with co-workers, computer assistants, and computer operators.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

-- The purpose is to exchange information pertaining to tapes.

Factor 8, Physical Demands -- Level 8-2 -- 20 Points

-- The work requires long periods of standing, stooping and recurring lifting of up to 50 lb. cartons.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

-- The tape library work setting is comparable to offices and book libraries and has no unusual risks or discomforts. The employee is expected to exercise safe work practices.

TOTAL POINTS -- 305

GS-2 = 255-450

COMPUTER CLERK, GS-0335-03, BMK #1

Duties

As a tape librarian, incumbent of this position uses knowledge of the tape library operating procedures to . . .

-- make print out changes as tapes change classification, e.g. from input to output, current to historical, retained to deleted; pull punched cards which indicate the new identification and forward cards to update the master tape library inventory listing.

-- complete forms, log books, listings or other records of actions taken in order to control the work flow and identification of tapes processed through the data processing center.

-- pull tapes to be erased and question unusual listings, e.g. tapes retained for long periods and suddenly released to be "scratched".

-- locate and forward tapes within and outside the DPC as requested, making appropriate entries in journals for control purposes.

-- make tape labels from run-sheets or print outs.

-- file and retrieve tapes.

-- sequence tapes properly for jobs being assembled for processing.

-- operate tape cleaner to remove surface particles and a degausser to erase tapes, reviewing listings carefully to detect improper entries which could cause good tapes to be erased.

Factor 1, Knowledge Required by the Position -- Level 1-2 -- 200 Points

-- Knowledge of the rules and procedures applied to accomplish the work functions of the tape library, to include those for routing, identifying, filing and cleaning tapes as well as the forms and documents used to control the flow of tapes.

-- Knowledge of common computer codes and abbreviations, printout listings, tape handling procedures, and data processing center organization.

-- Skill in operating a tape degausser to erase tapes and in operating a tape cleaning machine to remove particles from the surface of tapes without erasing the content.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

The supervisor provides additional instructions as required for new or unusual work assignments, e.g., to explain changes in tape retention practices. Employee carries out assignments independently, reporting unfamiliar situations to the supervisor for assistance. Review for compliance with established procedures is accomplished through spotchecks of work in progress.

Factor 3, Guidelines -- Level 3-1 -- 25 Points

Employee adheres to the written guidelines such as the tape library procedures guide and the master tape listing which cover most work situations. Unusual situations not covered are referred to the supervisor. Employee is not permitted to deviate from the published guides and supplementary oral instructions.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The work consists of tasks which are usually performed in a prescribed sequence and require close attention to details to avoid mistakes. Program changes, adding new runs and deleting others are conditions which result in daily changes to the tape inventory in addition to effecting routing and identification of other tapes. Additionally, procedures are continuously revised for improvement or to meet changes in program requirements. The employee must quickly adjust to the revisions.

Factor 5, Scope and Effect -- Level 5-1 -- 25 Points

The purpose of the work is to perform tape labeling, filing, cleaning, routing and control duties. The care and maintenance of tapes affects the reliability of subsequent processing and products. Sequential staging affects the timeliness and accuracy of computer operations.

Factor 6, Personal Contacts -- Level 6-1 -- 10 Points

Contacts are with co-workers, and other data processing center employees.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

The purpose of contacts is to discuss tape routing procedure, clarify instructions, locate misplaced tapes, verify the list of tapes to be degaussed and to exchange other factual information related to the work.

Factor 8, Physical Demands -- Level 8-2 -- 20 Points

The work requires long periods of standing, stooping and recurring lifting of up to 23 kilogram (50 lb). cartons.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work environment involves normal risks and discomforts and the employee is expected to observe normal safety precautions.

TOTAL POINTS -- 505

GS-3 = 455-650

COMPUTER CLERK, GS-0335-03, BMK #2

This position is in the production control unit of a data processing center. The employee is responsible for receiving, checking, assembling, and submitting production computer programs to the computer operations unit in accordance with established procedures.

Duties

-- Receives job request forms from programmers or user representatives.

-- Checks identification markings on input decks, control decks and processing instructions; compares to run sheet; orders required tapes; logs program on production forms by job name, date, programmer and additional information as indicated. On receipt of tapes, completes set-up and forwards to computer operations for processing.

-- Receives completed output and the run sheets. Checks for correct identification, number of copies and print legibility. Forwards products to user.

-- Key punches small quantities of cards as assigned, operates card reader and sorter.

-- Searches for lost or misplaced input/output documents.

-- Maintains stock of supplies including internal control forms, blank punch cards, log books, etc.

-- Maintains production reports by extracting and recording information from the system printer such as tape utilization, completed programs, internal failure reports giving reasons for failures, and computer equipment and operating time used.

Factor 1, Knowledge Required by the Position -- Level 1-2 -- 200 Points

Knowledge of input/output data requirements and processing control information as shown on the run sheet, in order to complete the assembling of programs for processing.

Knowledge of the procedures to (1) obtain tapes from the tape library, (2) insure that jobs are complete prior to forwarding for processing, (3) receive and check output, and, (4) complete production and historical processing records.

Knowledge of abbreviations and computer codes used in documentation to identify program input/output items and to describe processing steps.

Skill to operate peripheral equipment such as card reader/sorter and keypunch.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

The supervisor provides standing operating procedures for continuing assignments, explains and demonstrates procedures for changed or new assignments. The employee carries out recurring assignments according to established procedures, adhering to processing schedules, resolving minor problems related to incorrect tapes, missing control deck or cards and unclear or erroneous program identification. Assembly problems, poor quality print and similar problems not covered by established procedures are referred to the supervisor. The supervisor spot checks work in progress. The primary source of work review is from processing reports and comments made by programmers, operators and functional users.

Factor 3, Guidelines -- Level 3-1 -- 25 Points

Production programs are normally well documented through run sheets and books, and are supplemented by processing instructions and procedures for assembling programs and operating equipment. Updates and changes to programs, procedures or new requirements are accompanied by detailed guidelines. The employee selects the appropriate procedure according to program identification.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The employee works with a variety of program applications requiring review of input, control language and run instructions with each job request. The employee recognizes processing variations in job requests and stages each according to specified requirements and designated priority. Actions to be taken are decided by the employee depending on the need to provide some or all of the input media, add pre-punched control decks and similar considerations for each job.

Factor 5, Scope and Effect -- Level 5-1 -- 25 Points

The work involves support to users and the data processing center by receipt and preparation of programs to be processed, and distribution of output. Decisions affecting the programs and processing procedures are made by others. The work provides a connection between users and computer operations which affects the timeliness of processing.

Factor 6, Personal Contacts -- Level 6-1 -- 10 Points

Personal contacts are with specialists, operators and others in the data processing unit, and over-the-counter contact with user representatives.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

The purpose of the contacts is to discuss and clarify factual information about processing procedures, schedules and utilization records.

Factor 8, Physical Demands -- Level 8-2 -- 20 Points

The work requires long periods of standing, frequent bending, stooping and lifting of moderately heavy boxes of printed output.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work environment is comparable to an office setting except that nominal safety precautions related to equipment operation must be exercised to avoid moderate danger of personal injury.

TOTAL POINTS -- 505

GS-3 = 455-650

COMPUTER CLERK, GS-0335-04, BMK #1

Incumbent of this position serves in a computer center performing tape library and other related functions such as processing and reviewing the quality of microfilm, and tape shipping and receiving functions.

Duties

-- Pulls tapes from racks, places them with run sheets and positions in designated locations for operations.

-- Receives tapes returned from operations, reviews to identify active, scratch and new tapes.

-- Removes labels and protective rings from scratch tapes, makes entries on code sheets to remove tapes from active inventory, and places in appropriate location for subsequent use.

-- Verifies identification and retention entries on active tapes and hangs in racks in control number sequence.

-- Verifies program identifiers, retention and active dates for new tapes, applies labels, makes inventory adjustments and hangs tapes.

-- Operates keypunch equipment to prepare cards providing update input for tape library inventory system (TLS).

-- Participates in periodic tape inventory by physically locating and verifying the presence of tapes listed in the inventory, searching for lost or misfiled tapes, and extending search outside the tape library if necessary in order to find tapes which may have been improperly removed.

-- Maintains control records and control logs for master tapes, prepares automatic scratch notifications for users and participates in the maintenance and control of back up files in a security vault.

-- Performs tape cleaning, verification and repair functions, erases tape contents on a degausser and maintains logs of actions taken, errors corrected, length of tape, date, condition of tape and need to replace tape if condition indicates potential problems.

-- Operates magazine loaded microfilm processor and conducts visual and densitometry spot check of processed film to detect obvious quality problems and to refer them to the supervisor for solution.

-- Assembles, verifies identifications against appropriate documents, packs, wraps, prepares way bills and receipts and addresses shipments of tapes and film for air and surface shipments.

-- Receives incoming shipments of tapes. Verifies contents against manifest, checks tapes for obvious evidence of physical damage, makes entries to tape inventory system and submits tapes for inclusion in the tape library.

-- Maintains appropriate records, receipts and manifests and notifies others of missing, lost or damaged shipments.

Factor 1, Knowledge Required by the Position -- Level 1-3 -- 350 Points

-- Knowledge of the full scope of library functions, procedures, controls, methods, storage, issue and quality control requirements.

-- Knowledge of backup tape storage system, rules, controls, etc. to initiate tape duplication, documentation, control and rotation of tapes in/out of one on-site and one off-site security vault.

-- Knowledge of shipping procedures by type of carrier, the controls, records and methods for preparation and receipt of shipments; ability to pack tapes to prevent damage and to receive, verify and control incoming shipments, or to note and report shipment discrepancies by number, kind, shipper, or packing method.

-- Additional knowledges of lower level are required for recurring tape issuance, control and inventory and for equipment operating duties.

Factor 2, Supervision -- Level 2-2 -- 125 Points

At this level the employee is expected to perform in any of the three major functional areas of the library: tape control and issuance; microfilm processing and editing; or, shipping and receiving. The supervisor makes the assignment and advises of procedural changes or alerts to anticipated high priority requirements. The employee performs in the assigned function for a period of one day or more on a rotating or infrequent basis, applying acquired knowledges and skills while performing the work with little direct supervision. The supervisor conducts infrequent spot checks to review the flow of work in progress. Completed work is reviewed for timeliness and acceptability on the basis of production and error reports.

Factor 3, Guidelines -- Level 3-1 -- 25 Points

Guidelines for each function are relatively few, are a combination of written and verbal and are easily committed to memory after relatively short experience with their applications. The employee applies the guidelines appropriate to assigned library, shipping or microfilm functions. The guidelines are specific, providing for only minor deviation or tolerances. Conditions which do not fit within the guidelines are referred to the supervisor.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The incumbent performs the various functions in the library and adapts to and applies appropriate work methods, procedures and controls. Production and quality levels are maintained during rotations among library, shipping and microfilm duties.

The employee decides what needs to be done according to special instructions for each work station, quality control tolerances, priority schedules and related controls over the work.

Actions to be taken involves following established instructions or selecting from precedent variations on instructions for each phase of the work.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

Functions performed in the library cover the receipt, storage, maintenance, shipping and control of computer tapes, and the secondary functions of microfilm processing and quality control. The incumbent of this position is required to perform all those functions as workload requires or on a regular rotating basis. The product of the work is of a service nature which affects the accuracy and timeliness of computer processing in the local and subordinate computer centers.

Factor 6, Personal Contacts -- Level 6-1 -- 10 Points

Contacts are with operators, specialists and other clerks and assistants in the local computer center and occasionally in subordinate centers.

Factor 7, Purpose of the Contacts -- Level 7-1 -- 20 Points

To obtain or furnish factual information relating to assigned duties, status of shipments, missing tapes and similar concerns.

Factor 8, Physical Requirements -- Level 8-2 -- 20 Points

The work requires physical exertion such as long periods of standing, reaching, stooping, pushing carts and lifting boxes weighing up to 20 kilogram (45 pounds).

Factor 9, Work Environment -- Level 9-1 -- 5 Points

Work is performed in an environment similar to an office setting. Normal safety precautions are required in the operation of equipment but there are no unusual risks or hazards involved.

TOTAL POINTS -- 705

GS-4 = 655-850

COMPUTER CLERK, GS-0335-04, BMK #2

The incumbent of this production control position is responsible for preparing and submitting to operations instructions and materials used in processing a variety of programs, each having multiple run requirements and variable product capability.

Duties

-- Receives customer originated input materials (cards, tapes, code sheets) and processing instructions. Arranges for conversion of raw data to tape or cards, lists and requests appropriate tapes from the tape library, and inserts designated control deck. Assembles all data, instructions and materials and places in pre-designated position for operator use.

-- Makes minor modifications to control deck to change "as of" dates, customer designation and command and control cards according to sequence and location defined in instructions.

-- Assembles jobs in priority order, allowing for designated dependency and data contention considerations in sequencing according to customer designated priority. If there is conflict in priority, refers the request to the scheduling unit for resolution.

-- Checks job status through a direct inquiry remote terminal to determine estimated completion time, or to identify and explain reasons for delays, such as equipment failure, power outage, backlog or priority jobs.

-- For control stream related unplanned halts corrects portions caused by incorrect card sequence, incorrect parameter card, invalid parameters or other comparable situations. Substantive control stream and program logic induced failures are referred to the appropriate control stream specialist.

-- Receives completed jobs, checks output for correct format, printing alignment, customer and program identification, number of copies and processing materials to be returned to the customer. Distributes output according to run sheet instructions.

Factor 1, Knowledge Required by the Position -- Level 1-3 -- 350 Points

-- Knowledge of processing flow to understand how the sequencing of input, use of job control statements, order of scheduling, time of execution and production of output are interrelated to create the desired product.

-- Knowledge of manual processing control procedures in order to interpret the number, kind and sequence of steps necessary to prepare a job for processing, including the variations necessary to initiate multiple passes of the same program data to arrive at differing products.

-- Knowledge of system control decks in order to understand basic control language modification instructions and to adjust parameter and data cards in the assigned deck with each assigned program and production processing requirement.

-- Knowledge of codes and abbreviations in order to follow program run books and run sheets, to distinguish between independent and interdependent jobs, to sequence accordingly, and to adjust priorities within prescribed limits to accommodate these variations. This knowledge is also used to interpret output specifications, to detect errors in format, headings, dates, compliance with procedural changes, or partial listings, and to check for proper print alignment prior to release to customers.

-- Knowledge of the priority setting system in order to recognize conflicting priority requirements, to adjust staging if possible to satisfy the conflicts, or to refer to schedulers if the apparent conflicts give appearance of delaying a processing request.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

Processing control assignments are recurring at scheduled intervals. The supervisor instructs on changes in processing schedules and methods of processing. The employee works independently to control processing of assigned jobs from receipt of material through completion of set-up. Receives completed work and after checking format, etc, distributes to customers. Problems which can cause processing delays, such as late receipt of input, improper instructions, conflicting priorities that cannot be easily accommodated and others are referred to the supervisor or to the scheduling unit. The supervisor spot-checks job status and reviews job set-up records for conformance to established procedures, and to ensure completion within established schedules.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Production programs are well documented and prescribed procedures are normally clear and applicable for assigned programs. Since product format, content and control requirements are variable for assigned programs, each run requires exercise of judgment to select the proper combination of guidelines for variations, tape selection options and error correction procedures. Work requests for products, controls or priorities in excess of the options provided in run books are referred to the supervisor.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The employee sets up the materials, controls and instructions for a variety of program applications requiring proper identification of each job in order to determine how it is to be prepared for processing.

The employee decides what standardized procedures to follow on the basis of job instructions that specify the kind of data conversion, control amendments, dependencies or similar variations needed for each run.

Actions to be taken depend on needed adjustments for scheduling requests, dependencies, known contentions or availability of input materials.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

The purpose of the work is to assemble all instructions and materials necessary to process an assigned block of programs, and to distribute the output from that processing. The work affects the timeliness of processing and provides for accurate and timely satisfaction of customer requirements.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

The employee maintains contact with employees throughout the data processing center, especially programmers, computer operators and tape library personnel. There is almost daily contact with subject-matter specialists in the organization and occasionally in the central office.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

Contacts are to receive work requests and instructions, to explain system or processing status, request or provide clarification of work processes, or to exchange factual information about work procedures or schedules.

Factor 8, Physical Demands -- Level 8-2 -- 20 Points

The work requires long periods of standing, frequent bending and stooping and lifting and carrying of loads of reports, tapes, etc., up to 20 kilograms (45 lbs).

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work involves only normal risks or discomforts typical of an office setting and requires no special safety precautions.

TOTAL POINTS -- 820

GS-4 = 655-850

COMPUTER CLERK, GS-0335-04, BMK #3

Incumbent assists computer specialists in the Data Processing Division, Systems and Programming Branch. The Branch has responsibility to develop and design standardized and special computer applications systems.

Duties

-- Maintains a variety of computer systems manuals including: operations manuals covering start-up instructions, system loading, restart and recovery procedures; diagnostic aids and similar information related to computer operating procedures; program library update procedures covering narrative instructions; flow process charts, block diagrams and other information that defines data element content, program output variables and procedures for their use in the automated program library; and the data element catalog which serves as the input base for the data element dictionary.

-- Maintains files and records pertinent to Branch functions and prepares charts and instructions for code sequence conversion steps following standardized procedures.

-- Reviews system manuals to ensure that required documentation is prepared, is complete, updated and distributed as necessary.

-- Receives system implementation, scheduling and operational deficiency reports for headquarters and field elements. Consolidates reports contents, reviews for completeness, requests missing reports and data entries and prepares summary charts and/ or worksheets for analysis by appropriate specialists.

-- From data submitted by others, codes and updates program library procedures through a remote terminal.

Factor 1, Knowledge Required by the Position -- Level 1-3 -- 350 Points

-- Knowledge of operating procedures, methods and problems sufficient to understand and act on their effect on documentation requirements. The ability to discern similar but differing documentation requirements in order to maintain several operating, procedural and data definition manuals.

-- Knowledge of organization priority and deadline policy and systems in order to complete own work, and to initiate action to be completed by specialists in preparing and issuing program and systems documentation. Ability to write step by step instructions, ensure that others submit completed work and to order the distribution of new or amended manuals and procedures.

-- Knowledge of a computer terminal user language sufficient to understand, translate, communicate and document program and system changes designed by others and to update program library data content and procedures through an on-line remote terminal.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

The supervisor or a computer specialist provides instructions as to the scope of new assignments, specifying the techniques to use, deadlines and results expected. The employee performs special and continuing assignments independently within those specified or standing instructions. Completed work is reviewed for compliance with instructions, adequacy of methods and content, and to ensure completion within deadlines.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Guidelines for recurring work are contained in various procedural and operating manuals, and internal notices. New work is defined by written or verbal instruction. The manuals and other records maintained by the incumbent vary in contents and format requiring selection of guidelines or procedures appropriate for each job according to program, operating system or program library update and documentation requirements. Overlapping, conflicting or new applications of guidelines are discussed with the supervisor for clarification.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The employee maintains manuals, related records and on-line data files for a variety of program applications which vary in content and in documentation requirements. The employee determines what needs to be done to update or complete records and manual entries, and initiates actions to acquire needed information and data from responsible specialists and operators. Actions to be taken are determined by the employee after identifying such things as the stage of program development, installation of new equipment, or modifications to ongoing programs or systems.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

The employee supports computer specialists by assuming records and documentation maintenance functions, and some data collection, input and summary reports functions. The work affects the accuracy of the data dictionary, and the timeliness and availability of required procedures and program specifications used in data processing operations.

Factor 6, Personal Contacts -- Level 6-1 -- 10 Points

Contacts are with other clerks and assistants, computer specialists and computer operators within the Data Processing Division. Occasionally contacts are with system users in the organization with concerns and interests related to the preparation and use of the manuals.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

Personal contacts are established or maintained to provide, collect, or exchange factual information about the work processes and products.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

Physical demands are limited to normal walking, carrying of small batches of documents or punched cards and walking between the work station and other work locations in the vicinity of the office. There are no unusual physical requirements.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed in an office like setting, requiring safety considerations normal to such settings such as closing file drawers, but not of the nature that requires special precautions.

TOTAL POINTS -- 790

GS-4 -- 655-850

COMPUTER ASSISTANT, GS-0335-05, BMK #1

Serves as the production control contact between programmers or functional users and computer organizations for an assigned block of program applications.

Duties

-- Collects and consolidates input data and program documentation.

-- Inserts or modifies program control deck as appropriate.

-- Identifies tape requirements.

-- Verifies that required information is available, and places in operations for processing according to schedule.

-- Reviews documentation and stages materials to allow for data and program dependencies. Ensures that input data is current and annotates operator instructions to show multiple program runs.

-- Enters jobs into priority queue through a card reader according to simple or priority sequence, dependency sequence or by special priority indicator. Accepts priorities as indicated by users, or upgrades priorities on customer request if it does not interfere with established production or existing priorities. Adjusts priorities by making coded entries through a remote terminal.

-- Monitors programs in progress through terminal inquiry or system printer status reports. Advises users of current status of job, estimates time of completion, or advises of processing problems such as conflicts of priority, equipment or power failure and similar conditions.

-- Responds to operator notification of control parameter processing problems. Reviews instructions and program specifications and corrects control codes. Advises operator of restart or rerun instructions, adjusting priority if necessary.

-- Reviews run sheet instructions and stages test runs under varying priority and control conditions.

-- Spot checks output to determine that it is properly formatted, and that the quantity and print quality are as required. Notifies users of completed high priority work.

Factor 1, Knowledge Required by the Position -- Level 1-3 -- 350 Points

-- Knowledge of production processing procedures and flow, and knowledge of computer equipment utilization options for processing each assigned program. This knowledge is used to set-up and assign processing to computer systems according to program and control variations required for each local machine system.

-- Knowledge of program documentation, terms and usage of system control language and run-sheet instructions in order to interpret repetitive and one time processing requests. This knowledge is used to amend control streams and to provide for identification, dates, and parameters specified in processing requests. It is applied to select the appropriate machine system or alternate for processing the requirement. It is also used to interpret and accommodate to conflicting data and program requirements, and to work with operators to correct control related problems.

-- Knowledge of organization policies and procedures controlling the assignment of processing priorities to accommodate customer requests or to refer conflicting priorities to specialists for resolution.

-- Knowledge of recurring and production workload requirements and the distribution of processing among the available systems in order to assure that demand and test requirements are properly inserted within available capacity and time availability.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

The work is assigned in terms of responsibility for a block of applications programs. Changes in procedures, schedule modifications or changes in policy that effect work assignments or methods are explained by the supervisor. The employee performs on-going and special processing work independently according to standing instructions and procedures, making adjustments based on experience or precedent processing actions. Requirements that cannot be accommodated according to established practices or precedents are referred to the supervisor. Finished work is reviewed on the basis of processing reports, and contact with users to determine that objectives have been properly and timely accomplished.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Written guidelines are supplemented by verbal instruction for minor modifications in procedures. The written guides include manuals for control language applications, processing procedures (priority setting, queue loading, schedules, etc.) and program run books. In addition, dependencies and contentions are depicted in, or can be determined from flow charts and block diagrams. The guidelines cover the procedures necessary to accomplish recurring work. The employee selects from available guidelines and precedent actions to adapt to new programs or test requirements, and adjusts existing procedures for contentions, priorities and multiple-pass processing. New requirements that cannot be adapted and processed within existing guidelines are referred to the supervisor.

Factor 4, Complexity -- Level 4-3 -- 150 Points

This employee is responsible for the pre-processing preparation of a variety of program applications processed on several computer systems. Each job requires consideration of variables in processing specifications such as the system on which the processing is to be accomplished, product format, and the number and kind of control variables (dates, input identification, one or more levels of totals or data summaries) appropriate to the requirements. The employee determines what is to be accomplished, job priority, and the appropriate processing and control methods to acquire the requested products.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

The purpose of the work is to maintain a flow of processing work to and through the computer systems, ensuring that the computer operator has all required information and materials to successfully complete processing requirements. The work affects the accuracy of production depending on proper combinations of control, input and program specifications. The results of the work contribute to user acceptance of system reliability and ensures timeliness of computer production.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Primary contacts are with co-workers, programmers and operators in the data processing center. There is frequent contact with functional users of the systems, located within the agency.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

For new or test applications the employee participates in work planning efforts by adapting, devising, and recommending the control methods to be applied. The majority of contacts are for the purpose of exchanging or explaining factual information about the work processes, such as data needs, schedules and priority setting procedures.

Factor 8, Physical Demands -- Level 8-2 -- 20 Points

The work requires long periods of standing and frequent bending and stooping. The employee is occasionally required to lift and carry cards, printed reports, tapes and other materials that may reach loads of about 20 kilograms (45 lbs).

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work environment is comparable to an office setting with a controlled environment, requiring normal safety precautions and involving only nominal risk of injury.

TOTAL POINTS -- 925

GS-5 = 855-1110 Points

COMPUTER ASSISTANT, GS-0335-05, BMK #2

Incumbent is responsible for scheduling work in a computer center performing applications processing on a modern, stand alone system capable of two level multi-processing.

Duties

-- Develops schedules for 1-3 day periods to include recurring jobs, established and ad hoc priorities, special and test requirements and system maintenance time.

-- Reviews run books, system status reports, prior schedules, tape library records and flow charts. Identifies computer time required for each job; the availability of input data; and program dependencies.

-- Ensures that input media and control decks are matched. Reviews control cards for correct user and input identification, as of date, and the presence of special controls. Adds, changes or removes control cards as required from a specified, limited number of those that control processing variables.

-- Adjusts established schedules due to late receipt of requests, program changes, new priorities, late or non-receipt of input, or machine failure.

-- Coordinates with users to clarify instructions, obtain missing data, explain processing delays, discuss priority adjustment options, discuss alternative processing methods and anticipated time of program completion. Coordinates with computer operators to determine system status, to correct minor set-up and control errors and to determine status of previously scheduled programs, or to adjust the priority of programs.

-- Compiles statistics on the number, kinds and elapsed processing time of computer usage. Identifies users and forwards summaries to accounting section to be used for billing purposes.

-- Reviews information from the operating system reports to determine reasons for processing failures, for compliance or non-compliance with schedules (overload, too much slack time, failed to consider dependencies, etc.) Identifies trends in peak and slack processing periods and similar information that can impact on future scheduling or advice to users.

Factor 1, Knowledge Required by the Position -- Level 1-4 -- 550 Points

-- Knowledge of the operating system in terms of the number and kinds of I-O devices, gross core size, how the core can be used for parallel processing, operator set-up procedures, set-up time required, and any constraints that effect the spacing of programs in the schedule.

-- Knowledge of codes, abbreviations and qualifying instructions in program documentation. This knowledge is used to interpret core requirements; interpret flow charts which define

dependencies; identify throughout time requirements and multiple pass tape requirements; and to discern related system factors effecting processing schedules.

-- Knowledge of system control language sufficient to understand its functions, to recognize its presence or absence, and to make command card changes as may be defined in processing specifications or run books.

-- Knowledge of system operating and trouble codes in order to interpret system printout to determine whether processing proceeded according to schedule, causes of failures or processing problems, or to resolve error conditions related to control or program sequencing. Knowledge of system processing status is also used to report job status, problems and approaches to solutions, and, to adjust current scheduling efforts to compensate for error related backlogs.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

The supervisor explains new processing requirements, or changes in procedures and defines the scope of the scheduling responsibility. The employee carries out day to day assignments with little direct supervision. This includes the determinations of need for and carrying out some customer contacts and coordination to obtain materials or to clarify instructions. Work that does not fit within prescribed procedures is referred to the supervisor. Finished work is spot checked to determine that the employee is adhering to established procedures and schedules.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Guidelines are primarily written, consisting of operating procedures, program and system control language manuals. In addition, the employee uses a manual defining system processing speeds, core capacity and related information used in scheduling programs for parallel processing. The employee adapts scheduling instructions to core requirements, run times, precedent processing requirements (contingencies) and parallel processing conflicts (data or program contention). This requires exercise of judgment to select and cross reference among guidelines covering variations in products, procedures and processing capacities. Work requests requiring deviation from guidelines (written, verbal or precedent action) such as an unusual priority program with core requirements that temporarily preclude normal parallel processing are referred to the supervisor for instruction.

Factor 4, Complexity -- Level 4-2 -- 75 Points

Incumbent of this position schedules program processing for a variety of administrative applications programs covering personnel, accounting and supply functions. Programs are processed on a computer system having two level multiple-processing capability. Scheduling decisions, (e.g., time of day, sequence, sizes of parallel programs) are based on several factors such as priority, back-log, system status, core requirements (each program and total) through-put time, and others. Scheduling actions are also effected by dependency considerations and recurring production requirements that take precedence over demand processing.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

Incumbent of this position performs scheduling and production preparation duties in the data processing center. The work encompasses daily scheduling of recurring and demand program processing, and assembly of the data, media and instructions needed by operators. The work includes resolution of scheduling conflicts, assembly problems and processing failures related to program controls. The work affects the timeliness and accuracy of data processing efforts, and contributes to user acceptance of system services and products.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Contacts are with functional and technical users of the computer system, and other data processing personnel in the immediate organization and other directorates.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

Contacts are for the purpose of coordinating, explaining, or requesting factual and procedural information about the work, its input requirements, and production schedules.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

A limited amount of walking between the work station, user offices, and/or computer operations is required, however the work is primarily sedentary, requiring only normal physical exertion.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed in an office type setting requiring normal safety precautions common to such an environment and poses no unusual risk of injury or damage to health.

TOTAL POINTS -- 1005

GS-5 = 855-1100

COMPUTER ASSISTANT, GS-0335-05, BMK#3

Incumbent of this position provides support to Computer Specialists involving work in computer program preparation, testing and documentation.

Duties

-- Codes applications programs in COBOL and system control language from detailed logic charts and related instructions developed by computer specialists.

-- Reviews processing failures and corrects program coding and most control errors, referring program logic question to responsible specialists.

-- Codes minor maintenance changes such as increasing the size of an array to accommodate additional data, providing for a summation of figures within an existing capability and others of a relatively routine nature.

-- Codes approved requests for new listings from an established data base and program option and others of a relatively routine nature.

-- Makes retrievals through a direct access remote terminal using a user oriented language, and forwards output to requester.

-- From drafts or detailed definition provided by specialists draws finished flow charts and diagrams showing I/O identification, processing and decision sequence and related information.

-- Updates on-line procedure library data bases through a terminal input device to add, change or delete data elements defined by specialists.

-- Maintains program and control language documentation and guides in appropriate files, binders, etc., and ensures preparation and distribution of copies to all appropriate system users.

Factor 1, Knowledge Required by the Position -- Level 1-4 -- 550 Points

-- Knowledge of COBOL, system control and user language codes in order to perform coding according to detailed chart and narrative instructions.

-- Knowledge of operating system structure and logic as it relates to the inter-relationships between programs and; input, memory, software, CPU size and function, buffer storage, and output. This knowledge is used in coding functions to ensure the proper sequence of actions and controls.

-- Knowledge of program documentation including run books, in order to locate such information as logic definition for programs and subroutines, or the source of input for a specific program sequence.

Factor 2, Supervisory Controls -- Levels 2-1 -- 25 Points

The supervisor or a specialist makes assignments by providing instructions as to deadlines, objectives, and methods for doing the work. Guidelines are suggested by the supervisor. The employee performs the work as instructed, adjusting methods and procedures only as established by precedent assignments. Each phase of the work, and completed assignments are reviewed for technical accuracy, compliance with instructions and accepted methods and for completion within deadlines.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Guidelines are established in the form of manuals relating to the operating systems, programming methods, coding procedures and terminal usage; and internal operating procedures, handbooks and files that define local practices, adaptations and precedent projects. The employee exercises judgment in selecting and adapting guidelines to assure continuity and accuracy in the relationships between charting, coding, data library and program maintenance duties. Work that does not fit within established methods and procedures, or that may cause discrepancies in other program or work segments are referred to the project supervisor.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The work requires consideration of a variety of detailed and interrelated information to accomplish coding, control, processing, error correction and related aspects of program development, testing and implementation. The work is comprised of segments of larger, more complex projects which places limits on the degree of involvement or decision making required of the incumbent. Decisions regarding what is to be done and the methods to employ are defined by others, although the incumbent must consider a few variables related to program logic, structure of data fields, report format, program execution and computer resources capabilities.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

The purpose of the work is to support program design, maintenance and modification work by performing those coding and charting functions that result from the analysis and design work performed by Computer Specialists. Results of employee efforts contribute to the general efficiency and timeliness of the programming functions.

Factor 6, Personal Contacts -- Level 6-1 -- 10 Points

Contacts are with specialists in the branch and other computer support personnel outside the branch in related data processing units.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

Contacts with specialists are to clarify instructions, receive work assignments, pass factual information, or seek interpretations. With other computer support personnel the incumbent exchanges factual information about schedule requirements, test results, processing problems and status of processing or status of work in progress.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

The work is primarily sedentary with nominal walking and carrying of light items such as small stacks of computer output, decks of punched cards and the like.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

Incumbent is located in an office type setting having adequate heating, light and ventilation, with no unusual safety hazards or risk of injury. Safety precautions are only those normal to an office setting.

TOTAL POINTS -- 890

GS-5 = 855-1100

COMPUTER ASSISTANT, GS-0335-05, BMK #4

Serves as a computer assistant in a functional area providing a service and processing link with the organization's computer processing capabilities through a remote terminal. In addition to the remote terminal, the work station includes computer linked card reader, line printer and a teletypewriter and, off-line peripheral equipment such as card punch, paper decollator, forms burster, card sorters, collators, reproducers and interpreters.

Duties

-- Incumbent of this position supports subject matter specialists by entering and retrieving information through a computer connected terminal.

-- Reviews workload, machine utilization estimates and operator reports in order to assist in planning, developing and maintaining daily remote processing schedules. Prepares, or arranges for preparation of input cards and/or program run instructions.

-- Reviews staging packages for card initiated jobs for program and user identification, specified dates and control stream changes specified in processing instructions. Loads cards to system through an on-line card reader.

-- Reviews demand processing requests in order to identify customer needs, structures the request in machine acceptable access language and enters job to the system through a remote terminal.

-- Reviews standing run instructions for recurring jobs accessible through the terminal, remote job entry system to identify control, date or parameter modifications required; codes and structures the job entry control and execution commands and enters the job through the terminal.

-- Performs quality control review of output by verifying record count against control figures, ensuring that data is as requested, print is clear, totals are provided and similar concerns based on product specifications.

-- Monitors jobs in process to detect equipment or potential program problems and monitors the equipment (on and off-line) to ensure continuity of operations and to make minor adjustments during operations and as required at planned program stops.

-- Identifies recurring irregularities and inadequacies in processing that can be attributed to control stream or equipment problems and works with programmers and customers to modify procedures.

-- Assists programmers in testing new or modified programs by identifying equipment or processing problems that occur as a result of prescribed methods for setting up and running test

programs and recommending variations in preparation and control methods to resolve such problems.

Factor 1, Knowledge Required by the Position -- Level 1-3 -- 350 Points

-- Knowledge of a user oriented access, command and control language in order to structure the terms, codes and controls necessary to execute remote job entry and demand processing requirements through a remote, on-line computer terminal.

-- Knowledge of on and off-line machine load capacities, processing priorities and sequence of processing (dependency) requirements in order to assist in work and machine scheduling at the beginning of each shift.

-- Knowledge of product formats, kinds of data content, control or total levels, input record counts and similar information in order to conduct product quality control review and provide for correction, rerun, or other appropriate action.

-- Knowledge of system job control language in order to set up or modify run stream control and parameter cards or codes according to program specification, especially for demand processing and for recurring jobs in which some controls change with each job execution.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

Recurring work assignments are identified from a master processing schedule. Special or demand processing requirements are picked up from a customer drop point for job requests. The supervisor provides written or verbal instructions for changes in processing methods and techniques, alerts the employee to equipment or program problems, and recommends methods for working around problems and provides special instructions for new or highly unusual processing requirements.

The employee performs most of the work independently according to established procedures and methods. Problems in setting up, entering or completing jobs that cannot be resolved by standardized methods are discussed with the supervisor, a programmer or computer operator for approaches to solutions.

Completed work is spot checked for accuracy and use of proper procedures and methods. In addition, reports of processing problems from system reports, operators or customers normally require review for technical accuracy and compliance with instructions or established procedures.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Written guidelines are present at the work station in the form of operating manuals for the equipment used, a users guide and language structure for entering jobs (or queries) through the terminal, operator and programmer instructions for set-up, control language and card or terminal command requirements for assigned programs.

The guidelines are clear, generally concise, and provide little room for deviation, except as provided in documented precedents or handbook suggestions for alternative job entry, retrieval strategies and language structuring. The employee locates and applies an appropriate (()) guideline according to the identification of recurring jobs or kind of demand job to be processed.

New or revised job requirements or recurring problems with established jobs that cannot be processed within the existing guidelines or precedent deviations are discussed with the supervisor including identification of problems and possible sources or methods to resolve them.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The work consists of job entry by card and terminal, structuring job processing requirements (recurring and demand) in a user oriented, machine acceptable language, and receiving, conducting quality review, preparing (bursting, etc.) and distributing output from a computer system.

The employee decides what to do by identifying the data content and information structure needed for each demand processing request and selecting the appropriate command strategy to set up, retrieve and format each job.

Actions to be taken are established for recurring processing requirements, including variations in control levels and parameters that change with each run. Demand processing is accomplished within a framework of established procedures, although the source of the request, format, data content, and controls requested must be considered in order to determine the specific processing actions that are required.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

As appropriate to a remote access terminal location, the work encompasses, scheduling, control, structuring in a computer acceptable language, job entry and receipt and control of data processing requirements. This is a support and services function providing access to and products from a separately located computer facility for subject matter users of the products.

The results of the work affect the timeliness, efficiency and accuracy of subsequent work processes and products.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Personal contacts in person or by telephone are with programmers, operators and other employees in or directly associated with the data processing function.

In addition, the employee has regular contacts with subject matter specialists and their representatives.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

Contacts with subject matter specialists are frequently for the purpose of explaining system capabilities and limitations appropriate to the terminal and distribution facility and to discuss alternative means of acquiring desired products, including discussion of the intended use of products and suggested variations in data and format retrievals. Contacts with data processing personnel and subject-matter representatives are to exchange factual information about such things as problems or status of the system, to accept work, advise of job status, notify of completed jobs and similar matters.

Factor 8, Physical Demands -- Level 8-2 -- 20 Points

The work requires frequent movement between equipment stations, walking, bending, stretching, stooping and similar actions when adjusting, loading and unloading cards, changing paper and like activities. In addition, the employee often carries boxes of punched cards and stacks of finished reports weighing as much as 18 kilograms (40 pounds).

Factor 9, Work Environment -- Level 9-2 -- 20 Points

There is moderate risk of bodily injury when working around equipment with open moving parts such as decollators, bursters and others, requiring exercise of safety precautions to prevent hands or clothing from becoming entangled in the moving equipment.

TOTAL POINTS -- 865

GS-5 = 855-1100

COMPUTER ASSISTANT, GS-0335-06, BMK #1

Incumbent of this position performs production preparation and control duties for computer processing of special, modified and recurring production jobs in a multi-computer, multi-programming data processing center.

Duties

-- Reviews new and recurring production packages for completeness and consistency of operating instructions such as name of field or library, file retention periods, input file number, as of date, job number and headers, type and number of program decks.

-- Checks tape library inventory to assure that all related input is identified for most current date, assures punches in card decks relate to type of equipment to be used and ensures that output is compatible with follow-on requirements for disk or card output.

-- Locates and adds missing input cards and tapes; corrects file identification, as of dates, job number and similar obvious discrepancies. Changes priorities from personal knowledge of the relationship between new and previously established priorities.

-- Ensures that input forms and formats received from external users are compatible with local requirements. Initiates tape conversion from 7 to 9 track, card punching from code sheets, or correction of coded or punched data as required. Codes small quantities of data from customer supplied forms and submits to keypunch.

-- Investigates production delays, and determines impact on related processing requirements. Checks input for missing data fields, incorrect punches, control cards out of sequence, and related problems. Notifies schedulers when delays or stoppages will affect timely program completion or subsequent, dependent processing.

-- Ensures that output combinations are properly identified (print/tape, tape/disk, etc). to satisfy a variety of customer requirements.

-- Monitors output to ensure that processing was executed as planned in format, alignment and print clarity.

-- Reviews console printout sheets to assure that proper input tapes were specified and used, program patches or system library updates were properly executed before the processing of production requirements and that all special instructions for changes in the processing sequence were properly executed during the cycle. Problems related to those items are resolved, programs rescheduled as necessary and procedures are modified for subsequent processing guidance.

Factor 1, Knowledge Required by the Position -- Level 1-4 -- 550 Points

-- Knowledge of local and other-agency computer input/output characteristics in order to ensure compatibility with local requirements and to initiate conversion of submitted data for processing purposes, such as; conversion of 7 track to 9 track tape format, card to tape conversion, conversion of raw or coded data to card or tape, and similar considerations.

-- Knowledge of operating hardware relationships in order to identify the use of tape drives for input and output and to ensure that output from one run is compatible with input requirements for a subsequent run.

-- Knowledge of production control functions is used to maintain continuity of production flow, apply optional methods to new or developmental requirements and provide for program dependencies and priorities.

-- Knowledge of sequencing and priority rules and procedures in order to accept and adjust priorities within local practices. This includes consideration of dependencies, previously established priorities and special purpose processing requirements.

-- Knowledge of system control languages is used to modify the variable portions of program run stream either from instructions provided with requirements or by recognizing the need to add, change or remove a command or identifier. Changes are made in report date, input tape identifiers, file retention dates, job number, header information, user identification and like controls.

-- Knowledge of production flow and problems is used to resolve production delays caused by missing data, incorrect library or media identification, incorrectly punched control cards or cards improperly sequenced. This knowledge is also used to recognize production delays that are beyond personal skills and require computer specialist assistance, such as possible faulty program logic.

Factor 2, Supervisory Controls -- Level 2-3 -- 275 Points

The supervisor sets the objectives for new work or advises of changes in general procedures and deadlines, and is available to assist on difficult or unusual problems. The employee performs the work independently, conducting coordination with specialists and users in this and other agencies, and making independent determinations of when and how to correct errors. The employee determines the approaches to solving problems, and the establishment or modification of customer requested priorities for processing services. Completed work is reviewed for technical soundness, accuracy, compliance with deadlines, and customer satisfaction by their reactions to products.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

The guidelines for the work are written in various forms such as program run books, equipment specifications, system operating characteristics and procedures relating to the objectives, nature and general methods for accomplishing the work. The employee exercises judgment in the selection of guidelines depending on the phase of the work and kind of product requested. For new projects the employee makes minor modifications or adapts established variations to fit the processing requirements. Absence of guidelines or problems with adaptions that can cause major delays in processing are discussed with the supervisor.

Factor 4, Complexity -- Level 4-3 -- 150 Points

Production control preparations are performed for new, changing and recurring processing requirements for production processing for this and other user agencies. The employee reviews each request to identify actions needed to supplement instructions in the job requests such as adding or changing processing controls, identifying the appropriate machine system, arranging for media conversion, and adjusting priorities. The steps to be taken or adjustments to be made vary from job to job for new, changed or recurring work, and the user agency submitting the request.

Factor 2, Scope and Effect -- Level 5-2 -- 75 Points

The purpose of the position is to assist local users and users from other agencies in the final preparation of specifications and materials for processing on computer systems. The incumbent provides completed set-up of program documentation, input media, run instructions and production specifications to computer operations. Processing halts related to media and control instructions are corrected by the incumbent. The results of the work affect the accuracy, timeliness and acceptability of computer processing services and products.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Contacts are with computer specialists and functional specialists in the immediate organization, and with functional specialists in other organizations.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

The purpose of the contacts is to exchange factual information, seek, or provide information to complete processing specifications, (()) to explain options in timing or methods of processing, and to clarify instructions.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

There is moderate walking between office locations in the building, but no special physical demands or hardships.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work environment is comparable to that found in a typical office setting, with no unusual risks, discomforts, nor need for special safety precautions.

TOTAL POINTS -- 1230

GS-6 = 1105-1350

COMPUTER ASSISTANT, GS-0335-06, BMK #2

This position is located in the Computer Operations unit and serves to schedule production and one-time computer programs for processing on several computing systems.

Duties

-- Writes the daily schedule of computer jobs to be processed including both production and one-time runs.

-- Checks job control cards for correct job control language on all jobs submitted for processing. Returns jobs having control deficiencies to programmers.

-- Monitors job status in order to (1) know equipment abnormally terminated utilization status, (2) add jobs which will fill the time vacated by abnormally terminated runs, (3) catch up on backlogs by adding to the schedule when computer resources are available, (4) shift jobs between computers when equipment failures occur and (5) advise the user of job status and estimated completion time.

-- Works with computer operators to expedite processing throughout by upgrading job priority or changing the order of processing and to keep informed of job problems as soon as they occur. Informs the user of problems and schedules job re-runs after user makes corrections.

-- Reviews production results to determine accuracy of schedules.

Factor 1, Knowledge Required by the Position -- Level 1-4 -- 550 Points

-- Knowledge of computer equipment capacity and speed for several hardware systems in order to schedule jobs in a manner that fully utilizes available computer resources by processing a maximum number of jobs within normal processing hours. This knowledge is applied in altering the schedule throughout the operating day as priorities and equipment resource availability change.

-- Knowledge of job priority categories and the standing procedures relevant to assigning priorities to jobs, in order to accept, reject or amend priority levels.

-- Knowledge of how the operating system software places incoming jobs in queue, initiates a job from the queue, terminates the job when it is completed and produces the output, in order to amend control instructions, adjust priorities and to remove and re-enter jobs without loss of place in queue.

-- Knowledge of system control languages in order to amend processing instructions coded on the run sheet, including job name, accounting data, programmer and job priority, and program input and execution statements.

-- Knowledge of processing specifications such as dependencies and planned halts for individual programs.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

Procedures and priorities for scheduling production runs are established by management. Production jobs are scheduled for daily, weekly, monthly or other recurring intervals. Test runs and other one-time jobs are processed on an "as required" basis. The supervisor provides information on available computer resources and hardware/ software problems that may effect processing. The employee uses this information in planning and developing schedules to avoid backlogs and to maximize throughput by shifting jobs between computers and scheduling to insure that all available resources are at maximum utilization. Review of finished work is accomplished through system reports to compare planned versus actual runs, reasons for failures, or incompleted schedules and to confirm that acceptable methods were applied.

Factor 3, Guidelines -- Level 3-3 -- 275 Points

Guidelines include system operating written procedures, job control (()) language guides, processing documentation, program run books and tape inventory listings. There are separate sets of guides for each computer system for which the scheduling is performed, and variations in program documentation depending on the system on which processed. Guides for developing schedules are limited to general statements and samples. Organizing schedules to achieve maximum equipment utilization is the primary responsibility of this position, requiring that the employees select the proper guideline, exercise sound judgment and rely on experience and precedent to apply the guidelines in proper combination to program, system and priority characteristics and requirements. Only those problems for which guidelines are unavailable or which exceed system limitations are referred to the supervisor or a specialist.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The incumbent must consider queue sequence in relation to dependencies; constraints in the system on which programs are to be processed; total load balances in each system; input, program and software compatibility; and backlog or high priority work requirements. The queue is modified during the processing day on the basis of special requirements and processing problems. Incumbent adapts to the variety of programs, system requirements, and problem situations within a framework of several interrelated but different procedures and methods.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

The purpose of the work is to systematically organize jobs to be processed according to priority, contingency or dependency on other jobs and in a manner to achieve maximum utilization of computer resources. The work affects the timeliness of batch processing production jobs which comprise the majority of data processing work of the agency, and the accuracy, reliability and timeliness of ad hoc special processing.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Personal contacts are with DPC co-workers in computer operations, (()) production control and the tape library, and with programmers and other users and functional managers.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

The purpose of the contacts is to explain or to clarify scheduling problems, obtain additional information about program requirements, discuss schedule changes, advise on processing status and plan schedule revisions.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

The work is primarily sedentary, with some walking and standing required during coordination with users and operators, but not to an unusual degree. The physical demands are typical of a normal office setting and impose no unusual hardships.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed in an office like setting that is adequately heated, lighted and ventilated, posing no unusual risks, discomforts or safety requirements.

TOTAL POINTS -- 1155

GS-6 = 1100-1350

COMPUTER ASSISTANT, GS-0335-06, BMK #3

Serves as a Computer Assistant supporting a team of Computer Specialists. The team has application program development and maintenance responsibilities. This position supports the programming functions by performing program maintenance, documentation and coding duties according to specific instructions.

Duties:

-- Converts program routines and programs depicted in block diagrams and written directions into program instructions and codes, using COBOL or occasionally, limited FORTRAN coding.

-- Follows program logic, detailed flow charts and instructions for program segments of limited scope and difficulty in modification of existing program capability.

-- Prepares limited technical documentation and performs limited problem solving on system and program failures.

-- Prepares program tests and reviews results for specialist initiated programs. Results of problem identification and recommended changes are reviewed by a responsible specialist.

-- Draws finished flowcharts and codes program logic and controls from system specifications provided by analysts.

-- Collects and organizes input and arranges for time on operating schedules for test processing in the development of test data and test procedures.

-- As assigned by specialists conducting automation planning studies for subject matter users performs various fact gathering, review of procedures, observation of work operations and discussion of existing processes with subject matter specialists.

Factor 1, Knowledge Required by the Position -- Level 1-4 -- 550 Points

-- Knowledge of COBOL coding techniques applicable to the majority of coding projects.

-- Knowledge of FORTRAN sufficient to follow manuals and guidance from specialists for occasional FORTRAN coding assignments.

-- Knowledge of a system control language in order to specify and properly incorporate variable run stream command codes in program coding efforts.

-- Knowledge of operating system capabilities and limitations such as I/O devices; memory and CPU core capacities; stored software packages; and, existing applications. Uses this knowledge in coding and maintenance duties to measure throughout times, and call-up, modify or suppress software applications.

-- Knowledge of data collection requirements to work directly with functional users collecting specified data and fitting it to program maintenance requirements.

-- Knowledge of the content and flow of system development methods and techniques in order to assist in information gathering, diagraming and flowcharting, coding, testing and implementing programs.

-- Knowledge of program documentation requirements in order to write concise, clear summaries to reflect purpose, content, input schedule, processing schedule, processing variables, controls, input identification, software applications and run instructions. This is used to document new programs and to reflect changes in existing documents.

Factor 2, Supervisory Controls -- Level 2-3 -- 275 Points

The supervisor or a responsible specialist makes assignments in terms of programming and product objectives and possible methods or approaches to the work.

The employee independently performs the work on projects or segments by planning and carrying out necessary steps within established limits on such things as: adapting logic, coding and testing practices to job requests; the scope of problem solving procedures appropriate to the assigned project; and drafting amendments to program documentation. Incumbent identifies and discusses methods, techniques, problems with program logic and similar concerns with the supervisor.

Finished products are submitted to the supervisor/specialist for final review prior to implementation. The work is reviewed in finished form for accuracy of logic development and coding and for compliance with stated program and project objectives.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Guidelines are primarily written, and are supplemented by instructions and advice from supervisors and specialists. Written guidelines are procedural documents; statements of organization objectives; manuals which define and specify the use and logic of COBOL, FORTRAN and system control language coding; operating system manuals which describe equipment functions, limitations, etc; and software descriptions which define the function of each software package and specifics of their applications. The guidelines are normally applicable to assigned work, but the incumbent must select specific combinations of guides to fit the assigned job. Some adaptation of guidelines is required for minor deviations in logic or other program related activities, such as adjustments for differing system and software capabilities. All interpretations, adaptations or modifications of guidelines are subject to review with the finished product.

Factor 4, Complexity -- Level 4-3 -- 150 Points

Incumbent works with several kinds of programming applications requiring consideration of a variety of interrelated but separately considered factors. These range from problem definition through program design, implementation and maintenance. Various phases and segments of program coding, maintaining and testing functions require that the incumbent review instructions,

references and objectives to define the kinds of actions required. Objectives are normally clear but the means to accomplish them must be determined through consideration of customer desires, established or predesigned program logic, system constraints and general compliance with programming unit responsibilities.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

Programming and system efforts assigned to incumbent include analysis, coding, and program maintenance work for administrative computer applications or segments (modules) which become portions of a comprehensive programming product. The work affects the accuracy and timeliness of programming and maintenance projects and unit reliability in satisfying user requirements.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Contacts are primarily with specialists and others in the immediate unit. As required for project assignments, the incumbent has recurring contacts with functional users in the directorate.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

Contacts outside the unit are to solicit information, clarify intent and definition of requirements and to plan the acquisition of data, advise about program options and output format to satisfy customer needs. Other contacts are maintained or established for the purpose of receiving or exchanging factual information, discussing interpretations of instructions and requirements and similar concerns.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

Occasional walking between desk locations, between the unit and the computer center and between the unit and the offices of users, and the carrying of light objects such as paper, reports, a few punched cards, etc., do not place unusual physical demands or stress on the employee. Much of the time the work is performed at a desk.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed primarily in an office setting which is well lighted, adequately ventilated and heated, posing no unusual risks or discomforts. Safety precautions required on the job are those normally applicable to such an environment.

TOTAL POINTS -- 1260

GS-6 = 1105-1350

COMPUTER ASSISTANT, GS-0335-06, BMK #4

Incumbent of this position supports several functional program customers through a remote terminal facility providing data input, remote job entry and information retrieval and manipulation services through an "intelligent" terminal operating over any of three teleprocessing nets.

Duties

-- Operates terminal "on-line" to make recurring, standardized retrievals of reports and information listings for users, applying a user oriented access and control language to provide job definition, controls (job number, as of dates, changes in data fields from previous reports) and print instructions.

-- Responds to ad hoc requests by working with the customer to advise on defining information requirements, the number of retrievals necessary to provide the information needed, desired format(s) and the amount and kind of data combination and arithmetic manipulation required. Accesses appropriate data base after preparing a logical search strategy and structuring the requirement(s) in computer acceptable commands and identifiers.

-- Keys the system to feed retrieval data/reports to the local storage unit or printer. Supplements these interim products with commands for the mini-processing unit in order to rearrange and manipulate the data according to the customer specifications, providing for print of summary products and supporting detail.

-- Receives completed jobs through on-line printer; checks for job identification, data content, print alignment and clarity, format, and as of date. Distributes to users through an internal mail system.

-- Receives source data documents in both coded and uncoded form; transfers uncoded information to code sheets; reviews all code sheets for data field accuracy (alpha, numeric, alpha-numeric fields); adds machine related instructions and keys to tape through a terminal. After verifying accuracy of input keys tape entries for direct transmission to central computer or arranges for mailing.

-- Writes or briefly explains system adds, changes and deletes affecting the kind, form or timing of data entry and products available from the system.

-- Establishes or coordinates workload priorities for data updates (input) and for products (output).

-- Maintains logs, records, operating manuals and procedures.

-- Records all work processed and changes to operating methods and system production options.

-- Trains lower level employees as "back-up" operators, and conducts briefings for functional users to explain system output options and limitations.

-- Performs maintenance such as applying tape head cleaner, changing printer tapes and similar external care of equipment.

Factor 1, Knowledge Required by the Position -- Level 1-4 -- 550 Points

-- Knowledge of the terms, structure, control and command strategies of a user oriented query and control language in order to input data to the central computer system and the local, small scale processing system; and, to structure information retrievals, initiate data combination and manipulation requirements and provide recurring and demand processing reports for local functional program customers.

-- Knowledge of several stored data bases and related program output options and limitations in both the central and local computer systems in order to control and verify accuracy of format, terms and methods of coding input for each data base; adjust queries and report call-up requirements according to differing program capabilities; and, apply data manipulation techniques according to the programmed abilities provided for each functional user.

-- Knowledge of local rules and procedures controlling job priorities and controls on customer access to data and program files in order to organize work according to program requirements, data base update schedules, and priority related sequence control of output and distribution of products.

Factor 2, Supervisory Controls -- Level 2-3 -- 275 Points

The supervisor provides administrative direction over operating hours, the kind and quality of services to be provided, general sequence and priority of the work processes and interpretation of changes in rules controlling the kinds of support provided. A computer specialist is normally available to provide technical interpretations and assistance related to system capabilities.

The employee performs assigned duties independently, including contact and coordination with users to establish priorities, resolve conflicting priorities, identify the product sought and explain systems changes. For demand processing, the employee works directly with the user to determine the product type and contents and develops the search and/or command strategy required for both the central and local processors to provide such products. Only such problems as unusual equipment malfunctions, new and difficult query logic; requirements that indicate potential to overload output devices; conflicts among users over priorities; and others of a similar nature are referred to or discussed with the supervisor or computer specialist for resolution.

Completed work is reviewed, primarily by users, for completeness, adequacy, accuracy and timeliness. Procedures and methods are reviewed for only brief periods after introduction of system changes, or when an error or problem pattern occurs.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

Written guidelines are available, complete and clear, covering the (()) set-up of the terminal, mini-computer, telephone data transmission links, and related peripheral equipment (printer, key to tape). The query language guide is supplemented by written guides distinguishing the data bases, query and manipulation limits for each of the subject matter data bases accessible from this terminal position. A separate manual defines the program manipulation available through the mini-computer, in addition to the text editing (used for input verifications) and buffer storage capacities and uses. The guideline materials are clear and specific, although the employee exercises judgment in adapting the use of query codes and commands to formulate and process special purpose retrieval requests.

Factor 4, Complexity -- Level 4-2 -- 75 Points

The work consists of data input, recurring production and demand processing services through a remote terminal connected to a central, large scale computer, a local mini-computer, printer and cassette-tape drive. Using a query and control language the employee supports several users, each having access to a different data base, with differing access, product definition and manipulation options. Input control, scheduling, recurring job entry and distribution functions are performed within established methods and procedures. Demand processing requires that the employee determine what needs to be done and how to accomplish it within adaptations of those same methods.

Factor 5, Scope and Effect -- Level 5-2 -- 75 Points

Incumbent of this position provides access to data processing services to several subject matter units located at a site removed from the computer processing and production facilities. Data base updates and information retrieval functions facilitate further processes and work products by providing timely, accurate information used in analytical and decision making areas within the agency's prime program responsibilities.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Personal contacts are with functional program specialists, managers (()) and their representatives within the local installation. In addition the employee has frequent telephone or personal contact with a resident computer specialist and operators or other computer support personnel in the central computer facility, as well as technical vendor personnel responsible for equipment or circuit problem solving.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

Contacts with operating officials, specialists, etc. are to define, plan, accept, modify or report on planned work and work in progress. Contacts with specialists and operators are primarily for purposes of exchanging factual, situational information relating to methods, procedures, operating problems and like situations.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

There is nominal standing, walking between equipment stations and similar movement around the immediate environment, in addition to periodically carrying light loads to user work stations such as machine reports and tapes. There are periods of work requiring extensive operations of a keyboard while seated, comparable to long periods performing typing work.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed in an environmentally controlled, office-like setting requiring only normal safety precautions (open file drawers, loose cards).

TOTAL POINTS -- 1185

GS-6 = 1105-1350

COMPUTER ASSISTANT, GS-0335-07, BMK #1

This position is located in the Production Control and Scheduling section and includes controlling, scheduling and monitoring of computer processing and assisting users in formulating requests for computer services. The work is performed in a computer center operating two large scale computer systems with a buffer minicomputer, in both batch and on-line, interactive modes.

Duties:

-- Reviews processing requests to ensure that user, program and input identification are given, programs are designed for one of the local computer systems, control parameters (dates, total, sub-totals) are specified, priority requirements are indicated and output disposition is shown.

-- Accepts or rejects request and/or indicated priority based on system status, other priority work, or need for additional information in the processing request.

-- Assists users in clearly defining their requirements and completing the processing work order defining the product desired, sort fields, data content and output format.

-- Makes changes (add, change, remove) in run control stream and enters control deck to the system through a card reader.

-- Reviews requirements for batch work, compares against run book and enters planned time of execution on operating schedule, providing for core capacity, prior processing for dependencies, throughput time and priority. Identifies tape and disk requirements, amends control commands, and annotates operator instructions to show dependencies and multiple use of input.

-- Resolves processing failures related to run stream controls, dependencies and data contentions. Reviews system output report for actions leading up to the failure, compares with run book instructions, identifies problem, corrects and authorizes re-run or re-start. Notifies programmer in the event the failure appears to be related to program logic. According to run instructions, authorizes use of problem by-pass or controlled dump procedures to provide information for own and specialists problem reviews.

-- Reschedules backlogged processing or failures that cannot be corrected for re-run or restart, adjusts priorities as required.

-- Assists time sharing and RJE terminal users in solving problems associated with terminal malfunction or problems in following written procedures. This includes advice in the structuring of requests and inquiries with a user oriented language; identifying possible technical problems in the terminal, tie-lines or the computer system; and, advising the terminal user of where and how to acquire appropriate technical assistance.

-- Prepares and maintains amendments to product run books (i. e., set-up procedures and product exemplars for new kinds of products). Assigns product identification codes; lists and explains set-up procedures (including run stream variations), identifies kind and number of input media required, core capacity, throughput time and mixed time sharing and batch processing requirements.

-- Initiates monthly work order to create back-up tape files, makes control log entries, forwards to GPO for photocomposing, logs returns and arranges for shipment of tapes to storage site.

-- Compiles recurring and special statistical reports: computer utilization by user, number, kind and volume of products; machine units and machine time used; and cost information for customer billing purposes. Reviews operating logs, compiles system load statistics, identifies high and low volume trends, and makes recommendations to change procedures to better use times available in low activity periods.

Factor 1, Knowledge Required by the Position -- Level 1-5 -- 750 Points

-- Knowledge of the flow of processing sequences for two multi-program and one buffer mini-computer. This knowledge is used to resolve unplanned halts related to input media, control streams and restart points. It is also used in scheduling work to allow for core requirements, data and storage media, input dependencies and priorities.

-- Knowledge of system control language in order to recognize and adjust control deck entries identifying input media by type and identification numbers for tapes and disks, change report "as of" dates, identify users, assign job numbers and similar conditions. System control language knowledge is also applied in determining the causes of and correcting abnormal terminations.

-- Knowledge of remote operating procedures, codes and abbreviations is used to input jobs to the system, check status, analyze problems, modify priorities and assist users having terminal operating problems.

-- Knowledge of the variety of applications processed in the center and of the run books associated with them in order to identify and provide for variations in products, advise users attempting to use systems, and ensure processing of recurring production requirements.

-- Knowledge of batch and time sharing load requirements in order to schedule production jobs, set priorities and schedule batch updates in schedules of operations. This knowledge and knowledge of system equipment capabilities are used to establish batch processing schedules that require use of I/O devices, core capacities of two systems and output in card, disk and paper media. Schedules are structured within machine limitations to allow for required predecessor processing (dependencies) and for the separation of processing using the same data base for different purposes (contention).

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

The supervisor provides procedural direction and defines recurring work assignments. The incumbent performs most work independently by responding to user questions and problems, constructing schedules and performing staging, control and error correction duties. Incumbent can reject work that is not ready for processing and refuse user requested priorities without reference to the supervisor. Processing failures involving program or system logic, seemingly proper applications of user languages through a terminal that fail to produce, and similar problems are discussed with the supervisor who must approve all exceptions to established procedures. Staging packages and schedules for new work are reviewed by the supervisor for technical accuracy prior to submission for processing. Recurring work products are reviewed after processing based on user or operator comments or in periodic supervisory reviews of products for use of established methods, procedures and techniques.

Factor 3, Guidelines -- Level 3-3 -- 275 Points

Guidelines are primarily in written form: manuals for terminals, computer equipment, system control language, user language and processing center rules and procedures; program run books, control records, system output reports; and others that define work methods, procedures and technical terms and uses. Virtually all work is covered by written guidelines. However, the applications worked with vary in potential products, require individualized system controls, and vary according to mode of processing (i.e., through production control and scheduling for demand or batch processing, or through terminals). The employee reviews each work request and selects the appropriate combination of instructions for each job according to the number and kind of variables required, existing priorities and similar considerations. As a result of processing problem reviews, work with new requirements or experience in solving unusual time sharing problems, incumbent drafts new guidelines which are normally accepted with few modifications.

Factor 4, Complexity -- Level 4-3 -- 150 Points

-- This employee performs a variety of distinct functions in support of the processing center for production control, scheduling, solving processing problems, assisting users of systems. The employee reviews each work requirement, decides what needs to be done, the methods to use and provides solutions to customer processing problem based on workload, priorities, existing capabilities, system status and the specific needs of the customer.

Factor 5, Scope and Effect -- Level 5-3 -- 150 Points

-- Incumbent performs recurring and one-time duties associated with customer processing requirements ranging from definition of the requirements through preparation, entry, control, scheduling, resolving abnormal terminations, and output distribution stages of the work. Work products affect the timeliness and accuracy of processing, the efficiency of the production control and scheduling functions, and the reliability and accuracy of data processing products.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

-- Contacts are with specialists, operators and other computer support personnel in the immediate unit, and with functional users elsewhere in government, academic and business settings.

Factor 7, Purpose of Contacts -- Level 7-1 -- 20 Points

-- Contacts are established or maintained for the purpose of coordinating or exchanging factual information about the DPC and its productive capabilities and services.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

-- There is limited standing, walking and lifting of light objects and small decks of cards. These are normal and do not constitute special physical demands in the performance of duties.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

-- The work is performed in an office like setting, with short periods in the computer center. This setting poses no unusual risks or hardships on the employee and requires only those safety precautions typical of an office environment.

TOTAL POINTS -- 1505

GS-7 = 1355-1600

COMPUTER ASSISTANT, GS-0335-07, BMK #2

Incumbent serves as a scheduler in a computer center which maintains a 24 hour, 3 shift operation, responsible for compiling final daily schedules and resolving scheduling related problems. This position is located in the Production Section, Operations Branch of a data processing center operating several computer systems, each with multi-programming capability.

Duties:

-- Produces daily and weekly consolidated schedules for recurring programs, many of which have changed since last processed either in computer time, resources, input/output or job dependencies.

-- Reviews daily schedules prepared by others for individual computer systems, compiles into a daily master schedule and ensures proper distribution of processing among the systems available.

-- Adjusts processing between systems due to known downtime for maintenance, late occurring equipment failures, or as a means of better utilizing available capability.

-- From work with daily schedules, makes projections and notes on preliminary future schedules, the impact of backlogs, late or missing input, system downtime and similar information on established weekly, monthly and quarterly processing schedules.

-- Reviews actual results in comparison to planned schedules and determines causes for differences between planned and actual processing completions.

-- Recommends changes in scheduling practices to balance production workload, achieve greater productivity, and to reduce processing turn-around times.

-- Adds new jobs, one-time jobs and infrequently processed jobs to the daily and weekly schedules. Studies program documentation and run controls to insure compatibility with computer and production requirements.

-- Reviews processing criteria with computer specialists and informs specialists and the supervisor, in addition to other scheduling personnel of methods to improve processing accuracy and dependability from the scheduling and set-up perspective.

Factor 1, Knowledge Required by the Position -- Level 1-4 -- 550 Points

-- Knowledge of the characteristics such as core size, speed in processing, dedicated versus shared use, differing operating modes, and software availability of several computer systems in order to schedule programs on those computers that can accept and perform the prescribed processing.

-- Knowledge of the processing objectives, production techniques and pitfalls encountered to schedule computer systems utilization in a multi-computer processing center.

-- Knowledge of job control language to interpret processing instructions, visualize the steps required to process programs, retrace steps to determine the cause of failures, and make minor modifications in the variable portions of the control stream.

-- Knowledge of programs and systems interrelationships to recognize those programs which are not dependent on a specified system for processing and to be able to shift such programs between systems in order to better balance overall machine utilization.

-- Knowledge of a variety of programs and applications, to construct consolidated schedules designed to accomplish rapid throughput in several operating systems.

-- Knowledge of control codes and equipment characteristics to analyze problems effecting scheduling efforts, to isolate causes, to determine corrective actions and to recommend orally and in writing corrections or new procedures to resolve the problems.

-- Knowledge of processing workload cycles in order to adjust to peak loading periods and compensate for equipment downtime. This knowledge is also applied to analysis of prior schedules and systems status to plan and organize processing loads consistent with program requirements and computer resources available.

Factor 2, Supervisory Controls -- Level 2-3 -- 275 Points

The supervisor provides guidance on rules and procedures, introduces new, on-going requirements, and provides guidance on approaches to problem solutions as requested. The incumbent works independently, performs scheduling, problem analysis and coordination with computer specialists. Informs the supervisor of the results of those efforts and recommends changes in procedures or methods to improve processing by more efficient and effective scheduling. Malfunctioning equipment, requirements overloads and similar problems that can delay processing are reported to the supervisor with suggested solutions. Finished work is reviewed for conformance to rules, deadlines and meeting scheduling objectives. Finished work is also reviewed for results achieved and improvements in scheduling effectiveness.

Factor 3, Guidelines -- Level 3-3 -- 275 Points

Guides for developing schedules consist of general statements and written scheduling practices and objectives. Specific requirements, with associated criteria are derived from a master schedule, program run books, system control language guides, computer systems descriptions and specifications, and procedures manuals. The guides are numerous, sometimes omitting such items as secondary system for processing, complete input media identification and similar items. Schedule consolidation and distribution among operating systems requires the use of judgment in selecting and matching related guides to programs and systems, and adapting them to the final daily master schedule. The guides are applied to scheduling for several systems requiring the employee to relate the combination of guides and programs to available equipment (which systems are up and which are malfunctioning), core capacities already scheduled, core availability, available run time by system and machine/program compatibility (programs can be shifted between some systems, but are not processable on all local systems). Guidelines applicable to problem solving are only general in nature or non-existent. The incumbent must apply initiative and judgment in the recognition, analysis and solution of problems such as leveling peaks in workload by distributing the processing among the machine systems, recognizing and correcting errors in throughput times due to recent program patches, and similar problems. The products of those efforts frequently become internal scheduling guides, or the basis for new guidelines.

Factor 4, Complexity -- Level 4-3 -- 150 Points

Performance of position functions incorporates work with a wide variety of program specifications, several sets of machine system characteristics, and the interrelationships between processing objectives, program/system compatibility, and efficient machine utilization. The incumbent is responsible for work requiring frequent adjustment to changes in system status and processing requirements that trigger redistribution of processing among several machine systems. The work includes responsibility for studying scheduling methods and problems in order to develop new or modified scheduling procedures or techniques.

Factor 5, Scope and Effect -- Level 5-3 -- 150 Points

The work in this position includes the application of scheduling practices, methods and procedures, and the development of new procedures and methods. The results of work efforts affects the daily efficiency and timeliness of services provided to users. It further affects the efficiency of scheduling activities of the unit and the accuracy, timeliness and acceptability of computer processing functions and products.

Factor 6, Personal Contacts -- Level 6-1 -- 10 Points

Contacts are with data processing personnel in the immediate and related units.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

When engaged in problem solving projects, the contacts are to discuss and plan changes in work methods or to develop new methods to accomplish the work of the unit.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

The work is essentially sedentary, performed in an office setting requiring only ordinary physical exertion such as occasional walking between work stations and short periods of standing.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed indoors, in an office setting, requiring exercise of nominal safety precautions to avoid risks common to such settings, such as collision with open drawers, and the like.

TOTAL POINTS -- 1470

GS-7 = 1355-1600

COMPUTER ASSISTANT, GS-0335-07, BMK #3

Incumbent of this position supports a team of computer specialists engaged in program analysis, design, development, testing and implementation for both local and command applications. The incumbent performs coding, testing, limited programming, maintaining documentation and program data bases, and provides related support in unit programming and systems development.

Duties:

-- Receives and processes requests to write or modify small program modules that are part of a larger system of interrelated programs that have previously been designed and implemented. Draws basic program diagrams and flow charts, applies COBOL coding, assembles test data, initiates testing, debugs program and submits user request with recommended finished module to specialists.

-- Maintains a few program modules which require frequent variations in production requirements. Performs requested program modifications, providing for variations in recurring runs and special reports and assures accurate and timely processing.

-- Follows specialist instructions to compile, test and debug program by assembling input, loading the compiler, reviewing output and making or suggesting corrections.

-- Prepares charts, designs and formats for records, files, input and output, sources of input, schedules of processing, etc. Recommends such changes as different input techniques, revised record layout, revised output format and similar changes.

-- Writes program modules for extracting, sorting, reformatting, merging, etc. of a variety of input data and reports.

-- Reviews and modifies program control stream as required when production requirements change or problems are encountered. Provides set-up directions to computer operators, or writes set-up procedures for program manuals.

-- Prepares program documentation manuals for local records and distribution.

-- Reviews requests for variations in recurring runs, or special runs, makes system control changes as appropriate, submits for processing and reviews the finished product prior to distribution to the requester.

-- Makes control language corrections and coordinates data content or logic problems with users and specialists to resolve invalid output.

-- Coordinates with functional users to clarify requests for variations in production requirements or program modifications, and to obtain information needed for new program development.

-- Prepares final system documentation including flow charts, file descriptors, report descriptors, card and printer layout, card input/output, formats and printer output exemplars.

-- Assembles all required documents for System Books, Program Folder and Job Run Book, and passes to the appropriate unit for distribution.

-- Maintains status and control of on-line program library, catalogs data and cross reference listings for the activity. Verifies status and accuracy of library member names, data set names, data set organization, record and block sizes, etc. as requested.

Factor 1, Knowledge Required by the Position -- Level 1-5 -- 750 Points

-- Knowledge of the fundamentals of programming logic, COBOL and system coding, and operating system input/output methods, software and existing applications. This knowledge is used to program assigned modules, provide for a variety of input, media, processing controls, variations in run stream controls and software utilization and suppression.

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-- Knowledge of subject matter information requirements to coordinate with users and acquire information about subject matter content, processing purposes, manual processes, program objectives and similar information for use in module and modification programming.

-- Knowledge of programming techniques appropriate to recognize program modification requirements that can be designed and implemented without impact on total system logic or processing effectiveness, and to initiate re-design (patch) of those program segments.

-- Knowledge of records requirements for use in writing brief summaries of own programming, processing control, documentation, library maintenance and other work efforts to provide finished input to program records for local use and for the guidance of other users.

Factor 2, Supervisory Controls -- Level 2-2 -- 125 Points

The supervisor or a responsible specialist defines work projects or the portions of projects assigned to the incumbent and provides deadlines and direction on methods to be used. The incumbent independently performs assigned segments of work according to prescribed methods. Completed segments are submitted to the team leader for incorporation into a system package. Incumbent's program maintenance and modification work is performed independently, following standardized procedures including necessary customer coordination, coding, design and testing functions. Problems such as requirements that appear to be different, methods or procedures that are unclear and conflict with users are discussed with the supervisor to resolve the issues. Deviations from established methods and procedures must be approved by the supervisor. Finished work is reviewed by the supervisor or a specialist for compliance with existing or planned design specifications.

Factor 3, Guidelines -- Level 3-2 -- 125 Points

There are numerous guidelines which vary in detail and specificity to the work performed. Guidelines cover coding in COBOL and system control language, basic programming logic and logic options, systems manuals describing hardware and software characteristics, internal rules and procedures documents, and others that apply to the several phases of the work. The incumbent exercises judgment, both in the selection and blending of guidelines for coding, formatting, operating controls, logic interpretation and others, and may occasionally implement minor modifications in guidelines (especially controls to use or suppress a computational program). Work that introduces the need for new approaches to programming or other work efforts, or that appears to deviate significantly from established practices and precedents are discussed with the supervisor (i.e., require changes in basic program logic, introduce need for a new data base, require linking with other programs).

Factor 4, Complexity -- Level 4-3 -- 150 Points

The unit is responsible for a variety of administrative and business type programming activities in analysis, design, implementation and maintenance efforts. Incumbent participates in the full range of unit functions. This requires use of numerous interrelated and unrelated methods, procedures and objectives for data collection, programming, charting, testing, and writing. Incumbent decides what actions to take and methods appropriate to assigned program maintenance functions. This requires analysis, problem identification and development of solutions within general system and program capabilities.

Factor 5, Scope and Effect -- Level 5-3 -- 150 Points

The employee performs a wide range of programming and systems support work for a variety of subject matter applications. The work involves supporting specialists in programming, charting, data storage, testing and implementing new and modified programs and supporting subject matter specialists in providing tailored reports through adaptations of existing programs and products.

Work efforts and products affect the efficiency of processing services to subject matter users and the adequacy and efficiency of broader operating programs and programming projects.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Incumbent has contact with specialists, operators and other computer support personnel in the immediate and related units, frequent contact with functional program users locally, and occasional contact with users in field locations.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

Contacts with functional users are to accept new work requirements, assemble needed data and to review finished products. For maintenance assignments contacts are made to plan the work by reviewing and defining such things as data requirements and sources, input schedules, data conversion, and alternatives in sort fields, data array and summary information. Contacts with data processing personnel are to exchange factual or procedural information about the work and to refine customer defined specifications for assigned modules.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

The work is primarily sedentary, with moderate walking between work stations and carrying folders, reports, small decks of punched cards and similar light loads. The work does not pose unusual physical hardships or stress.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed in an office type setting that is adequately heated and ventilated and provides good lighting. Only those safety precautions typically appropriate to prevent slight risk of injury in an office environment are required to protect the employee from possible bodily harm or avoid possible health hazards.

TOTAL POINTS -- 1385

GS-7 = 1355-1600

COMPUTER ASSISTANT, GS-0335-08, BMK #1

Serves as a production controller in a data processing center. Incumbent of this position is assigned new processing requirements with responsibility to fit them into local procedures and instruct other employees in the methods and schedules applicable for production purposes. The center operates several computers, each in multi-programming production and time sharing modes.

Duties

-- Studies documentation provided with new or substantially revised programs, determines run criteria, I/O requirements and distribution patterns.

-- Determines whether new requirements can be processed within existing schedules and procedures. If not, will define changes required such as revised dates for receipt of full or partial input data from area offices.

-- Defines command and control requirements for each run, sequencing considerations, need for input, precedent program processing required, and whether data required for input can be derived from programs on a single system.

-- Determines whether several outputs, run on separate systems need to be made compatible and merged prior to processing the new requirement.

-- Coordinates findings and recommendations with local programmers for technical review, submits to supervisor for approval.

-- Notifies remote offices of modified input data and format requirements.

-- Instructs others in the unit about the new requirements and methods for processing them through the production control unit.

-- Writes procedural documents to record and explain the results of the above efforts and amends existing procedures affected by new requirements.

-- Performs production control functions for an assigned block of recurring production programs.

Factor 1, Knowledge Required by the Position -- Level 1-5 -- 750 Points

-- Knowledge of organization rules, methods and procedures applicable to production control functions for a number of programs and variety of applications with skill to adapt local processing capability to numerous new products, programs and program modifications.

-- Knowledge of the equipment, operating configurations, applications processed on each and the impact of time sharing for each of several multi-programming computer systems in order to

relate new requirements to established load requirements, data base and dependent processing considerations and variations in input schedules needed to satisfy new and ongoing requirements.

-- Knowledge of established processing applications and the sources, kinds, formats and schedules of input from local and remote sources.

-- Knowledge of the variety and forms of output, and established schedules versus processing time available. Uses these knowledges to modify existing requirements, introduce new requirements and acquire new kinds or frequency of input from field sources.

-- Knowledge of the procedures to perform production control functions including staging, modifying control commands, monitoring programs in progress, correcting control related processing problems and reviewing, controlling and distributing output.

-- Knowledge of records and documentation requirements to study, resolve and write procedures for new processing requirements. This knowledge is also used when interpreting program documentation to determine availability of input, number and kinds of media required (card, tape, disk) dependency on single or multiple programs, schedule constraints and variable requirements.

-- Knowledge of methods, procedures and controls to develop or improve job set-up, data entry and output production procedures; and, to resolve problems associated with local and remote site processing related to set-up and entry.

Factor 2, Supervisory Controls -- Level 2-3 -- 275 Points

The supervisor assigns new processing requirements, describes work goals and advises on priorities. The employee independently applies, modifies or develops procedures for production control work and assists remote terminal users based on precedents. Discussions with the supervisor are to resolve problems that could cause failure to meet deadlines such as non-availability or late input, requirements received late in the monthly processing cycle, awaiting program patches that have not been completed, and similar concerns. Finished work is reviewed for compliance with objectives and deadlines, and effectiveness in satisfying customer requirements. Work methods are reviewed only if processing failures are related to production control procedures developed by the incumbent.

Factor 3, Guidelines -- Level 3-3 -- 275 Points

Guidelines consist of agency and region procedures and directives controlling the flow of work through the center, requirements for staging on-going assignments and general requirements and methods for processing. The incumbent interprets program documentation, run books, flow charts and general specifications for new requirements. The work requires judgment in selecting the most applicable guidelines for assigned projects and in developing new guidelines and procedures. These adaptations are made for such needs as new kinds and sources of data from area offices, input formatting, processing controls, adjustments to new or changed programs and development of totally new assembly procedures.

Much of this work results in new written procedures for application by others in the local center and at area locations.

Factor 4, Complexity -- Level 4-3 -- 150 Points

The work includes ongoing production control duties, developing procedures for new or changed production requirements and resolving remote access operating problems. Based on existing rules and generally within established methods the incumbent reviews new requirements, determines what needs to be done, plans the sequence of work, conducts necessary coordination and writes the supporting documentation. Coordination with terminal users in remote access modes requires problem resolution based on verbal descriptions (most commonly via telephone) of hardware and terminal malfunctions, or erroneous user procedures.

Factor 5, Scope and Effect -- Level 5-3 -- 150 Points

Incumbent performs problem solving duties in relation to a variety of new or changing output requirements requiring production preparation methods, various forms of input, schedule changes, system controls and similar additions or modifications to established procedures. Work efforts often impose new input, data array, format and similar requirements on area offices. The work affects the adequacy, quality and timeliness of center work efforts; the adequacy and efficiency of remote access utilization; and the schedule and content of work efforts in subordinate area offices.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Personal contacts are with central office specialists, area and regional office specialists and subject-matter specialists in local and area offices. Some of the local contacts are with employees of other agencies for whom the center provides processing services.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

Local and area contacts are for the purpose of planning and implementing detailed procedures for satisfying requirements and to resolve problems associated with production control procedures. The purpose of contacts with central office personnel is to coordinate and clarify processing requirements.

Factor 8, Physical Demands -- Level 8-5 -- 5 Points

The work requires frequent movement between various DPC sections but imposes no special physical demands in performance of duties.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work environment involves normal risks or discomforts common to an office setting.

TOTAL POINTS -- 1685

GS-8 = 1605-1850

COMPUTER ASSISTANT, GS-0335-08, BMK #2

Prepares projected (up to 6 months) and daily operating schedules for two stand alone and two interchangeable multi-programming computer systems.

Duties

-- Receives semi-annual program additions, deletions and changes from national headquarters systems office, and monthly processing change notices for incorporation into local processing master schedules.

-- Reviews program and product requirements to be installed and scheduled for the upcoming processing year. Identifies existing programs that are changing and those that are being cancelled, in order to determine the hardware and core capacities either required or made available by those changes.

-- Identifies the flow, equipment and capacity requirements for new processing requirements, combines those needs with capacity available and carry over requirements.

-- Reviews history files concerning production volumes, processing times, allowances for reruns, lost time and down time in order to relate optimal capacity to practical availability for productive processing.

-- Incorporates the preceding with specified frequency of production requirements and develops an operating master schedule for use over a six month period.

-- Reviews monthly system change notices, identifies change requirements and modifies existing schedules and processing resource allocations affecting one or several production requirements.

-- Prepares daily to weekly processing schedules for recurring and special jobs.

-- Reviews system reports and operator logs to compare scheduled processing with accomplishments, identify processing problems and resolve those associated with control stream, peripheral equipment assignments or data dependency/contention problems.

Factor 1, Knowledge Required by the Position -- Level 1-5 -- 750 Points

-- Knowledge of the discrete elements and the interrelationship of four computer hardware configurations, including back-up interchange capability between two multi-programming systems. This includes size, capacity, speeds, available channel allocations and normal flow capacity for two stand alone, dedicated processing systems and two interchangeable multi-program systems. This knowledge is applied to planning the distribution of processing requirements for both long term (6 months or more) and daily operating schedules and to resolve procedural, control language, and equipment assignment and processing problems.

-- Knowledge of program characteristics in terms of input timing and sequences, program and intermediate job data dependencies, shared utility requirements, parallel processing capability in several core partitions and the potential for job delay due to contentions.

-- This knowledge is used to structure the sequences and timing of processing schedules to provide for priority considerations, avoid programs idling in the system while awaiting required input and, to ensure use of capacity and continuous flow of job execution within the systems.

-- Knowledge of the system job control languages in order to establish standardized job control instructions as part of long range schedule preparation, to adjust control decks for daily variations in products, dates, I/O controls and other variations, and to resolve control related problems.

Factor 2, Supervisory Controls -- Level 2-3 -- 275 Points

The supervisor assigns semi-annual and monthly change notices for long range scheduling requirements in terms of objectives and deadlines for completion. Daily and other short term scheduling work is performed on the basis of standing requirements. The employee independently performs both long and short term scheduling duties. For schedule projections (1 to 6 months) the employee analyzes the requirements, reviews operating history to identify potential problems, and plans variations in approach or methodology to accommodate the new requirements. Modifications or deviations are made during the course of constructing the schedule in order to accommodate known equipment changes, provide improved separation between contending jobs, provide for unforeseen dependency requirements and similar adjustments that fit the objectives while accommodating to local processing characteristics.

Questions concerning new equipment capabilities, unclear product specifications or similar problems that cannot be answered by analyzing project instructions are discussed with the supervisor or a programmer to arrive at a solution or revision to the objectives. Completed work is evaluated on the basis of product and objective achievement when schedules are implemented in operations. Work methods are normally reviewed only when apparently sound processing sequences fail to produce specified output.

Factor 3, Guidelines -- Level 3-3 -- 275 Points

Written guidelines consist of system operating procedures and handbooks, scheduling criteria, job control language instructions, local and headquarters rules and procedures that generally apply to short term scheduling duties. Long range schedule projections are prepared within the same general framework of guidelines and instructions. Typically, new requirements do not specifically fit existing conditions and require judgment in selecting and modifying guidelines to adapt the new requirements to local processing conditions. These adaptations are issued as new standing procedures for local use and may be submitted as recommendations for application in other related processing centers.

Factor 4, Complexity -- Level 4-3 -- 150 Points

The work consists of a variety of scheduling and control tasks involving a mix of standardized (short term) and flexible methods and procedures in order to plan and execute the manner in which computer programs can be processed through a variety of equipment and software systems in order to achieve processing objectives.

For problem solving and long term scheduling work the decision about what has to be done and the techniques to use vary, depending on the nature of processing failures, the variety of approaches available to resolve them, and the nature and impact on new or standardized procedures and capacities for newly developed processing jobs.

For correcting abnormal termination conditions and the planning process required for the projected scheduling work, the action to be taken depends on the nature of the failure, or the set of objectives, dependencies and overall scheduling pattern generally specified in the project directions.

Factor 5, Scope and Effect -- Level 5-3 -- 150 Points

Incumbent plans, and implements major processing requirement changes on a periodic basis, adjusts the plan to monthly program and product changes and executes daily computer scheduling and problem resolution functions in accordance with the long range master processing schedule.

The results of this work affect the methods, techniques and timing of work performed in other positions in the unit, the timeliness and accuracy of computer generated products needed in other work areas and the accuracy and efficiency of computer capacity utilization for several computing systems.

Factor 6, Personal Contacts -- Level 6-2 -- 25 Points

Contacts are with all working and supervisory levels of employees associated with the data processing unit, with data preparation and (()) transcription supervisors in the local organization and with headquarters programmer and systems specialists.

Factor 7, Purpose of Contacts -- Level 7-2 -- 50 Points

Contacts with programmer and systems specialists are for purposes of defining, coordinating and resolving systems related problems that affect the ability to effectively implement schedule and processing requirements. Other contacts involve defining and exchanging factual information about data, schedules, methods and related concerns in order to correct deficiencies in processing effectiveness.

Factor 8, Physical Demands -- Level 8-1 -- 5 Points

The work is primarily sedentary although there are short periods of walking between or standing at various work stations in the immediate and related areas. There are no unusual physical demands in this position.

Factor 9, Work Environment -- Level 9-1 -- 5 Points

The work is performed in an environmentally controlled, office-like setting. Only those risks and safety precautions common to such settings are present in this environment.

TOTAL POINTS -- 1685

GS-8 = 1605-1850

COMPUTER ASSISTANT, GS-0335-09, BMK #1

Incumbent works in the data processing center as a systems monitor resolving processing problems and error conditions except those requiring programming changes.

Duties

-- Identifies and determines corrective action to be taken in case of individual job failures not covered in the operations manual, or in circumstances when the prescribed procedures will not produce a solution for a 4-CPU multiprocessor/ multi-programming computer system, and a separate multi-program system used for processing smaller jobs and as back-up.

-- Identifies job interrelationships, provides for dependencies and reorders job priorities.

-- Orders run stream dumps and determines actions to be taken to correct operational problems that cause runs to end abnormally or necessitate general recovery of data base information.

-- Determines need to reconstruct data base from back-up files, rerun or restart requirements and need to shift run sequencing in order to better align jobs or better apply system utility programs in relation to jobs on the schedules.

-- Resolves partial system failures (hardware or software) by providing for revised applications of system operating capabilities in a manner that allows working through or around the problems with reduced capacity, readjusting the system when full operating configuration is restored.

-- Ensures restoration of transactions and data bases at a proper restart point after system initialization and recovery routines have been used to resolve error conditions and the system has been reloaded for continuation of operations.

-- Works with applications programmers and operations personnel to identify problems with applications, operating systems or hardware that are difficult to pinpoint. Suggests methods for sequencing and software/hardware operating configurations to accept new requirements and resolve processing malfunctions, including revised run stream applications, spooling techniques and possible transfer of some jobs to other computer systems.

-- Prepares operating schedules for a multi-processor/ multi-programming computer system, allowing for multiple dependency processing, data and program contentions and sequencing.

-- Prepares schedule run stream according to handbook instructions, making modification or allowances for recent occurrences (failures, program changes) requiring new or temporary procedures. Loads schedule through the system executive program.

-- Monitors work in progress in order to detect unusual production delays, problems caused by unforeseen contentions, need to adjust priorities in order to move small jobs past large jobs that are awaiting completion of other processing, and to work with operations personnel to detect and resolve common or unusual operating problems or failures.

-- Plans, schedules and directs the transfer of program and/or data files from disk to tape storage, maintains records of programs and data so stored, and schedules restoration/recovery from back-up files when needed for problem solving in subsequent processing.

Factor 1, Knowledge Required by the Position -- Level 1-6 -- 950 Points

-- Detailed knowledge of system hardware and software and how they are interconnected in normal and variable operating conditions for executing applications programs on a 4 CPU multiprocessor and a stand alone multi-program computer.

-- Detailed knowledge of the system control language in order to plan schedules and insert runstream instructions for scheduling work, interpret status of operations at time of failure and to construct hardware/software/runstream links to work with operators and specialists in defining new or revised runstream requirements (including spooling and other shortcutting techniques) for new and revised job processes.

-- Knowledge of the codes, abbreviations and terms used in the system monitoring and control utility program and in order to acquire, interpret and resolve problems based on information derived from system monitoring reports and dumps.

-- Knowledge of job priority rules and scheduling procedures in order to align jobs in schedules according to job hierarchy; and, to adjust schedules in accordance with functional program priorities when resolving and restarting work from processing failures. This includes knowledge of those jobs that can be deferred, transferred to other computers or combined with other jobs.

Factor 2 -- Supervisory Controls -- Level 2-3 -- 275 Points

-- The supervisor alerts the employee to processing problems carried over from the preceding shift and passes along information about new requirements or procedures. Most assignments are received directly from computer operators or programmers who encounter processing problems. In addition, the employee may be alerted to actual or potential problems through such sources as system reports and operator, programmer or prior shift reports and log notes.

-- The employee identifies the source and nature of problems and resolves them according to standardized or accepted procedures or analyzes problem symptoms and devises solutions that fit the problem and compensate for lost processing. This may include such actions as rescheduling, removing important although, non-critical jobs from the schedule, transferring work to other computers, or reallocating equipment and utilities to work around problem situations and give precedence to some jobs at the expense of others. The supervisor is normally available to interpret policy and procedure changes or to resolve conflicting customer requirements when these affect the ability to meet scheduled production. Problems involving equipment operation or program logic are resolved with the advice of computer operators or programmers.

-- Finished work is evaluated on the basis of results in meeting objectives and satisfying processing requirements. Finished work and recommendations for procedural changes are also

reviewed for technical soundness in consideration toward incorporating new problem solving techniques into general procedures and guidelines.

Factor 3 -- Guidelines -- Level 3-3 -- 275 Points

-- There are a large number of written manuals, procedural handbooks and directives available, covering scheduling, system design and operating configurations, problem solving procedures and techniques, and related information. There are frequent changes in the operating, scheduling and program guides. For ongoing work and common failure situations the guides are detailed and specific, although they do provide for some variation to accommodate a number of processing options. For major new requirements and to resolve processing failures that are beyond those covered in the guides, incumbent exercises judgment in extending existing guidelines or developing new techniques and procedures to resolve unusual problem conditions when it is necessary to apply knowledge of data bases, hardware, internal software and programs in order to link less than full processing capability and assure continuity of processing. In addition, incumbent develops new or revised guidelines within established methods and schedules, including proposals to modify programmer designed runstreams to accomplish the processing.

Factor 4 -- Complexity -- Level 4-4 -- 225 Points

-- Much of the work involves analyzing and treating a variety of computer processing problems that are complicated by variations in program requirements, unusual system failure situations, reconstructing incomplete processing and providing for continuation of processing in problem situations where less than full system capacity might be available. Incumbent must identify the problem, consider a number of alternatives that include concerns for many programs scheduled for execution in multiple partitions (up to 10 in each CPU) in a multiprocessing system (equivalent to separate computer systems interconnected to operate virtually as a single unit), with various dependency considerations. Approaches to problem solutions must be determined by the incumbent based on identification of the nature and severity of the problem and the alternative courses available to resolve it.

Factor 5 -- Scope and Effect -- Level 5-3 -- 150 Points

-- The work involves scheduling for a modern, very large capacity computer system, devising means to schedule and execute new work, and resolving common and unusual operating problems that occur during processing. Results of the work affect the timeliness and accuracy of computer and functional programs and products used in a number of agency subject matter areas (some provide additional services to other organizations or members of the public based on data contained in computer generated products). It also affects the acceptance and dependability of data processing services for those product users. Work in resolving new or unusual problems and work involving planning of revised, more efficient methods to accomplish processing affect the design and efficiency of methods and procedures for established, revised and new applications program processing.

Factor 6 -- Personal Contacts -- Level 6-2 -- 25 Points

-- Contacts are primarily with data processing personnel in operations and programming in the immediate and related units. In addition, there is regular contact with product users within the agency and with vendor representatives who maintain, adjust and repair system hardware and internal software.

Factor 7 -- Purpose of Contacts -- Level 7-2 -- 50 Points

-- In problem resolution situations the contacts are for purposes of identifying the nature and source of problems, identifying or coordinating approaches to resolving them, and, instructing others on implementing the solutions and techniques so derived. Contacts with product users and vendor representatives are for purposes of exchanging factual information such as the status of processing, expected production time, malfunctioning equipment systems and similar concerns.

Factor 8 -- Physical Demands -- Level 8-1 -- 5 Points

-- Although the majority of the work is sedentary, performed at a desk or similar work station, there is some requirement to walk between work stations or stand at consoles or printers for short periods of time in the immediate and other work areas. However, unusual demands are not present in the position.

Factor 9 -- Work Environment -- Level 9-1 -- 5 Points

-- The work is performed in an environmentally controlled, office like setting. Only normal safety precautions fitting such an environment (open desk drawers, observing normal fire regulations) apply to the setting. The work area is adequately lighted, heated and ventilated.

TOTAL POINTS -- 1960

GS-9 = 1855-2100