Fundamentals of Motor Control Quiz

1. Figure I above is a typical of:
   A. 2—wire control circuit
   B. 3—wire control circuit
   C. Circuit using maintain Start/Stop Pushbuttons
   D. Thermostat controlled HVAC circuit

2. Figure I above is an illustration of:
   A. separate control circuit voltage source
   B. Coil voltage common with line voltage
   C. Control Power Transformer circuit
   D. Reduced voltage auto-transformer control

3. The device between terminal 95 and 96 in Figure I is a:
   A. Normally closed contact on contact “M’
   B. Normally open alarm circuit contact
   C. Normally closed contact on the overload relay
   D. Normally open holding circuit interlock (seal-in)

4. The device between terminal 13 and 14 in Figure I is a:
   A. Normally closed contact on contactor “M’
   B. Normally open alarm circuit contact
   C. Normally closed contact on the overload relay
   D. Normally open holding circuit interlock (seal-in)

5. The purpose of the optional pilot light in Figure I is:
   A. Indicate a motor running condition
   B. Indicate power is applied to the line side
   C. Indicate an overload trip condition
   D. Indicate a short-circuit has occurred

6. An enclosure to be used indoors within a wood working facility (dusty but not Explosion Proof) requires which of the following ratings:
   A. NEMA Type 4
   B. NEMA Type 1
   C. NEMA Type 3R
   D. NEMA Type 12
7. Figure II shows which of the following:
   A. Combo Starter with MCP
   B. Manual Controller with overload protection
   C. Non-automatic disconnect and starter
   D. Fusible switch, contactor and overload relay

8. Which of the following pilot devices are most likely to be applied along with HVAC thermostat controls?
   A. Momentary Start/Stop pushbuttons
   B. Spring Return from ‘Start,’ 2-position selector switch
   C. Twist and pull-to-release E-stop
   D. 3-position H-O-A

9. Select the statement that is false from the following:
   A. Swapping any two-phases of power will reverse a 3-phase motor.
   B. Manual starters can be applied when a remote starting station is required
   C. The main difference between an across-the-line starter and an across-the-line combination
      starter is the addition of: a disconnect device
   D. Only one overload is required in a reversing starter

10. A customer needs a starter for a 10HP at 460 volts in a general-purpose enclosure. In order to
    properly select a starter you will need to verify with the customer which critical bit of information: (select 1)
    A. The FLA from the motor nameplate
    B. The LRA from the motor nameplate
    C. The source of coil voltage
    D. If a normally closed auxiliary contact is required for 3-wire control

Bonus: Which one of the following statements best describes the set of contacts marked 21 and 22 of a
     CS7-22E-120 control relay?
    A. A normally open contact in the first position
    B. A normally closed contact in the first position
    C. A normally open contact in the second position
    D. A normally closed contact in the second position