IT Passport Examination

Questions must be answered in accordance with the following:

Question Nos.	Q1 – Q100
Question Selection	All questions are compulsory.
Examination Time	9:30 – 11:30 (120 minutes)

Instructions:

1. Use a pencil.   If you need to change an answer, erase your previous answer completely and neatly.   Wipe away any eraser debris.

2. Mark your examinee information and your answers in accordance with the instructions below.   Your answer will not be graded if you do not mark properly.   Do not mark nor write on the answer sheet outside of the prescribed places.

    (1) **Examinee Number**
    Write your examinee number in the space provided, and mark the appropriate space below each digit.

    (2) **Date of Birth**
    Write your date of birth (in numbers) exactly as it is printed on your examination admission card, and mark the appropriate space below each digit.

    (3) **Answers**
    Select one answer (a through d) for each question.
    Mark your answers as shown in the following sample question.

    [Sample Question]
     Q1. In which month is the spring IT Passport Examination conducted in 2018?

    a) February   b) March   c) April   d) May

    Since the correct answer is "b)" (March), mark your answer sheet as follows:

    [Sample Answer]

Q1	ⓐ	●	ⓒ	ⓓ

Do not open the exam booklet until instructed to do so.

Inquiries about the exam questions will not be answered.

Q1. Which of the following is the binary number that is obtained by adding the binary numbers 01011010 and 01101011? Here, the binary numbers are expressed as positive 8-bit values.

  a) 00110001   b) 01111011   c) 10000100   d) 11000101

Q2. When the reward for an improvement proposal concerning business operations is determined based on the decision table below, how much is the reward for an improvement proposal that results in an improvement of $20,000 and a turnaround time reduction of three days?　Here, "Y" in the table means that each condition holds "true", and "N" means "not true".　In addition, "√" indicates the reward that applies to each specific combination of these conditions.

Condition	Improvement of less than $10,000	Y	Y	N	N
	Turnaround time reduction of less than one week	Y	N	Y	N
Reward	$50	√			
	$100			√	
	$150		√		
	$300				√

  a) $50   b) $100   c) $150   d) $300

Q3. A PC plays back video data recorded at 500×400 pixels per frame, 30 frames per second, and 3 bytes per pixel while reading it from a peripheral device.　When the data transfer rate between the peripheral device and the PC is 1×10^6 bytes per second, in order to play back the video without delay, the data must be compressed to one n-th ($1/n$) in advance. Which of the following is the minimum value of n?　Here, the time to expand the compressed data and other impacts can be ignored.

  a) 18   b) 54   c) 72   d) 144

Q4. Which of the following describes the relationship that is always true for two (2) sets A and B?   Here, $(X \cap Y)$ represents the part that belongs to both X and Y (intersection set), and $(X \cup Y)$ represents the part that belongs to at least one of X or Y (union set).

a) $(A \cup B)$ is a subset of the complement of $(A \cap B)$.
b) $(A \cup B)$ is a subset of A.
c) $(A \cap B)$ is a subset of $(A \cup B)$.
d) $(A \cap B)$ is a subset of the complement of A.

Q5. There is a series of numbered boxes stacked as shown in the figure below.   The operations described in the table below are performed in the sequence of operations 1 through 4.   When the operation 4 is completed, which of the following shows the status of the stacked boxes?

Table

	4
	3
	2
	2
	1

Fig.

Operation	Description
Operation 1	Take two boxes from the top, add the numbers on the boxes, write the sum on a new box, and then put it on the top.
Operation 2	Write the number 3 on a new box, and then put it on the top.
Operation 3	Take three boxes from the top, calculate the average, write the average value on a new box, and then put it on the top.
Operation 4	Take two boxes from the top, calculate the absolute value of the difference between the numbers on the boxes, write the absolute value on a new box, and then put it on the top.

a)

0

b)

2
1

c)

4
2
1

d)

1
2
2
1
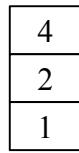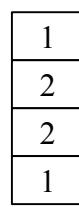
Q6. Which of the following is an appropriate description concerning HTML?

a) It is a markup language that can specify the logical structure and layout of a web page by using tags.

b) It is a script language that can describe programs or processing steps executed on a web browser.

c) It is a communication protocol that is used between a web browser and a web server.

d) It is a markup language that enables users to describe the meaning and structure of data by defining their own unique tags.

Q7. Which of the following is an appropriate explanation of an algorithm that is used on a computer?

a) A generic term for artificial languages used to enable a computer to perform a series of operations

b) A processing procedure for enabling a computer to accomplish a specific purpose

c) Designing buildings or industrial products with the assistance of a computer

d) Software for translating a program into a machine language that can be directly executed by a computer

Q8. Which of the following is an appropriate description concerning machine language?

a) A program that is written in Fortran or C is converted into machine language and then executed.

b) Machine language is a high-level language.

c) Machine language expresses a program with sequences of decimal numbers.

d) Most of application software is still programmed in machine language.

Q9. Which of the following is the method for describing the logical structure of a sentence in XML?

a) Enclosing the sentence, clauses, and other elements by using double quotes ("")

b) Separating the sentence, clauses, and other elements by using commas

c) Enclosing the sentence, clauses, and other elements by using tags

d) Separating the sentence, clauses, and other elements by using tabs

Q10. Which of the following is appropriate as a description concerning Plug and Play?

    a) When a peripheral device is connected to a PC, the installation and settings of the device driver are performed automatically.

    b) Software for enhancing the functions of application software is installed at a later time.

    c) Power is supplied from a PC to a peripheral device via a cable connecting them.

    d) A specific program is executed, and the system performance is evaluated on the basis of the time taken for the execution.

Q11. Which of the following is a characteristic common to IEEE 1394 and USB that are often used for connection interfaces between PCs and peripheral devices?

    a) Peripheral devices can be connected and disconnected while the PC and/or devices are powered on.

    b) A maximum transfer rate is 100 Mbits/second.

    c) A unique ID must be assigned to each device connected to a PC.

    d) Data can be transmitted in parallel over multiple data lines.

Q12. Which of the following is an appropriate combination of words that are inserted into blanks *A* and *B* in the description below concerning the execution sequence of instructions in a computer?

    In a computer, the instructions are executed in the sequence shown below.
    (1) Refer to the program counter.
    (2)   *A*   the instruction.
    (3) Set the program counter to the main memory address of the next instruction.
    (4)   *B*   the instruction.
    (5) Execute processing according to the instruction.
    (6) Return to (1).

	A	*B*
a)	Decode	Read
b)	Read	Decode
c)	Read	Write
d)	Write	Decode

Q13. Which of the following printers can take multiple copies simultaneously by using carbon paper or non-carbon paper at the time of printing?

a) Inkjet printer
b) Impact printer
c) Thermal printer
d) Laser printer

Q14. In the new system environment of Company *X*, three systems including the customer management system, the ordering management system, and the call center system run at separate locations and connected via a network and they can complement one another in the event of a failure.   Also, the system operations are managed at their respective locations.   Which of the following is the greatest merit of this new system environment?

a) The integration of operations helps reduce the number of operating staff.
b) Risks of disasters and other problems can be diversified.
c) The versions of software can be controlled easily.
d) Backup files can be managed in a consolidated manner.

Q15. Which of the following is an appropriate explanation of parallel processing?

a) It is the division of a series of processing into processing units that can be executed simultaneously, and the execution of these on multiple CPUs.
b) It is the grouping and execution of multiple related processes in a single process.
c) It is the performing of business logic and database processes on the server side, and the performing of user interface processes on the client side.
d) It is the division of processing time for a single CPU into short units, and the sequential allocation of these to multiple applications for execution.
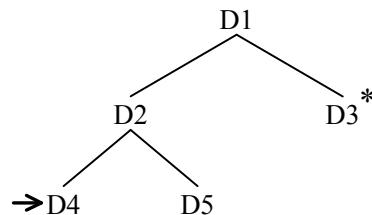
Q16. Which of the following is the term for the form of using a PC by itself without connecting it to any network?

a) Thin client
b) Single processor
c) Standalone
d) Peer to peer

Q17. The diagram below shows the directory structure for a part of a certain file system. Which of the following is the reference from the current directory D3 (indicated with an asterisk "∗") to the file "*a*" under the directory D4 (indicated with an arrow)?   Here, files are specified as follows:

[Methods to specify files]
(1) A file is referenced as "directory name\···\directory name\file name", where the directory names on the path are listed and separated with "\" (backslash) in sequence, followed by "\" and the file name.
(2) The current directory is represented by "." (one period).
(3) The directory one level above is represented by ".." (two periods).
(4) When a reference begins with "\", it is assumed that the root directory is omitted from the beginning of the reference.
(5) When a reference does not start with "\", ".", or "..", it is assumed that ".\", which means that the reference is under the current directory, is omitted from the beginning of the reference.

a) ..\..\D2\D4*a*   b) ..\D2\D4*a*
c) D1\D2\D4*a*   d) D2\D4*a*

Q18. Which of the following is an OS function that executes several application programs progressively in turn on a single PC, such as when a file is downloaded from a web site while data is processed with spreadsheet software?

a) Virtual reality   b) Dual core
c) Dual system   d) Multitasking

Q19. Which of the following is an appropriate description concerning the use of OSS (Open Source Software)?

    a) OSS users have an obligation to pay the developer the fee for the software.
    b) OSS users are allowed neither to sell the OSS nor to distribute it at no fee.
    c) OSS cannot be used in the field of genetic research.
    d) Software derived from the published OSS can be made available as OSS.

Q20. A certain company holds briefing sessions six times a month to attract customers. To manage the attendees in January by using spreadsheet software, a table is created as shown in cells A1 through D8. Then, to manage the attendees in February, cells A2 through D8 are copied to cells F2 through I8, and cell I3 is corrected. Which of the following is the appropriate expression to be entered into cell I3? Here, when the table for February is copied to the table for March, cells should be filled so that the expressions in cells do not have to be changed.

	A	B	C	D	E	F	G	H	I
1	Management of attendees in January					Management of attendees in February			
2	Briefing session	Number of attendees	Month-to-date total	Year-to-date total					
3	1st		B3	B3					
4	2nd		C3+B4	D3+B4					
5	3rd		C4+B5	D4+B5					
6	4th		C5+B6	D5+B6					
7	5th		C6+B7	D6+B7					
8	6th		C7+B8	D7+B8					

    a) C8+D8
    b) C8+H3
    c) D8+G3
    d) D8+G8+H3

Q21. The types of programs that are executed at the startup time of a PC are generally classified into three categories: BIOS, OS, and startup services. Which of the following is the list that is arranged in the sequence of the execution of the programs?

a) BIOS → OS → Startup services
b) OS → BIOS → Startup services
c) OS → Startup services → BIOS
d) Startup services → BIOS → OS

Q22. Spreadsheet software is used to predict sales according to the weather. The table is a worksheet into which the probability for the weather type (sunny, cloudy, rainy) on the day to be predicted and the predicted sales amount by weather type for each product are entered. An expression is entered in cell E4 to calculate the predicted sales amount on the day for Product *A*, and this is copied to cells E5 through E6 and used. Under these conditions, which of the following is an appropriate expression to be entered in cell E4? Here, to obtain the predicted sales amount on the day for each product, the probability for each weather type is multiplied by the predicted sales amount for each of weather type, and then these values are added up.

	A	B	C	D	E
1	Weather type	Sunny	Cloudy	Rainy	
2	Probability of weather type	0.5	0.3	0.2	
3	Product name	Predicted sales amount when sunny	Predicted sales amount when cloudy	Predicted sales amount when rainy	Predicted sales amount on the day
4	Product *A*	300,000	100,000	80,000	
5	Product *B*	250,000	280,000	300,000	
6	Product *C*	100,000	250,000	350,000	

a) B2*B4+C2*C4+D2*D4
b) B$2*B4+C$2*C4+D$2*D4
c) $B2*B$4+$C2*C$4+$D2*D$4
d) $B$2*$B$4+$C$2*$C$4+$D$2*$D$4

Q23. Which of the following is a typical example of a system operating on a super computer?

    a) A Supply Chain Management system that is required for linkage between enterprises
    b) A global climate change forecast system that requires large-scale scientific and technical computing
    c) A banking system that requires a high reliability
    d) An engine control system of a vehicle that requires advanced real-time control

Q24. Which of the following is an input method where a touch panel is operated by touching it in multiple locations simultaneously?

    a) Touch typing   b) Double click
    c) Multitasking   d) Multi-touch

Q25. Which of the following is an international standard for a compression method for still (or static) images?

    a) BMP   b) JPEG   c) MPEG   d) PCM

Q26. There are "Sales", "Customer" and "Product" tables in a relational database. Among lists *A* through *C*, which of the following contains all and only the lists that can be created from the data in these tables? Here, a solid underlined part represents a primary key, and a dotted underlined part represents a foreign key.

Sales

SalesNumber	CustomerNumber	ProductNumber	SalesDate	SalesAmount

Customer

CustomerNumber	CustomerName

Product

ProductNumber	ProductCategoryName	ProductName

A   The list of customers who bought more than a certain amount of money during a certain period in the past

B   The list of products that were out of stock in the previous month

C   The ranking list for sales amount by product in the previous month

a) *A*, *B*   b) *A*, *B*, *C*   c) *A*, *C*   d) *B*, *C*

Q27. Which of the following effect is obtained by normalizing the tables of a relational database?

a) The number of disk accesses for data update is reduced by compiling frequently used data in the same table.

b) Data inconsistency due to data update is prevented by eliminating data duplication.

c) The usage efficiency of the main memory is improved by making the size of the tables uniform.

d) Response time for queries is shortened by reducing the number of tables.

Q28. When the order records shown below are entered in the system where each order number must be uniquely assigned, which of the following is the appropriate method for searching the order master file containing all of the past order records, and for checking the uniqueness of the order number?

Order record

Order number (Character string)	Order date (Year/Month/Day)	Item code (Character string)	Quantity (Numeric value)	Customer code (Character string)

a) Duplicate check

b) Format check

c) Limit check

d) Logical check

Q29. When an activity for building a relational database is divided into steps *A* through *C* below, which of the following is an appropriate order of the steps?

A Identifying the data items to be used in the business operation

B Creating tables

C Inserting records

a) $A \rightarrow B \rightarrow C$

b) $A \rightarrow C \rightarrow B$

c) $B \rightarrow A \rightarrow C$

d) $B \rightarrow C \rightarrow A$

Q30. Which of the following is an appropriate description concerning a virus check for an e-mail?

a) A virus check does not need to be performed if the e-mail is encrypted.

b) A virus check is not required for the received e-mail if it is inspected by the sender.

c) A virus check is performed even if the attached file has a file extension of "jpg".

d) A virus check is performed only for the e-mail sent by an unknown sender.

Q31. Which of the following is an appropriate explanation of tethering?

    a) A type of virus that replicates itself and spreads infection throughout a network

    b) A function of connecting a PC to the Internet by using a communication terminal such as a smartphone as a mobile router

    c) A method of detecting a tampering by using a hash function and public key cryptography for electronic data

    d) An attack that attempts to illegally manipulate the information in a database by deliberately entering an SQL command in an input field on a web page

Q32. Which of the following is an appropriate effect of replacing IPv4 with IPv6?

    a) Problems no longer occur when an IP address that can be accessed directly from the Internet is duplicated.

    b) The shortage of IP addresses that can be accessed directly from the Internet is resolved.

    c) It becomes possible to use optical fibers for connecting to the Internet.

    d) The communication speed at the time of using the Internet improves.

Q33. Which of the following is an appropriate description concerning encryption of communication when a website with the URL beginning with "https://" is browsed through a PC browser?

    a) Only the communication from the PC to the web server is encrypted.

    b) Only the communication from the web server to the PC is encrypted.

    c) The bi-directional communication between the web server and PC is encrypted.

    d) The direction in which communication will be encrypted depends on the settings of the web server.

Q34. Which of the following is an appropriate explanation of SSID that is used in wireless LANs?

    a) The MAC address of an access point

    b) The channel number of radio waves in use

    c) The IP address of an access point that is used as the default gateway

    d) A character string used to identify the wireless network

Q35. When information security measures are grouped into three (3) categories of technical security measures, human security measures, and physical security measures, which of the following is an appropriate example of physical security measures?

a) Making a non-disclosure agreement with employees
b) Attaching a digital signature to an e-mail when it is sent
c) Storing a notebook PC in a place that can be locked
d) Recommending password change on a regular basis

Q36. Among information security measures *A* through *D* implemented in the workplace to maintain the "confidentiality" and "integrity" of information, which of the following is a list of only the appropriate measures?

  A: PCs should remain unlocked to keep them ready for operation from the start to the end of the business day.
  B: Documents and electronic storage media, such as CD-R containing important information, should be stored in locked cabinets except when they are used.
  C: Documents sent or received by facsimile should be picked up immediately without being left unattended on the tray.
  D: Messages or information written on the whiteboard should be erased immediately after use.

a) *A, B*   b) *A, B, D*   c) *B, D*   d) *B, C, D*

Q37. Among the descriptions *A* through *C* below concerning information security measures, which of the following is the list that contains all and only the goals that can be achieved by encrypting communication content?

  A: Recovering the data that is tampered with during communication
  B: Ensuring that the communication content is not disclosed to a third party
  C: Identifying the person involved in tapping if tapping has occurred

a) *A*   b) *A, B*   c) *A, C*   d) *B*

Q38. Which of the following is an authentication method where a user uses information that differs each time and is generated with a device called a token or other such device?

a) Digital signature
b) Password cracking
c) Password policy
d) One time password

Q39. In the description below concerning the ISMS conformity assessment scheme, which of the following is an appropriate combination of words to be inserted into blanks *A* and *B*?

It is a scheme for assessment and certification of a company or organization for its proper establishment and operation of the ⬚ *A* ⬚ management system and its conformity to the requirements of the ISMS certification standards. The assessment and certification are conducted by ⬚ *B* ⬚ .

	A	*B*
a)	personal information protection	an audit department in the organization
b)	personal information protection	a specific third party institution
c)	information security	an audit department in the organization
d)	information security	a specific third party institution

Q40. In order to promote risk management, the execution plan for introducing the risk management system was developed as the first step. When the subsequent actions are divided into steps *A* through *C* below, which of the following is the order of the steps in accordance with the PDCA cycle?

A Implementing the measures against risks according to the execution plan
B Measuring the effect of the implementation and evaluating the effectiveness of the risk management system
C Taking corrective actions and improving the risk management system

a) $A \rightarrow B \rightarrow C$
b) $A \rightarrow C \rightarrow B$
c) $C \rightarrow A \rightarrow B$
d) $C \rightarrow B \rightarrow A$

Q41. All employees are registered in an entry and exit control system with biometric authentication, and the employees who are allowed to enter each room within the company are specified. The exit from a room is not controlled. Among the following lists of the descriptions A through D, which is the list that contains all and only the items that can be achieved by the entry and exit control system?

A: Only authorized employees are allowed to enter a room.
B: The time duration for which each person stayed in the room is recorded.
C: The employees who attempted to enter a room but were denied the entry are recorded.
D: The number of persons in a room is identified.

a) A, B, C   b) A, C   c) A, D   d) B, C, D

Q42. Which of the following is the most appropriate description concerning SSL/TLS?

a) It generates a one-time password to authenticate a user on a web site.
b) It encrypts communications between a web server and a browser.
c) It prevents (or filters) access to an unauthorized web site.
d) It detects a virus that infects a computer through a network.

Q43. Among the countermeasures A through D concerning information security, which of the following is the list that contains all and only the appropriate countermeasures for preventing a virus infection?

A: Installing antivirus software
B: Applying a security patch (i.e., update module)
C: Setting a password for the hard disk
D: Encrypting files

a) A, B   b) A, B, C   c) A, D   d) B, C

Q44. Among the descriptions *A* through *D* concerning the operations management of a file server, which of the following is the list that contains all and only the items that are effective as a security measure?

    A: The password of an accessing user is complex and of sufficient length.
    B: Access is enabled only from PCs with the permitted IP address.
    C: The guest user is also granted permission to access the server.
    D: The access log of the server is acquired and audited regularly.

  a) *A, B, D*   b) *A, D*   c) *B, C*   d) *B, D*

Q45. Which of the following is the most appropriate description of an information security policy for an organization?

  a) The management must implement not only the top-level information security policy, but also the rules and procedures for information security.
  b) It is necessary to publish outside of the company not only the top-level information security policy, but also the rules and procedures for information security.
  c) While the rules and procedures for information security should be tailored to the organization, the top-level information security policy must be adopted from the industry standard model.
  d) Even when different information security measures are implemented in different departments of an organization, the top-level information security policy must be unified across the organization.

Q46. Which of the following is an appropriate description concerning program testing?

   a) A black box test and a white box test are used to test internal structures and external specifications respectively.

   b) The number of errors remaining in a program has no relationship to the number of errors already found.

   c) The objective of the test is to prove completeness of a program, so a test plan should be created on the assumption that all errors can be detected.

   d) When a program is tested, the program must be checked not only for correct behavior in normal cases, but also for intended behavior in the event of input errors.

Q47. In system development, which of the following is an activity that is performed after software detailed design?

   a) Programming   b) Software architecture design

   c) Software outline design   d) Software requirements definition

Q48. When the current system is replaced with a new system, the data to be migrated from the current system to the new system and the resources necessary for the migration are listed to create a migration plan.   Which of the following is the most appropriate item to be included in the migration plan?

   a) Functional requirements for the new system

   b) Operational procedures for the screens and forms provided by the new system

   c) Procedure for regularly making a backup copy of data files

   d) Schedule and human resources for switching to the new system

Q49. Which of the following is the most appropriate design policy for an output form?

a) The numeric items and the character items are classified into different groups, and each group is separately placed on the top and bottom or left and right of the form.
b) In order to ensure consistency between forms, rules regarding the form design, such as the title position and the layout of data items, are predetermined.
c) All data items, including both numeric and character items, are printed with either right or left justification.
d) The data items are arranged so that the program can be understood and maintained as easily and simply as possible.

Q50. Which of the following is an appropriate description concerning the characteristics of the prototyping model?

a) Through a trial model in the initial stage of the development process, the user interface is determined and the system performance is verified, in order to reduce the risk of rework caused by specification change in subsequent phases.
b) It is a type of growth model where the system is refined by repeating development processes.   In each iteration process, risk is assessed based on development cost and quality, and the process with the lowest risk is adopted.
c) Through a series of system development processes, some functions are completed. The entire system is developed in incremental steps by repeating such a cycle.
d) It is performed in order of requirements analysis, system design, production, and test. It is suitable for large-scale system development.

Q51. Availability, performance, data consistency, maintainability, and such other indicators are used to represent the capabilities and quality of a system.   Which of the following is an appropriate description of availability?

a) Maintaining the integrity of associated data
b) The time from giving instructions to the system to obtaining the results
c) The degree to which system functions can be used including in the event of a system failure
d) The degree to which programs are easy to change

Q52. At the beginning phase of a new personnel system development project, in order to clarify the possible risks, the persons in charge of the planning department, personnel department, and information systems department, who act as the project team members, get together and freely exchange their opinions on the apparent risks concerning the project.   What is such a method called?

    a) Walk-through   b) Critical path method

    c) Simulation   d) Brainstorming

Q53. Which of the following is an appropriate index or indicator that is used to evaluate the quality of deliverables in a system development project?

    a) External procurement ratio

    b) Test coverage

    c) Total number of staff assigned

    d) Number of days spent on the project

Q54. At the request of a user department, the development department launches a project of system development.   Which of the following is the most appropriate role of the project manager?

    a) Monitoring the progress to take preventive measures against problems

    b) Preparing a proposal for the project on behalf of the user department

    c) Presenting the requirements of the system to the user department

    d) Raising funds to carry out the project on behalf of both departments

Q55. The project management knowledge areas include project cost management, project human resource management, project time management, and project procurement management. In a system development project, which of the following is an appropriate activity of project procurement management when a device is purchased for testing?

    a) Creating a schedule so as to start the test using the purchased device after the delivery of the device

    b) Providing training in device operations to the person in charge of performing the test by using the purchased device

    c) Adding the purchase cost of the device for testing to the project budget, and managing the estimated and actual total cost

    d) Presenting the specifications of the device for testing to several candidate suppliers, evaluating the proposals, and deciding on the appropriate supplier accordingly

Q56. When the progress of a project is managed, which of the following is an appropriate item to be considered?

    a) The amount of delay in progress can be adjusted based on the judgment of the administrator.

    b) Qualitative items are set as the control items of progress management.

    c) Quantitative items and their target values are set in order to evaluate the progress quantitatively.

    d) A radar chart is used to facilitate the understanding of progress.

Q57. After the start of a project, the scope is defined by collecting the requirements for the project. Which of the following is the most appropriate purpose of defining the scope?

    a) To clarify the activities to be implemented in the project

    b) To create the action plan against the risk that has been realized in the project

    c) To create an action plan for the delay of the project

    d) To create the objectives of the project

Q58. In order to achieve the objectives of a project, the roles, responsibilities, and skills required for project team members are determined, and the time periods of their participation are also clarified.　Which of the following is the appropriate knowledge area of the project management processes where such activities are classified?

a) Project communication management
b) Project scope management
c) Project time management
d) Project human resource management

Q59. The private power generator is installed to protect a business server against electric power failure, but it takes one minute to provide a stable power supply after the power failure is detected.　Which of the following devices is necessary to supply temporary power to the server during that one-minute period?

a) A/D converter　　　　　　　　b) RAID
c) UPS　　　　　　　　　　　　d) Firewall

Q60. An organization is going to set up a service desk to respond to information system users. Which of the following is the most appropriate description concerning incident handling by the service desk?

a) In response to fault reports from users, the service desk provides information to them after a resolution method has been formally decided.
b) The service desk responds to fault reports from users with the primary aim of restoration of service, not investigation of the causes of faults.
c) For receipt of user inquiries, the service desk standardizes on a single method such as e-mail, telephone, or FAX, regardless of conditions in users' organizations.
d) The service desk keeps records of only the user inquiries that are not able to be quickly resolved.

Q61. When the operation of an information system is outsourced, which of the following is created in order to agree on the quality level for the service to be provided between the outsourcing party and the contractor?

a) ASP   b) ISP   c) RFP   d) SLA

Q62. In order to reduce the risk of unauthorized entry into the server room where a computer system is operating, the decision is made not to indicate the installation location of the computers.   Which of the following is the appropriate management that corresponds to this measure?

a) Supply chain management
b) Knowledge management
c) Business continuity management
d) Facility management

Q63. Company *A*'s internal auditors conduct a system audit concerning the company's BCP (Business Continuity Plan). The system audit found in the backup measures for computer power supplies that some of the batteries in the uninterruptible power supplies managed by the System Operations Department are deteriorated. Which of the following is the party responsible for making improvements in response to the finding?

a) Head of the System Operations Department
b) Person responsible for system development
c) Internal auditor
d) Head of the Purchasing Department, who purchased the uninterruptible power supplies

Q64. Which of the following is the most appropriate phrase to be inserted in blank *A* in the description below concerning IT control in a company?

A company formulates an effective IT strategy, aiming to [*A*   ] of the organization according to its business strategy, and establishes the life cycle of planning, development, operation, and maintenance of the information systems on the basis of this IT strategy. In order to reduce the risks surrounding the information systems, IT controls are implemented and operated.

a) implement IT governance
b) implement system audit
c) establish information literacy
d) establish software development standards

Q65. IT controls are classified into IT application controls and IT general controls. IT application controls refer to the control activities for ensuring that all approved business operations in the system for managing business operations are processed and recorded appropriately. IT general controls refer to the control activities for guaranteeing the environment in which each IT application control functions effectively. Which of the following controls in a company that performs development and operation of its in-house systems, such as the purchase management system, corresponds to IT application controls?

a) Controls such as access management, ensuring the security of the in-house systems
b) Controls preventing duplicated entry of data in the purchase management system
c) Controls on the operation and management of the in-house systems
d) Controls on the development and maintenance of the in-house systems

Q66. In order to manufacture one (1) unit of a product, 10 kg of the raw material A and 5 kg of the raw material B are needed. If the amount of raw material that can be used in one (1) month is 60 kg of raw material A and 40 kg of raw material B, what is the maximum number of units of the product that can be manufactured in one (1) month?

  a) 4   b) 6   c) 8   d) 10

Q67. Which of the following is a method of education and training by which the techniques and knowledge required for working are mastered through daily work experience?

  a) CDP   b) e-learning   c) Off-JT   d) OJT

Q68. When there are n evaluation items, n evaluation axes are drawn from the center of a circle so that the circle can be divided into n equal pieces, and then evaluation values are plotted on each axis. Which of the following is the appropriate chart or diagram that is used for determining the relative balance between evaluation items and the distance from averages by connecting neighboring plotted points with line segments?

  a) Z chart   b) Scatter diagram
  c) Fan chart   d) Radar chart

Q69. An implementation plan for a company-wide information system that is consistent with the business strategy is to be created. Which of the following is the most appropriate person to take responsibility for this activity?

  a) CIO
  b) CTO
  c) Head of the core business department
  d) Person in charge of planning in the information systems department

Q70. The design quality of software is associated with the skills of the designers, the design methods, the design tools, and other factors.   Which of the following is an appropriate name for a diagram or a chart that resembles a fishbone and is used for identifying the items that affect the quality?

a) Arrow diagram
b) Cause and effect diagram
c) Pareto chart
d) Matrix diagram

Q71. Company *A* manufactures and sells product *B*.   Which of the following is the appropriate expression for calculating the total cost of product *B*?   Here, the total cost refers to all the costs incurred until product *B* is sold.

a) Manufacturing cost of product *B* + Selling expenses of product *B*
b) Manufacturing cost of product *B* + Operating profit of product *B*
c) Sales of product *B* − Manufacturing cost of product *B*
d) Sales of product *B* − Selling expenses of product *B*

Q72. Which of the following is a mechanism by which interested parties, such as the shareholders or investors, supervise and monitor the management of a company conducted by the management executives and board of directors?

a) Compliance
b) Corporate governance
c) Risk management
d) TOB

Q73. Which of the following is an appropriate description concerning the two-dimensional symbol (two-dimensional bar code)?

a) Information is scanned in the horizontal direction only, in the same way as the linear bar code.
b) Errors can be detected in both horizontal and vertical directions, but cannot be corrected.
c) When the area is equivalent in size to the linear bar code, more information can be recorded.
d) Since a matrix code has information in both horizontal and vertical directions, its adjustable scanning angle is narrow.

Q74. Which of the following corporate activities is related to compliance promotion?

    a) A mechanism for sharing sales people's sales know-how, customer information, and negotiation information in the sales department is implemented to improve sales productivity.

    b) A mechanism for sharing customer information and purchasing history among all departments that come into contact with customers is implemented to increase customer satisfaction.

    c) Schedules, documents, messages, and meeting room reservation status are shared with groups such as departments and projects in order to prevent communication loss.

    d) A code of conduct and a conduct manual that aim to follow the law are created on the basis of corporate ethics, and ethical education is implemented to ensure that employees understand them.

Q75. Which of the following is an appropriate example of a practice based on the concept of Green IT?

    a) Use of displays that reduce eye fatigue from blue LED light
    b) Installation of air shower devices in server room entrances and exits
    c) Construction of backup systems in preparation for disasters
    d) Making a rule of viewing materials on PC screens and limiting their printing on paper

Q76. Which of the following is an appropriate description of certification to ISO 9001?

    a) Once a party is certified, the certification is permanent.
    b) Certification is applied to manufacturing industries, not to service industries.
    c) There is only one certification body in each country.
    d) Organizations which fulfill the international standard "Quality Management Systems - Requirements" are assessed and certified.

Q77. Which of the following is the right to protect the content of user guides attached to software packages?

a) Industrial design right   b) Trademark right

c) Copyright   d) Patent right

Q78. Which of the following is an appropriate description concerning a "volume license agreement"?

a) It is an agreement where a master copy is provided to customers, such as companies, who purchase the software in a large quantity, and the number of permitted installations is determined in advance.

b) It is an agreement where the location of use is restricted to a specified facility, and the software can be used without limiting the number of computers or users in the facility.

c) It is an agreement where standard licensing conditions are defined and a license agreement is automatically considered to be concluded between the right holder and the purchaser when a certain limited number of packages are unwrapped.

d) It is an agreement where the use of software is permitted by accepting the terms and conditions displayed on the screen when the software is downloaded from the Internet.

Q79. Which of the following is an appropriate explanation of SWOT analysis?

a) It is a technique for deriving the future direction of corporate activities by analyzing opportunities and threats underlying in the external environment surrounding the company, and the strengths and weaknesses of the company.

b) It is a technique for designing a company's own activities from the viewpoint of what kind of value the activities finally generate for customers and whether this satisfies the customers.

c) It is a technique for evaluating and analyzing the business performance of a company in a well-balanced manner, from the perspectives of financial, customer, internal business process, and learning and growth.

d) It is a technique for plotting a business on a matrix created by the two quantitative values of market growth rate and market share, and then optimizing the allocation of management resources.

Q80. There are two types of performance indexes: one to evaluate the achievement level of a goal and the other to evaluate the method for achieving a goal. When the goal is to "improve the English ability of employees," which of the following is an appropriate index to represent the achievement level of this goal?

a) The ratio of employees' awareness of a message from the company president concerning the importance of learning English is 80% or more.
b) The ratio of employees who get a mark of 650 or higher in an English test is 60% or more.
c) The ratio of employees who participate in an English test is 90% or more.
d) The ratio at which a company's monthly English training course is held as planned is 90% or more.

Q81. In order to reduce the number of in-process or in-stock items between processes, production is carried out in each process according to the requests from the subsequent process and only the required number of the required items are supplied at the required time to the subsequent process. Which of the following is the system that performs this type of production?

a) Just-in-time production system
b) Cell production system
c) Build-to-stock production system
d) Lot production system

Q82. Which of the following is the method for implementing marketing strategies by combining multiple marketing elements?

a) Marketing concept
b) Marketing channel
c) Marketing mix
d) Merchandising

Q83. Which of the following is an explanation of affiliate that is one of the advertisement methods on the Internet?

a) It is a method for sending advertisements of categories that recipients are interested in, by e-mail with prior permission from them.
b) It is a method for displaying a company's advertisement and web link on a personal home page, and for paying commission to the home page owner based on the number of visitors attracted.
c) It is a method for making a company's web site visible near the top of the search engine results.
d) It is a method for attracting users to a company's web site by placing a graphical image on a large scale portal site as an entrance to the web site.

Q84. Among the business management systems, which of the following has an objective of maximizing customer lifetime value? Here, customer lifetime value is the amount of profit expected to be brought into a company by a customer throughout his/her lifetime.

a) CRM   b) ERP   c) SCM   d) SFA

Q85. Which of the following is an appropriate description concerning a technology roadmap?

a) It organizes the transition of past technology and does not show future trends.
b) It is created for the technology strategy of a company or an industry and is not created by a government or an administration.
c) It represents milestones in technology development, and does not involve any review based on market trends.
d) It shows a technology development strategy based on an enterprise strategy, and is intended to be understood not only by engineers but also by other employees.

Q86. Which of the following is an appropriate explanation of CAD?

a) Education with the use of computers
b) Manufacturing activities with the use of computers
c) Design and drafting with the use of computers
d) Software design, development, and maintenance with the use of computers

Q87. A single unit of Product *A* is composed of three (3) pieces of Part *B* and two (2) pieces of Part *C*.   In the production plan for a particular period, when the demand for Product *A* is 10, which of the following is the net requirement of Part *B*?   Here, the quantity in stock is five (5) for Part *B*, and there are no other pieces in stock, in process, on back order, or already allocated.   The net requirement is calculated by subtracting the stock available for allocation from the gross requirement.

a) 20 b) 25 c) 30 d) 45

Q88. Which of the following is an appropriate example of a function that uses an IC tag?

a)   Scanning bar code at a POS register
b)   Sending images by a remote medical system
c)   Identifying current location with a car navigation system
d)   Monitoring at theft prevention gate in a library

Q89. Which of the following is an appropriate explanation of POS terminals (or POS cash registers) in a supermarket and other such places?

a) They are terminals of the system used for collecting and managing information such as the product code and price at the time of a sales transaction (at the "Point of Sale").
b) They are terminals of the "Purchase Order System", and are mainly used to automate purchase orders for the replenishment of products.
c) They are terminals of the strategic product management system developed for monitoring the "Probability of Survival" of such products.
d) They are terminals of the inventory management system first manufactured in "Port of Spain", and they hold an overwhelming market share.

Q90. Among the characteristics required for an embedded system, which of the following is the most appropriate terminology used when a certain process must be completed within a given period of time?

a) Availability b) Reliability
c) Real-time ability d) Serviceability

Q91. When the spreadsheet shown below is converted into CSV format, which of the following is an appropriate list of data that is generated by spreadsheet software? Here, records are separated by the carriage return code "^C_R". The expression in a cell is automatically recalculated, and the resulting value is written back into that cell. Although the entered expressions are shown in row 3 and column C below, the resulting values are actually displayed on the screen.

	A	B	C
1	2	7	A1+B2
2	6	4	A2+B1
3	A1+A2	B1+B2	C2+B3

a) 2 , 6 , 8 ^C_R 7 , 4 , 11 ^C_R 6 , 13 , 24 ^C_R
b) 2 , 6 , 8 ^C_R 7 , 4 , 11 ^C_R 9 , 10 , 19 ^C_R
c) 2 , 7 , 6 ^C_R 6 , 4 , 13 ^C_R 8 , 11 , 24 ^C_R
d) 2 , 7 , 9 ^C_R 6 , 4 , 10 ^C_R 8 , 11 , 19 ^C_R

Q92. Which of the following is classified as a "B to E" transaction?

a) A company provides services, such as welfare and education for the company's own employees, through the Internet.
b) A travel company uses the Internet to give campaign information and sell tickets to consumers in advance.
c) An automobile manufacturer uses the Internet to procure components and materials from vendors across the world.
d) In an auction held on the Internet, a participant buys a product from another participant.

Q93. Which of the following is a term that means that the development and operation of a system is farmed out to an overseas company or an overseas subsidiary?

a) Hosting
b) Offshore outsourcing
c) Onshore outsourcing
d) System integration

Q94. Which of the following is the most appropriate description concerning DFD notation?

a) It is a notation that shows the transition in the state of a system as time passes and the situation changes.
b) It is a notation that assigns relations between entities handled by a system, and describes the data structure.
c) It is a notation for the attributes and operations of elements that a system is composed of, and the relations between the elements.
d) It is a notation that focuses on the flow of data, and describes the relations between the flow and the processing of business data.

Q95. Which of the following is an explanation of a business process model?

a) It describes data and functions required for programming during system development.
b) It specifies conditions necessary for asking for proposal regarding the outsourcing of system development.
c) It specifies the business activities and data flow which are subject to computerization.
d) It describes organizations and resources required for the development, operations, and maintenance of a system.

Q96. Which of the following is an appropriate service that enables the use of business software via the Internet?

a) ASP   b) ERP   c) ISP   d) SFA

Q97. The table below shows the evaluated value of the proposals of four (4) vendors from the viewpoints of management, technology, and price. When each value of the management viewpoint, technology viewpoint, and price viewpoint is weighted, and the vendor with the highest total score is selected as the supplier, which of the following vendors is selected?

Evaluation item	Weight	Vendor A	Vendor B	Vendor C	Vendor D
Management viewpoint	2	2	4	3	3
Technology viewpoint	3	3	4	2	3
Price viewpoint	5	4	2	4	3

a) Vendor A
b) Vendor B
c) Vendor C
d) Vendor D
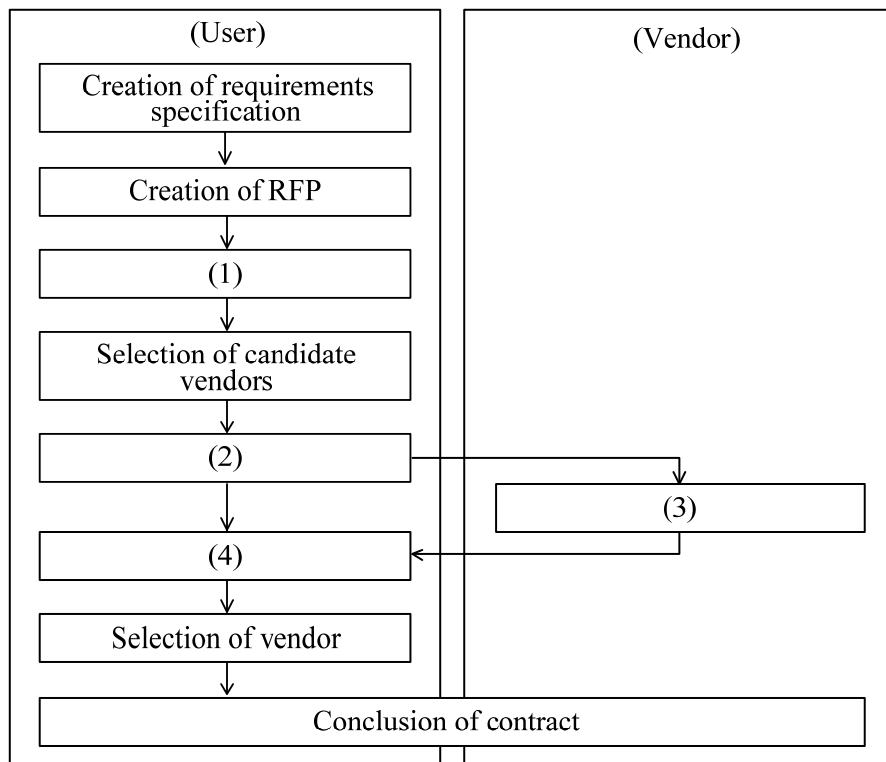
Q98. Which of the following is an appropriate explanation concerning an RFP (Request for Proposal)?

a) It is created by the vendor with whom an order is placed, with the purpose of requesting the ordering company to submit a request for computerization.
b) It is created jointly by the ordering company and the vendor with whom an order is placed, with the purpose of providing the details of the development.
c) It is created by the ordering company with the purpose of obtaining specific and concrete ideas for a system from the vendors with whom an order is to be placed.
d) It is created by the ordering company with the purpose of collecting information and accumulating know-how and knowledge from a wide range of sources.

Q99. When the system life cycle is divided into the planning process, requirements definition process, development process, and operation/maintenance process, which of the following is an appropriate process to clarify the functions of the system for the implementation of business operations?

a) Planning process
b) Requirements definition process
c) Development process
d) Operation/maintenance process

Q100. When software is procured based on the procedure shown in the diagram below, which of the following is the most appropriate item to be inserted into blank (1)? Here, each of items a) through d) corresponds to one of blanks (1) through (4).

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┌─────────────────────────────────────┬─────────────────────────────┐
│              (User)                  │          (Vendor)           │
│  ┌─────────────────────────────┐     │                             │
│  │ Creation of requirements    │     │                             │
│  │       specification         │     │                             │
│  └─────────────────────────────┘     │                             │
│               ↓                      │                             │
│  ┌─────────────────────────────┐     │                             │
│  │      Creation of RFP        │     │                             │
│  └─────────────────────────────┘     │                             │
│               ↓                      │                             │
│  ┌─────────────────────────────┐     │                             │
│  │            (1)              │     │                             │
│  └─────────────────────────────┘     │                             │
│               ↓                      │                             │
│  ┌─────────────────────────────┐     │                             │
│  │  Selection of candidate     │     │                             │
│  │        vendors              │     │                             │
│  └─────────────────────────────┘     │                             │
│               ↓                      │                             │
│  ┌─────────────────────────────┐     │                             │
│  │            (2)              │─────────────┐                     │
│  └─────────────────────────────┘     │       ↓                     │
│               ↓                      │  ┌──────────────────────┐    │
│                                      │  │         (3)          │    │
│  ┌─────────────────────────────┐     │  └──────────────────────┘    │
│  │            (4)              │←─────────────┘                     │
│  └─────────────────────────────┘     │                             │
│               ↓                      │                             │
│  ┌─────────────────────────────┐     │                             │
│  │    Selection of vendor      │     │                             │
│  └─────────────────────────────┘     │                             │
│               ↓                      │                             │
│  ┌──────────────────────────────────────────────────────────┐     │
│  │              Conclusion of contract                      │     │
│  └──────────────────────────────────────────────────────────┘     │
└─────────────────────────────────────┴─────────────────────────────┘
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a) Explanation of RFP

b) Creation of criteria for vendor selection

c) Creation of proposal

d) Evaluation of proposal