HART Self-Assessment Quiz for Device Integration Workshop

1) What is the definition of Primary Variable (PV)?
   a. 4-20 mA Loop Current
   b. The Device Variable mapped to the first analog channel
   c. The first floating point parameter in a HART command
   d. The first numeric value returned by “Maximum Number of Device Variables” (Byte 12) of Command Zero.

2) What is the definition of a Device Variable?
   a. A single parameter read from a device by any HART Command
   b. A group of parameters providing process measurement information where one of its values changes as its connected process varies
   c. A single parameter read from a device by HART Command 3
   d. PV, SV, TV, QV

3) What is the definition of a Dynamic Variable?
   a. A single parameter in a field device which is always changing
   b. A group of parameters returned in Command 9
   c. It is a Device Variable which is assigned to an analog channel
   d. A single bit of a parameter read in command 48 status bytes

4) Which Commands must be supported by all HART Devices?
   a. All Universal commands: 0-30, 38 and 48
   b. 1 or more Common Practice: 32-121, 512-767 range
   c. 1 or more Device (manufacturer) Specific: 128-253 range
   d. All of the above

5) What is the minimum/maximum number of Dynamic Variables that a HART device supports?
   a. 0,1
   b. 0,4
   c. 1,1
   d. 1,4

6) What is the maximum (i.e., range) number of device variable codes that a HART device can support which expose its “Device Variables”?
   a. 4 (code 0-3)
   b. 4 (codes 1-4)
   c. 8 (codes 1-8)
   d. 250 (codes 0-249)
   e. None of the above

7) What is a Device Variable code?
   a. A number which defines the engineering units of Device Variable’s digital value
   b. An index number used to read the Device Variable value using Command 3
   c. A numerical address of a Device Variable which can be used to read its value and be mapped to a Dynamic Variable
   d. b and c

8) The “Device Variable Status” byte contains the following information
   a. “Device Family Specific Status” bits
   b. “Process Data Status” & “Limit Status” bits
   c. “More Status Available” bit
   d. a and b
   e. All of the above

9) Which are Device Variable Commands?
   a. 1-3, 14, 15, 34-37, 40, 43-47, 49
   b. 9, 33, 52-56, 79, 80-83
   c. 32-121
   d. None of the above

10) Which HART command(s) does not read a Device Variable nor Dynamic Variable value?
    a. Command 3
    b. Command 9
    c. Command 54
    d. Command 33

11) Identify a Device Variable “Classification”
    a. class DIAGNOSTIC
    b. Type of Process (i.e., Pressure, Level, Temperature, Flow)
    c. class DYNAMIC
    d. a and c

12) Which HART 7 commands are truncatable (number of response data bytes returned can be reduced) for all situations for a given HART registered Device Type and the DD needs to be modified to match?
    a. Command 3, 8, 9, 48, 115, 116, 119
    c. All Process Variable commands may be truncated
    d. Any command may be truncated