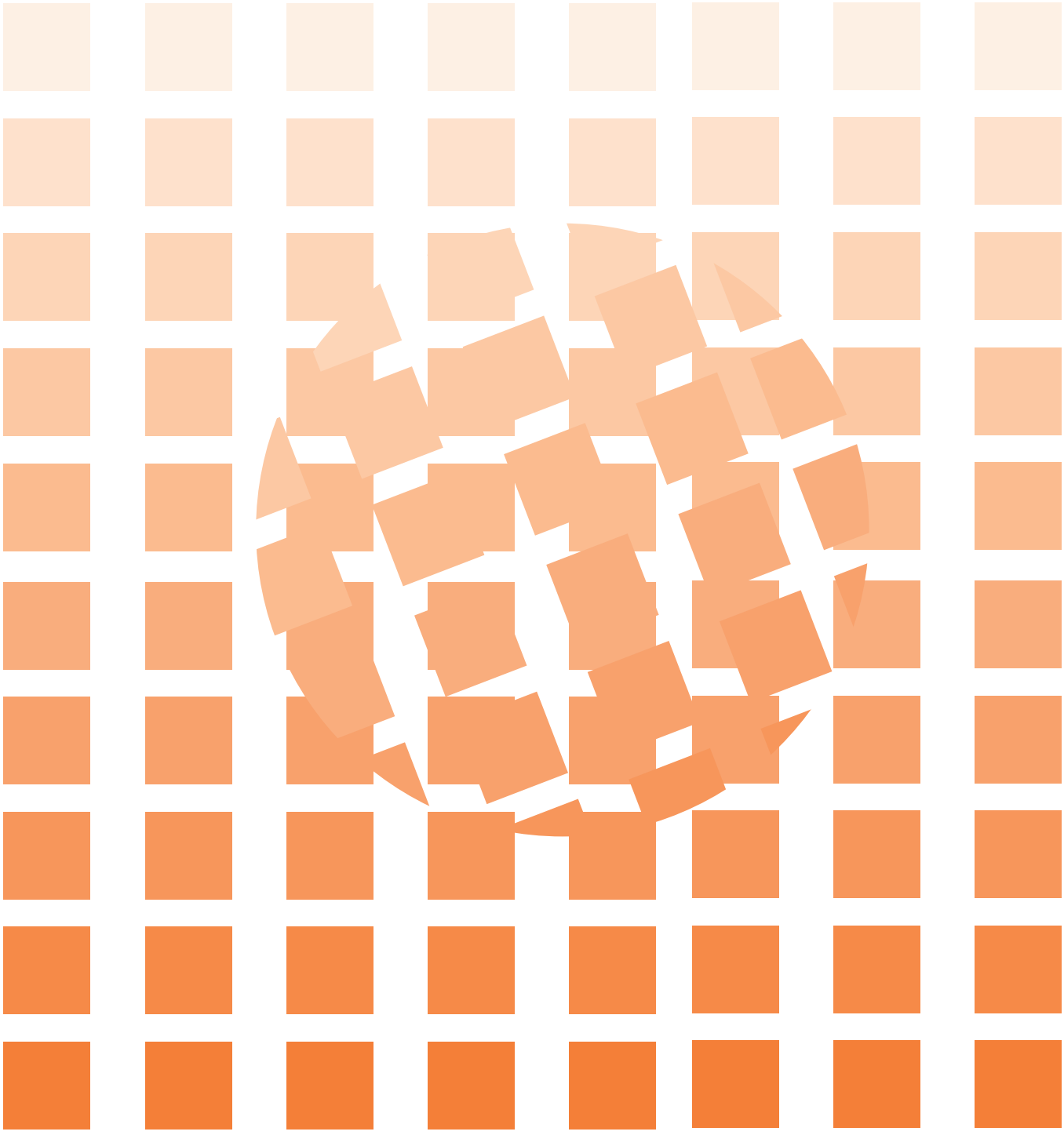
IT Passport Exam Preparation Book



IPA

INFORMATION-TECHNOLOGY PROMOTION AGENCY, JAPAN

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About this Book

1 Structure of this Book

This book is comprised of the following sections.

Overview of Examination

Scope of Questions

This section describes the basic approach for the examination questions and the scope of the examination questions.

Chapter 1 Corporate and legal affairs

Chapter 1 explains the basic knowledge of corporate activities and business management that business workers should possess, as well as legal compliance and corporate ethics.

Chapter 2 Business strategy

Chapter 2 explains typical systems in each field including typical information analysis techniques and marketing techniques, business management systems, and technological strategies.

Chapter 3 System strategy

Chapter 3 details business processes, methods to improve business operations, the flow of information system construction, the composition of a requirements definition aimed at computerization, and other items based on information systems strategy.

Chapter 4 Development technology

Chapter 4 explains system development processes and test techniques, as well as software development processes and development methods.

Chapter 5 Project management

Chapter 5 explains the processes of project management and techniques of project scope management.

Chapter 6 Service management

Chapter 6 explains the basic roles and components of IT service management including the management of information system operations, service support, the concept of system environment development, and the basic principles of system audits.

Chapter 7 Basic theory

Chapter 7 explains the fundamental concepts of radixes, sets, probabilities, and statistics, as well as the digitization of information and algorithms.

Chapter 8 Computer system

Chapter 8 examines computer components, system components, hardware, and software, and explains each type of component and their characteristics.

Chapter 9 Technology element

Chapter 9 examines the characteristics of human interfaces and multimedia technology, basic knowledge about database design and networks, as well as security measures and other aspects.

Practice exam

The practice exam includes practice questions for the IT Passport Examination.

Answers and Explanations Booklet

The booklet contains answers and explanations for the chapter quiz (Chapters 1 to 9) and practice exam questions.

2 Notations Used in this Book

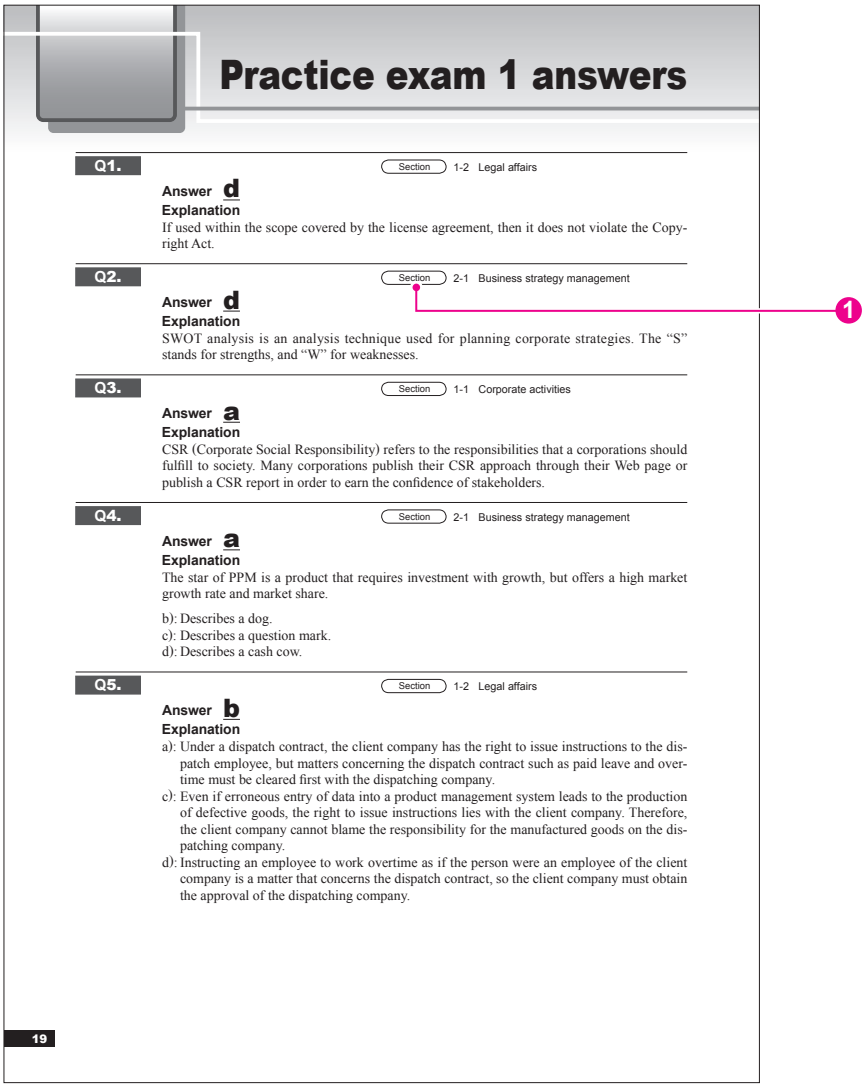
The notations used in this book serve the following purposes.

Reference	A short summary of useful information or terminology, or a citation of a subchapter for an explanation.
*	Supplementary notes or content to pay attention to

The text in this book may contain laws, standards and accounting rules that only apply in Japan.

3 Answers and Explanations Booklet

The booklet at the end of this book contains answers and explanations for the chapter quiz and practice exam questions.



Practice exam 1 answers

Q1. Section 1-2 Legal affairs

Answer d

Explanation

If used within the scope covered by the license agreement, then it does not violate the Copyright Act.

Q2. Section 2-1 Business strategy management

Answer d

Explanation

SWOT analysis is an analysis technique used for planning corporate strategies. The "S" stands for strengths, and "W" for weaknesses.

Q3. Section 1-1 Corporate activities

Answer a

Explanation

CSR (Corporate Social Responsibility) refers to the responsibilities that a corporations should fulfill to society. Many corporations publish their CSR approach through their Web page or publish a CSR report in order to earn the confidence of stakeholders.

Q4. Section 2-1 Business strategy management

Answer a

Explanation

The star of PPM is a product that requires investment with growth, but offers a high market growth rate and market share.

b): Describes a dog.
c): Describes a question mark.
d): Describes a cash cow.

Q5. Section 1-2 Legal affairs

Answer b

Explanation

a): Under a dispatch contract, the client company has the right to issue instructions to the dispatch employee, but matters concerning the dispatch contract such as paid leave and overtime must be cleared first with the dispatching company.
c): Even if erroneous entry of data into a product management system leads to the production of defective goods, the right to issue instructions lies with the client company. Therefore, the client company cannot blame the responsibility for the manufactured goods on the dispatching company.
d): Instructing an employee to work overtime as if the person were an employee of the client company is a matter that concerns the dispatch contract, so the client company must obtain the approval of the dispatching company.

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1

❶ Section

- Section

  Sections that are applicable to this book.

Overview of Examination

Overview of Exam

1 Typical Examinees

Individuals who have basic knowledge of information technology that all business workers should commonly possess, and who perform information technology related tasks, or are trying to utilize information technology in his/her tasks in charge.

2 Tasks and Roles

Individuals who have basic knowledge of information technology that all business workers should commonly possess, and who perform information technology related tasks, or are trying to utilize information technology in his/her tasks in charge.Chapter 5 explains the processes of project management and techniques of project scope management.

① Understand information devices and systems to use, and utilize them.
② Understand the tasks in charge, identifies problems of those tasks, and act to provide required solutions.
③ Perform acquisition and utilization of information safely.
④ Support task analysis and systemization activities under the guidance of superiors.

3 Expected Technology Level

The following basic knowledge shall be required as a working person in order to determine information devices and systems, and to perform tasks in charge as well as facilitate systemization.

① Knowledge of computer systems and networks to determine the information devices and systems to use, and knowledge of how to utilize office tools.
② Knowledge of corporate activity and related tasks in order to understand the tasks in charge. Also, in order to identify issues of the tasks in charge and provide required solutions, systematic thinking and logical thinking as well as knowledge of problem analysis and problem solving methodologies shall be required.
③ Ability to act in accordance with relevant laws and regulations as well as various information security provisions in order to utilize information safely.
④ Knowledge of development and operations of information systems in order to support analysis and systemization of tasks.

4 Supplementary Explanation of Expected Technology Level

The following basic knowledge shall be required as a working person in order to determine information devices and systems, and to perform his/her tasks in charge as well as facilitate systemization.

① Understand and utilize the information equipment and systems to be used:

- Capability to understand the performance, characteristics, and functions of the information devices used in the workplace and utilize them appropriately.
- Capability to understand the significance of the operations and functions of OS settings and application software such as office tools used in the workplace and be able to utilize them.
- Capability to utilize office tools and other application software and groupware used in the workplace considering efficiency in carrying out tasks.

② Understand the tasks in charge and the relevant problems, and execute requisite solutions:

- Capability to organize processes related to the tasks in charge using methods such as task workflows, and to identify issues.
- Capability to analyze data relating to the tasks in charge using simple analytical methods and information technology and identify issues.
- For problematic issues identified, capability to consider solutions independently, and consider solutions by accepting the opinions of superiors and co-workers.

③ Collect and utilize information safely:

- Capability to utilize various kinds of information relating to the tasks in charge in compliance with laws and regulations.
- Capability to understand the purpose of internal compliance programs and be able to conform to them.
- Capability to prevent the leakage, loss or damage of information while utilizing internal information devices and systems, particularly through internet use.

④ Support computerization of tasks and systemization under the direction of superiors:

- Capability to participate in the discussion concerning the investigation and organization of data relating to the tasks in charge under the direction of superiors.
- Capability to participate in the discussion concerning the systematization of tasks in charge under the direction of superiors.

5 Configuration of the Examination

Exam Duration		165 minutes
Exam Type		Multiple-choice (1 out of 4 choices) (1) Short question type (1 exam question contains 1 question) (2) Medium question type (1 exam question contains 4 questions. The questions examine knowledge and understanding from several viewpoints with regard to a single situational setting).
Number of Questions		100 questions, answers required for all questions (1) Short question type: 88 questions (2) Medium question type: 12 questions (3 exam questions consisting of 4 sub-questions each)
	Number of Questions per Field	Questions are asked according to the following ratio with regard to the 3 fields comprising the scope of questions: (1) Strategy field: about 35% (2) Management field: about 25% (3) Technology field: about 40%
Point Allocation		1,000 total points
Grading Method		According to raw points (points are allocated for each question, and allocated points for correct answers are totaled)
Pass criteria		A pass is granted when both (1) and (2) below are satisfied: (1) Total points (totaled from each field): more than 60% of maximum points (2) Points in each field: more than 30% of the maximum points in each of the 3 fields.

Scope of Questions

This section describes the basic approach for the examination questions and the scope of the examination questions.

Scope of Questions

1 Basic Approach for Examination Questions

The following section summarizes the basic approach for questions that appear in the IT Passport Examination, in the respective fields of strategy, management, and technology.

① STRATEGY

Questions in the examination are designed to test knowledge in the following areas: fundamental terminology and concepts necessary to analyze computerization and corporate activities, as well as fundamental terminology and concepts described in information courses through post-secondary education and in general newspapers, books, and magazines. Also included are questions that test the fundamental knowledge of methods for solving problems by grasping and analyzing the work at hand, and the fundamental knowledge for utilizing office tools to analyze data and solve problems.

② MANAGEMENT

Questions in the examination are designed to test knowledge of fundamental terminology and concepts relating to systems development and project management processes. The exam does not include questions that test knowledge of specific and highly specialized terminology and concepts. Also included are questions that test the basic knowledge for considering the development of business environments such as using computers, networks, and office tools.

③ TECHNOLOGY

Questions in the examination are designed to test knowledge of fundamental terminology and concepts, and the logical thought process of the examinee. The examination does not include questions of a technical and highly specialized nature. Also included are questions that test the fundamental knowledge for safely using the systems on hand.

2 Scope of Questions

Common Career/Skill Framework					Scope of questions to be asked (Concept of exam questions)
Field	Major Category		Middle Category		
Strategy	1	Corporate and legal affairs	1	Corporate activities	• Ask about the fundamental concepts about corporate activities and business management. • Ask about the techniques for analyzing familiar business tasks and resolving issues, the concept of PDCA, and operational planning using techniques such as Pareto charts. • Ask about the visual expressions used for understanding business tasks, such as workflow. • Ask about the fundamental concepts of accounting and financial affairs, such as financial statements and break-even points.
			2	Legal affairs	• Ask about the familiar laws of workplaces, such as intellectual property rights (copyright, industrial property rights, etc.), Act on the Protection of Personal Information, Labor Standards Act, and Act for Securing the Proper Operation of Worker Dispatching Undertakings and Improved Working Conditions for Dispatched Workers. • Ask about the concepts and characteristics of software license, such as license types and license management. • Ask about the concepts of corporate rules and regulations, such as compliance and corporate governance. • Ask about the significance of standardization.

Common Career/Skill Framework					Scope of questions to be asked (Concept of exam questions)
Field	Major Category		Middle Category		
Strategy	2	Business strategy	3	Business strategy management	• Ask about the fundamental concepts about typical management information analysis techniques and business management systems, such as SWOT analysis, PPM (Product Portfolio Management), customer satisfaction, CRM, and SCM. • Ask about the fundamental concepts relevant to marketing. • Ask about the typical information analysis techniques for planning business strategies. • Ask about the understanding of the use of office tools (software packages) such as spreadsheet software, database software, etc.
			4	Technological strategy management	• Ask about the understanding of the significance and purpose of technology development strategy.
			5	Business industry	• Ask about the characteristics of typical systems in various business fields such as e-commerce, POS systems, IC cards, and RFID application systems. • Ask about the characteristics of typical systems in the engineering filed and e-business. • Ask about the characteristics and trends of intelligent home appliances and embedded systems.
	3	System strategy	6	System strategy	• Ask about the significance and purpose of information system strategies and the concepts of strategic goals, business improvement, and problem solving. • Ask about the concepts of typical modeling in business models. • Ask about the effective use of groupware for communication and of office tools. • Ask about the purpose and concepts of increasing operational efficiency by using computers and networks. • Ask about the concepts of solutions through typical services. • Ask about the significance and purpose of the promotion and evaluation activities of system utilization.
			7	System planning	• Ask about the purpose of computerization planning. • Ask about the purpose of the operational requirements definition based on the analysis of current state. • Ask about the fundamental flow of procurement, such as estimates, RFPs, and proposals.
Management	4	Development technology	8	System development technology	• Ask about the fundamental flow of the process of software development such as requirements definition, system design, programming , testing, and software maintenance. • Ask about the concepts of the estimate in software development.
			9	Software development management techniques	• Ask about the significance and purpose of typical development methods.
	5	Project management	10	Project management	• Ask about the significance, purpose, concepts, processes, and methods of project management.
	6	Service management	11	Service management	• Ask about the significance, purpose, and concepts of IT service management. • Ask about the understanding of related matters such as help desks. • Ask about the concepts about system environment maintenance, such as computers and networks.
			12	System audit	• Ask about the significance, purpose, concepts, and target of system audit. • Ask about the flow of system audit, such as planning, investigating, and reporting. • Ask about the significance, purpose, and concepts of internal control and IT governance.
Technology	7	Basic theory	13	Basic theory	• Ask about the fundamental concepts about radix including the characteristics and operations of binary numbers. • Ask about the fundamental concepts about sets, such as Venn diagrams, probability, and statistics. • Ask about the fundamental concepts of how to express information content, such as bits and bytes, and of digitization.
			14	Algorithm and programming	• Ask about the fundamental concepts of algorithms and data structures, and how to draw flow charts. • Ask about the roles of programming. • Ask about the types and fundamental usage of markup languages, such as HTML and XML.

Common Career/Skill Framework					Scope of questions to be asked (Concept of exam questions)
Field	Major Category		Middle Category		
Technology	8	Computer system	15	Computer component	• Ask about the fundamental configuration and roles of computers. • Ask about the performance and fundamental mechanism of processors, and the types and characteristics of memory. • Ask about the types and characteristics of storage media. • Ask about the types and characteristics of input/output interfaces, device drivers, etc.
			16	System component	• Ask about the characteristics of system configurations, of the types of processing, and of the types of usage. • Ask about the characteristics of client/server systems. • Ask about the characteristics of Web systems. • Ask about the concepts of system performance, reliability, and economic efficiency.
			17	Software	• Ask about the necessity, functions, types, and characteristics of OSs. • Ask about the concepts and use of basic functions of file management, such as access methods and search methods, and the fundamental concepts of backups. • Ask about the characteristics and fundamental operations of software packages, such as office tools. • Ask about the characteristics of OSS (Open Source Software).
			18	Hardware	• Ask about the types and characteristics of computers. • Ask about the types and characteristics of input/output devices.
	9	Technical element	19	Human interface	• Ask about the concept and characteristics of interface design, such as GUI and menus. • Ask about the concepts of Web design. • Ask about the concepts of universal design.
			20	Multimedia	• Ask about the types and characteristics of encodings such as JPEG, MPEG, and MP3. • Ask about the purpose and characteristics of application of multimedia technology, such as VR (Virtual Reality) and CG (Computer Graphics). • Ask about the characteristics of media, and compression and decompression of information data.
			21	Database	• Ask about the significance, purpose, and concepts of database management systems (DBMS). • Ask about the concepts of data analysis and design, and the characteristics of database models. • Ask about the manipulation methods such as data extraction. • Ask about database processing methods such as exclusive control and recovery processing.
			22	Network	• Ask about the types and configurations of LAN and WAN regarding networks, and the roles of Internet and LAN connection devices. • Ask about the necessity of communication protocols, and the roles of typical protocols. • Ask about the characteristics and fundamental mechanism of the Internet. • Ask about the characteristics of e-mail and Internet services. • Ask about the understanding of the types and characteristics, accounting, and transmission rates of communication services, such as mobile communication and IP phones.
			23	Security	• Ask about the fundamentals of information security from the viewpoint of safe and secure activities in a network society. • Ask about the information assets, the purpose of risk management, and the concepts of information security policy. • Ask about the concepts, types, and characteristics of technological security measures, such as measures against computer viruses. • Ask about the concepts, types, and characteristics of physical and human security measures, such as entrance/exit control and access control. • Ask about the types and characteristics of authentication technologies such as ID, password, callback, digital signature, and biometric authentication. • Ask about the mechanisms and characteristics of encryption technology such as public keys and private keys.