

1. When programming a function, a local address can be identified by the prefix
  - ☐ @
  - ☐ #
  - ☐ &
  - ☐ Quotation Marks
  
2. In a Siemens S7 automation system, FM is the acronym for
  - ☐ Factory Mutual
  - ☐ Frequency Modulation
  - ☐ Function Module
  - ☐ Function Memory
  
3. In what mode can a program be loaded into the PLC?
  - ☐ Startup
  - ☐ Run
  - ☐ Stop
  - ☐ Maintenance
  
4. Which of the following are not valid communication methods for the S7-1200?
  - ☐ RS 485
  - ☐ PROFIBUS
  - ☐ PROFINET
  - ☐ ETHERCAT
  
5. MB8 is an address for what?
  - ☐ Memory byte 8
  - ☐ Memory bit 8
  - ☐ A word in memory
  - ☐ An input bit
  
6. What is the difference between force and modify?
  - ☐ Modify is triggered and force is permanent
  - ☐ Modify is permanent and force is triggered
  - ☐ Modify is the new function in TIA Portal replacing force from Step7
  - ☐ They are the same
  
7. The PLC controls
  - ☐ Inputs
  - ☐ Outputs

- ☐ Data Blocks
- ☐ Internal Memory

8. A customer requires an AC input, which configuration would be needed?

- ☐ DC/DC/DC
- ☐ AC/RLY/DC
- ☐ AC/DC/RLY
- ☐ AC/AC/AC

9. The output module

- ☐ Connects the PLC to sensing devices such as switches or pushbuttons
- ☐ Connects the PLC to load devices such as lamps or solenoids
- ☐ Is the programming device that controls the machine process
- ☐ Contains the tape or disc drive circuits

10. A typical analog signal range might be

- ☐ +/- 10VDC
- ☐ 0-10VDC
- ☐ 4-16mA
- ☐ All of the above

11. Match the appropriate memory address with the example.

Memory type example		Actual Memory Address
<input type="text"/>	Using I memory, give an example of a BIT address 1	QD 10
<input type="text"/>	Using Q memory, give an example of a BYTE address. 2	QB 10
<input type="text"/>	Using M memory, give an example of a WORD address. 3	I 0.0
<input type="text"/>	Using Q memory, give an example of a DWORD address. 4	MW 10

12. A PLC address defines the

- ☐ Memory location
- ☐ Byte address
- ☐ Bit address
- ☐ All of the above

13. Temporary variables become part of an instance data block

- ☐ True
- ☐ False

14.

Which of the following is not a valid trigger for a watch table?

- ☐ Cycle start once
- ☐ Transition to Stop
- ☐ Cycle end permanent
- ☐ Transition to on state

15. An ANALOG signal is usually a variable voltage, current or resistance. The ANALOG module performs a \_\_\_\_\_ conversion before it is made available to the PLC

- ☐ Digital to analog
- ☐ Analog to digital
- ☐ Integer to real
- ☐ Double integer to real

16. In structured programming you \_\_\_\_\_ functions for identical types of process components or areas.

- ☐ Reuse
- ☐ Copy the code from similar
- ☐ Create different
- ☐ Delete

17. Where in relation to the S7-1200 PLC are the communication modules?

- ☐ Above
- ☐ Left
- ☐ Right
- ☐ Below

18. The MMC is

- ☐ Mickey Mouse Club
- ☐ Micro Memory Card
- ☐ Memory Management Connection
- ☐ Miniature Memory Card

19. What is the maximum number of BYTES the MOVE instruction can transfer?

- ☐ 4
- ☐ 2
- ☐ 16
- ☐ 32

20. See the EXHIBIT to answer this question.

If In1 and In2 are both true what is Out1?

True

☐☐ False

21. What is a built in tool for debugging an actively running program?

☐ Monitor☐ Watch table☐ Force table☐ All of the above

22. While programming in Step7, pressing the \_\_\_\_ key will open the online help file for the object selected or highlighted in the program editor.

☐ F5☐ F1☐ ESC☐ ENTER

23. A field device is

☐ an input device☐ An output device☐ A load device☐ Any device physically connected to the PLC

24. The general types of programming are:

☐ Linear☐ Structured☐ Partitioned☐ All of the above

25. A global or shared data block is

☐ Created manually with the variables inserted, named and data types declared☐ Associated with a function block and has the same structure as the interface area of the FB☐ A template used to create multiple data blocks with the same structure☐ Created by the system compiler as needed (allocated) and then deleted (de-allocated)

26. What is 11 in binary?

☐ 2#1011☐ 2#1010☐ 2#1110

27. Which of the following is stored on the MMC

- ☐ System Memory
- ☐ Working Memory
- ☐ Load Memory
- ☐ All of the above

28. A program block labeled OB is an

- ☐ Object Block
- ☐ Project sub-folder
- ☐ Organization Block
- ☐ Does not exist in a S7 project

29. Which of the following are benefits of re-useable function blocks? I. No need to copy and paste logic II. Easy to reproduce in similar machines III. Consistency between similar systems IV. Assignment of addresses in one place

- ☐ I, II, III, IV
- ☐ I, II, III
- ☐ I, III, IV
- ☐ I, II, IV

30. How many BYTE's are contained in an analog input address?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

31. The letters DB in a block number indicate that is a

- ☐ Function
- ☐ Function Block
- ☐ Organization Block
- ☐ Data Block

32. A word contains how many bits

- ☐ 8
- ☐ 32
- ☐ 16
- ☐ 1

33. An operation is supposed to take less than a set amount of time, what can be done to detect a problem with the operation?

- ☐ Make a watchdog timer
- ☐ Check sensor feedback
- ☐ A and B
- ☐ Neither A or B

34. Which of the following is a symbolic address?

- ☐ I 1.3
- ☐ "Button"
- ☐ All of the above
- ☐ None of the above

35. Customizing a function for a particular component of area requires

- ☐ Entering absolute addresses within the function
- ☐ Parameter passing
- ☐ No parameter passing
- ☐ None of the above

36. A data block (DB) can be

- ☐ Global or shared
- ☐ Temporary
- ☐ Instance
- ☐ Both a and c

37. Red question marks beside an instruction's parameters

- ☐ Indicates no further entry is required
- ☐ Is the prompt you would select for online help
- ☐ Indicates an illegal entry
- ☐ Indicates that a parameter entry is required

38. How many bits are used for a DWORD?

- ☐ 2
- ☐ 1
- ☐ 32
- ☐ 16

39. You have just used address MD 4, what is the next usable WORD address?

40. The binary numbering system is what 'base' number?

- ☐ Base 2

- ☐ Base 10
- ☐ Base 16
- ☐ Base 8

41. If FB1 is called multiple times, each time with its own instance DB, the structure of each DB will be the same but Each DB will contain data that is unique to the particular FB call it is assigned to.

- ☐ True
- ☐ False

42. Which declared variable is available in a Function Block and is not available in a Function?

- ☐ Temporary
- ☐ input
- ☐ output
- ☐ Static

43. See the EXHIBIT to answer this question.

Identify the timer based on the real time plot below

- ☐ Pulse
- ☐ On Delay
- ☐ Off Delay
- ☐ Accumulator

44. The PII stores the

- ☐ Status of outputs
- ☐ Status of inputs
- ☐ Relay ladder logic program
- ☐ CPU error codes

45. What can cause the Error LED to light on the CPU?

- ☐ Programming error
- ☐ Hardware configuration error
- ☐ Error interrupt from a signal module
- ☐ All of the above

46. The letters FB in block number indicate that it is a

- ☐ Function
- ☐ Function Block
- ☐ Organization Block
- ☐ Data Block

47. An example of an ANALOG input could be

- ☐ Temperature
- ☐ Flow
- ☐ Pressure
- ☐ All of the above

48. See the EXHIBIT to answer this question.

Which value(s) is/are valid for In1 and will result in a conversion to 9? 1. 9 2. 9.5 3. 9.0

- ☐ 1, 2, 3
- ☐ 1, 3
- ☐ 2, 3
- ☐ 1, 2

49. The input module

- ☐ Conditions the signal received from a field device
- ☐ Allows the programmer to input the program
- ☐ Allows the CPU to input messages to a CRT screen
- ☐ Provides inputs to motor controllers and similar field devices

50. The function of a PLC is to

- ☐ Amplify various weak signal sources
- ☐ Control high voltage outputs with a low voltage input
- ☐ Control the speed of motors
- ☐ Make logical decisions and provide outputs

51. Which instruction will “transfer” data from one memory area to another

- ☐ MUL\_R
- ☐ I\_DI
- ☐ CMP
- ☐ MOVE

52. Read/Write memory is often referred to as

- ☐ ROM
- ☐ EEPROM
- ☐ FLASH
- ☐ RAM

53.



Where can information such as the available memory, blocks and DI/O be found?

- ☐ Online & diagnostic
- ☐ Devices & networks
- ☐ Program info
- ☐ Program blocks

54. An instance data block is

- ☐ Created manually with the variables inserted, named and data types declared
- ☐ Associated with a function block and has the same structure as the interface area of the FB
- ☐ A template used to create multiple data blocks with the same structure
- ☐ Created by the system compiler as needed (allocated) and then deleted (de-allocated)

55. The address MB 0 contains how many bits?

56. Three dots ("...") beside an instruction's parameters

- ☐ Indicates that a parameters entry is optional
- ☐ Indicates there is more to the parameter that you can select
- ☐ Indicates that a parameter entry is required
- ☐ Indicates an illegal entry

57. In the PLC program, an instruction with an "I" or "%I" indicates data being read directly from the

- ☐ Process Image Output Table
- ☐ Input Module
- ☐ Process Image Input Table
- ☐ Marker Memory

58. The PLC monitors

- ☐ Inputs
- ☐ Outputs
- ☐ Data Blocks
- ☐ Internal Memory

59. In what sequence does the PLC perform the following tasks Perform internal operating system tasks (communication, self-test, etc.)

Task	Order (1 = first)	
<input type="text"/> Perform internal operating system tasks (communication, self-test, etc.)	1	4
<input type="text"/> Store the status of the inputs in the PII	2	2
<input type="text"/> Process the program instructions with access to PII and PIQ	3	3
<input type="text"/> Transfer the status from the PIQ to the outputs	4	1

60. What type of input module is used to connect a pushbutton or switch to the PLC?

- ☐ Analog
- ☐ Digital

61. The address of input 10 of a 16 point digital input module whose start address is %I 6.0 would be

- ☐ %I 6.10
- ☐ %I 6.9
- ☐ %I 7.1
- ☐ %I 7.2

62. A Siemens analog module would convert a 0-10VDC signal to a digital value of

- ☐ 0-32767
- ☐ 0-6C00h
- ☐ 0-27648
- ☐ Both b and c

63. See the EXHIBIT to answer this question.

If In1 is false and In2 is false what is Out1?

- ☐ True
- ☐ False

64. The "SET" and "RESET" coil instructions may be used to program a

- ☐ Start/Stop circuit
- ☐ Latch Circuit
- ☐ Seal-in Circuit
- ☐ All of the above

65. In a PLC program, an input or output is specified by it's

- ☐ Symbolic name
- ☐ Address
- ☐ All of the above
- ☐ None of the above

66. M is the label for the terminal used to connect the positive side of a DC supply or the Line side of an AC supply to a PLC or Signal module.

- ☐ True
- ☐ False

67. The central processing unit

- ☐ Looks at the inputs, makes the decision based on the program and sets the output
- ☐ Looks at the outputs, makes the decision based on the program and sets the inputs
- ☐ Serves only to store the program in memory
- ☐ Understands only ladder logic

68. The address of 3rd output of the first configured digital output module might be

- ☐ %Q 0.0
- ☐ %Q 0.1
- ☐ %Q 0.2
- ☐ %Q 0.3

69. A set of information in the PLC that is monitored in Portal is called what?

- ☐ Watch table
- ☐ Tag table
- ☐ Tag list
- ☐ Variable address table

70. The internal memory area that stores the status of the outputs is

- ☐ CPU
- ☐ PII
- ☐ HMI
- ☐ PIQ

71. Which of the following is a text based language?

- ☐ LAD
- ☐ FBD
- ☐ STL
- ☐ None of the above

72. The term "M-BIT" refers to

- ☐ Internal marker memory used as flags, control relays and clock bits
- ☐ The individual bits or channels of a signal module
- ☐ Master status bits of the S7-300 CPU
- ☐ The wiring terminal for components where "Mother earth" is connected

73. The letters FC in block number indicate that it is a

- ☐ Function

- ☐ Function Block
- ☐ Organization Block
- ☐ Data Block

74. The acronym PLC stands for

75. The word “bit” refers to

- ☐ Bi-lateral integration
- ☐ Binary digit
- ☐ Binary coded decimal
- ☐ None of the above

76. A normally closed (“notted”) contact with an “I” or “%I” address would be true when

- ☐ its status read from the Process Image Input Table is equal to 1
- ☐ it status read directly from the Input Module is equal to 0
- ☐ its status read from the Process Image Input Table is equal to 0
- ☐ none of the above

77. The first address of the first module in a PLC configuration might be

- ☐ %I 0.0
- ☐ %I 0.1
- ☐ %I 0.2
- ☐ %I 0.3

78. The PLC module responsible for performing logical operations is the

- ☐ Central processing unit
- ☐ Input module
- ☐ Output module
- ☐ Power supply

79. Step7 Hardware catalog can be updated by downloading and installing a Hardware Support Package.

- ☐ True
- ☐ False

80. Standard communication network/s available for connecting to a Siemens S7 PLC is/are

- ☐ MPI
- ☐ ProfiBus
- ☐ ProfiNet (industrial Ethernet)
- ☐ All of the above

81. A byte is how many bits?

- ☐ 4
- ☐ 8
- ☐ 14
- ☐ 16

82. The difference between an "On-Delay Timer" and a "Retentive On-Delay Timer" is that

- ☐ When the timer enable becomes false, the "On-Delay Timer" elapsed time resets
- ☐ When the timer enable becomes false, the "Retentive On-Delay Timer" elapsed time resets
- ☐ When the timer enable becomes false, the "Retentive On-Delay Timer" elapsed time is retained
- ☐ When the timer enable becomes false, the "On-Delay Timer" elapsed time resets AND the "Retentive On-Delay Timer" elapsed time is retained

83. The primary difference between an FC and an FB is that unlike an FB an FC has a memory block associated with it.

- ☐ True
- ☐ False

84. The default MPI/Profibus addresses for the PLC is typically 2 and for the HMI is 1.

- ☐ True
- ☐ False

85. What is a typical address for an analog input signal

- ☐ I 512.0
- ☐ Q 512
- ☐ PIW 512
- ☐ PQW 512

86. Where can information about a system event or error be found?

- ☐ Device configuration
- ☐ Diagnostic buffer
- ☐ Program log
- ☐ Program info

87. When using Profinet, the IP Address and what else is important to the device configuration? Choose all that apply.

- ☐ Node Number
- ☐ Mac Address
- ☐ Name

☐ Color

88. What type of input module is used for connecting a temperature sensor or potentiometer to the PLC?

- ☐ Analog
- ☐ Digital

89. A function has no permanent memory

- ☐ True
- ☐ False