API-SIEE Mock Exam

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Question 1

Question Type: MultipleChoice

According to API 541, during a witness or observed test of a 500 hp kW induction motor, the purchaser shall have the right to observe all the following, which may occur due to the expected or unexpected part or event of the test except:

Options:

A- dismantling of the motor.
B- inspection of the motor.
C- disassembly of the rotor.
D- reassembly of the motor.

Answer:

C

Explanation:

The correct answer isC. disassembly of the rotor. In API 541 witness or observed testing practice for large induction motors, the purchaser has the right to observe activities that may become necessary as part of the test process, includingdismantling of the motor, inspection of the motor, and reassembly of the motor. These actions are directly related to investigating test issues, verifying construction, checking condition after a test event, and confirming that the motor is properly restored following inspection.

The rotor itself is normally treated as a major internal component of the motor, butdisassembly of the rotoris not a standard purchaser observation right described in the same way. A rotor may beremovedor examined if necessary, but ''disassembly of the rotor'' suggests taking apart the rotor assembly itself, which is not the expected wording or normal scope of witness rights during standard API 541 test observation. For source inspection purposes, this distinction matters because inspectors must recognize the difference between observation of motor-level teardown and reassembly versus unnecessary or nonstandard internal component disassembly. Therefore,Cis the exception.

Question 2

Question Type: MultipleChoice

Which statement BEST reflects the guide's discussion of process packaged skids?

Options:

A- All electrical and control equipment is normally mounted directly on the skid
B- Most electrical and control equipment is often located off-skid in an unclassified location
C- Hazardous-area certification is not required for field devices
D- Process skids cannot include instrumentation wiring

Answer:

B

Question 3

Question Type: MultipleChoice

The Arc Flash PPE is required for:

Options:

A- work on control circuits with exposed electrical conductors below 120 VAC.
B- removal of covers on properly installed wireways, junction boxes, and cable trays.
C- voltage-testing in ac systems with work on energized conductors.
D- insulated cable examination with no manipulation of cable.

Answer:

C

Explanation:

The correct answer isC. Arc flash PPE is required when a task exposes a worker to the possibility of anarc flash hazard, especially when testing or working onenergized conductors or circuit parts.Voltage testing in AC systemson energized equipment is a recognized task that can place the worker within the arc flash boundary, because probes, tools, or inadvertent contact can initiate an arcing fault. For this reason, proper arc-rated clothing and related PPE are required whenever the task assessment identifies arc flash exposure.

The other options describe tasks that are generally considered lower risk when performed under

normal conditions. Work oncontrol circuits below 120 VACdoes not usually present the same arc flash risk level.Removing coverson properly installed wireways, junction boxes, and cable trays is not automatically an arc flash task unless it exposes energized parts and abnormal conditions exist.Insulated cable examination with no manipulation of the cableis also typically not treated as an arc flash exposure task.

From a source inspection and electrical safety perspective, the key principle is thatPPE selection is based on exposure to energized conductors and the likelihood of initiating an arc event, which makesCthe verified best answer.

Question 4

Question Type: MultipleChoice

A source inspector reviewing a control panel should verify wiring against which project document as a core inspection activity?

Options:

A- Employee training log
B- One-line wiring diagram
C- Freight invoice
D- Packing list only

Answer:

B

Question 5

Question Type: MultipleChoice

Which of the following tools is used for inspection of coating?

Options:

A- Dry film thickness DFT
B- Digital surface profile gauge
C- Surface profile replica tape

D- Ultrasonic thickness meter

Answer:

A

Explanation:

The correct answer isAbecause the most common and direct inspection instrument used for acoating after applicationis thedry film thickness DFT gauge. In source inspection and quality surveillance, coating verification typically includes checking whether the applied paint or protective coating has achieved the specified thickness range. That is a fundamental acceptance point because coating that is too thin may fail prematurely, while coating that is too thick may crack, blister, or cure improperly. In practical inspection language, the option says ''Dry film thickness DFT,'' but it clearly refers to theDFT measuring gauge/toolused by inspectors.

The other options are related but not the best answer. Adigital surface profile gaugeandsurface profile replica tapeare mainly used to evaluate thesurface profile of blasted steel before coating, not the final dry coating thickness itself. Anultrasonic thickness meteris generally used for base material wall thickness measurement, not routine paint-coating inspection. The API guide covers source inspection and surveillance of manufacturing activities and stresses verification against specifications, records, and inspection points for covered equipment.

Question 6

Question Type: MultipleChoice

The cosine of the difference in phase angle between voltage and current is:

Options:

A- power factor.
B- real power.
C- apparent power.
D- mho.

Answer:

A

Explanation:

The correct answer isA, power factor. In AC electrical systems, the phase relationship betweenvoltageandcurrentis an important indicator of how effectively electrical power is being used. Thecosine of the phase angle differencebetween voltage and current is called thepower factor. Mathematically, power factor expresses the ratio ofreal power, which performs useful work, toapparent power, which is the total power supplied to the circuit. When voltage and current are in phase, the cosine value is 1 and the power factor is unity. When they are out of phase due to inductive or capacitive effects, the power factor becomes less than 1.

From a source inspection and quality surveillance standpoint, understanding power factor is important when reviewing electrical test data, motor performance, transformer loading characteristics, and system efficiency information.Real poweris measured in watts,apparent powerin volt-amperes, andmhois a unit of conductance, so none of those terms define the cosine of the phase angle itself. Therefore, the correct technical term for this cosine relationship ispower factor.

Question 7

Question Type: MultipleChoice

Apparent power is measured in:

Options:

A- mhos.
B- vars.
C- volt-amperes.
D- watts.

Answer:

C

Explanation:

The correct answer isCbecauseapparent powerin an AC electrical system is measured involt-amperes VA. Apparent power represents the total electrical power supplied to a circuit and is the combination ofreal powerandreactive power. Real power, which performs useful work such as turning a motor shaft or producing heat, is measured inwatts. Reactive power, which supports magnetic and electric fields in inductive or capacitive equipment, is measured invars. Apparent

power is therefore the vector sum of these two and is expressed inVAor larger units such askVAandMVA.

The other options are incorrect for this reason.Mhosis a unit of conductance, not power.Varsmeasure reactive power only.Wattsmeasure true or active power only. In source inspection and quality surveillance of electrical equipment, understanding these distinctions is important when reviewing motor data sheets, transformer ratings, switchgear load data, and electrical test reports. Equipment such as transformers and generators are commonly rated inkVA or MVAbecause their thermal and current-carrying capability is tied toapparent power, makingvolt-amperesthe correct answer.