(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): SECTION 1: Machinery & Equipment Systems Questions 1-10

As spray nozzle tips wear, the chemical application rate that the nozzles are capable of applying _____?
(A): Increases
(B): Decreases
(C): Stays the same
(D): The nozzles should not wear down because they are ceramic
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): How much torque in ft-lbs is applied to a head bolt by applying 120 pounds of force on the end of a wrench 16 inches in length?
Note: Torque in ft-lbs = (Force in pounds) x (Length of lever arm in feet) 1 ft = 12 inches
(A): 160 ft-lbs
(B): 720 ft-lbs
(C): 1,540 ft-lbs
(D): 1,920 ft-lbs
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): A tractor's power takeoff produces 150 horsepower and turns at 1000 revolutions per minute. Approximately how much torque, in foot-pounds, can this PTO produce?
Note: Torque = (PTO Horsepower x 5252) / (Revolution per Minute)
(A): A. 324.5 foot-pounds
(B): 656.5 foot-pounds
(C): 787.8 foot-pounds
(D): 1245.5 foot-pounds
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What is a MAJOR difference in using hydraulic fluid as compared to air pressure to transfer force
(A): Air pressure needs to circulate through a circuit.
(B): Hydraulic fluid depends on the use of pneumatics.
(C): Hydraulic fluid can be compressed, but air can not.
(D): Hydraulic fluid cannot be compressed, but air can be.
(Correct): D

(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): The theoretical field capacity of a machine such as a windrower or forage harvester is a function of which two factors?
(A): Travel speed and working width
(B): Machine rating and velocity
(C): PTO speed and angle
(D): Machine weight and horsepower
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Which of the following is not a positive displacement pump?
(A): Roller
(B): Centrifugal
(C): Piston
(D): Diaphragm
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): A power take off (PTO) shaft rated for 1000 RPM's comes from the factory with how many splines?
(A): 6
(B): 7
(C): 14
(D): 21
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Bio-diesel is a mixture of:
(A): Gasoline and #2 diesel fuel
(B): Ethanol and diesel fuel
(C): Diesel fuel and processed soybean oil
(D): Butane and diesel fuel
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0

(Random answers): 0
(Question): Sanitary pumps are used to transport and meter solutions, slurries, and colloids of food and agricultural materials in operations where cleanliness is desired or mandated. Which of the following pumps have an expanding cavity on the
suction side of the pump and a decreasing cavity on the discharge side?
(A): Centrifugal
(B): Airlift
(C): Positive displacement
(D): Jet
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Dilute mixtures of chlorine bleach and water are a common and cost-effective method for sanitizing equipment in food processing operations. Most operations, unless the produce is very dirty, will not need a sanitizer concentration greater than _____ ppm total chlorine to achieve the desired sanitizing effect.
(A): 200
(B): 275
(C): 325
(D): 350
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Section 2: Electrical Systems Questions 11-20

The continuous load supplied by a circuit should not exceed 80% of the branch circuit rating. After how many hours of continuous operation is a load considered to be a continuous load?
(A): One-half hour
(B): One hour
(C): Two hours
(D): Three hours
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Under normal operating conditions, the on/off electric motor magnetic switch contacts are closed by a:
(A): Capacitors
(B): Repulsion pulse
(C): Inductance purge

(D): Electro-magnet
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): When selecting conductor size for electrical circuits, the smaller the AWG number, the:
(A): Smaller the current-carrying capacity
(B): Larger the current-carrying capacity
(C): Thinner the insulation
(D): Smaller the cross-sectional area
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Which of the following conductors are primarily used in conduit and cable trays for services, feeders, and branch circuits in commercial or industrial applications as specified in the National Electrical Code¬Æ2?
(A): Type NM Romex
(B): Type THHN
(C): Type UF
(D): Type AC
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): When installing a service mast above a roof line for single phase or 3 phase power must be a minimum of _____ in dia. and made of galvanized steel conduit.
(A): 2"
(B): 3"
(C): 4"
(D): 4 1/2"
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Which of the following classifications of wire can be buried directly in the soil?
(A): T
(B): THHN
(C): TW
(D): UF

(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): The overload protection of a branch circuit is determined by the amount of _____ that the conductor will safely carry.
(A): Voltage
(B): Cycles
(C): Amperage
(D): Hertz
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): A new single-phase service connection for an installation of one electrical meter shall have a current carrying capacity of not less than_____amperes
(A): 80
(B): 100
(C): 150
(D): 200
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What is the purpose of a thermal circuit breaker?
(A): Is a ground fault protection device installed in a consumer unit (CU) or distribution board (DB) primarily to protect against electric shocks
(B): Trips when a power surge occurs in the electrical wiring
(C): If an overload occurs, the filament in the breaker melts, stopping the flow of electricity.
(D): A protective device that breaks a circuits path when the temperature gets too high
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Which of the following formulas are used to determine the relationship of voltage, resistance, and current?
(A): Homer's Law
(B): Newton's 2nd Law
(C): Ohm's Law
(D): Bernelli's Law

(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Section 3: Energy Systems Questions 21 - 30

The most common method of increasing valve clearance on a small, air-cooled engine is to:
(A): Knurl the valve guide
(B): Grind the valve stem end
(C): Grind the valve face
(D): Ream the valve guide
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): In the four-cycle engine, which of the following strokes allows for the fuel and air mixture to be pulled into the cylinder?
(A): Intake
(B): Compression
(C): Power
(D): Exhaust
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Valve stems are held in alignment by a:
(A): Valve spring
(B): Cylinder block
(C): Valve sleeve
(D): Valve guide
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): When measuring valve clearance in a small gas engine, the cylinder should be set at _____ for proper adjustment.
(A): ¬º" before top dead center on the compression stroke
(B): ¬º" after top dead center on the compression stroke
(C): ¬º" before top dead center on the exhaust stroke
(D): ¬º" after top dead center on the exhaust stroke
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): The middle ring on the piston is called the:
(A): Compression ring
(B): Keystone ring
(C): Oil ring
(D): Centering ring
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): A 10 horsepower single cylinder engine is operating at 5000 feet above sea level. What approximate horsepower is produced by the engine if the engine's power is decreased 2.5 percent for each 1000 feet of elevation above sea level?
(A): 6.65 hp
(B): 7.52 hp
(C): 8.75 hp
(D): 9.62 hp
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Each cylinder in a six cylinder engine has a diameter of 3.6 inches and a piston stroke of 5.7 inches. What is the total displacement of the engine in liters? Answer must be in liters.
Hints: 1 liter = 61 cubic inches
Area of a cylinder bore in cubic inches = (œÄ) x (radius2)
œÄ = 3.14 radius = (diameter √∑ 2)
Volume displacement of a single cylinder in cubic inches = (length of piston stroke in inches) x (the area of the cylinder bore in square inches)
(A): 3.7 liters
(B): 5.7 liters
(C): 11.7 liters
(D): 21.7 liters
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What form of energy is the desired output of a wind turbine?
(A): Mechanical Energy
(B): Electrical Energy
(C): Kinetic Energy

(D): Solar Energy
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Which of these is not a renewable source of energy?
(A): Wind
(B): The sun
(C): Natural gas
(D): Ocean tidal energy
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): A solar cell converts _____.
(A): Heat energy into light energy
(B): Solar energy into light energy
(C): Heat energy into electrical energy
(D): Solar energy into electrical energy
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Section 3: Structural Systems Questions 31 - 40

Which of the following terms is used to describe the continuous running time for which a welder was designed?
(A): Duty cycle
(B): Duty rating
(C): Running specification
(D): Ambient cycle
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Which of the following gas types would not be considered as acceptable for use as a shielding gas in MIG or TIG welding applications?
(A): Oxygen
(B): Argon
(C): Carbon Dioxide
(D): Helium
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): As a result of its' ability to dissipate heat rapidly, most welding tips used in the Oxy/Fuel process are made of which of the following metal types?
(A): Steel
(B): Aluminum
(C): Copper
(D): Brass
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): n the Oxy/Fuel welding process, what type of flame would be characteristic of a slight excess of oxygen?
(A): Oxidizing flame
(B): Neutral flame
(C): Carburizing flame
(D): None of the above
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What electrical device is a necessary component of an electrical welding machine and is used to step up or step down the voltage and amperage as needed to perform welding operations?
(A): Alternator
(B): Generator
(C): Rheostat
(D): Transformer
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What is the maximum allowable hose pressure in pounds per square inch (psi) for acetylene in oxy/acetylene cutting equipment?
(A): 5 psi
(B): 15 psi
(C): 45 psi
(D): 90 psi
(Correct): B
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What is the name of the automatic plumbing valve that allows fluid to flow in only one direction, but prevents the fluid from draining back when the line is not pressurized?
(A): Stop-and-waste valves
(B): Gate valves
(C): Compression hose faucets
(D): Check valves
(Correct): D
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): The lens shade numbers recommended for SMAW and GMAW welding are:
(A): 10, 11, 12
(B): 3, 4
(C): 14, 16
(D): 6, 8
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Concrete should reach its design compressive strength in how many days?
(A): 3
(B): 7
(C): 28
(D): 32
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): When concrete is held under sustained stress, the strain will continue to increase with time. Which of the following defines this time-dependent phenomenon?
(A): Shrinkage
(B): Temperature expansion
(C): Creep
(D): Contraction
(Correct): C
(Points): 1

(Type): multiplechoice

(Category): 0
(Random answers): 0
(Question): Section 5: Environmental and Natural Resource Systems Questions 41 - 50

Because higher temperatures improve manure decomposition, anaerobic lagoons work best during what season of the year?
(A): Summer
(B): Fall
(C): Spring
(D): Winter
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): As a general rule, the _____ type of spray nozzle is most preferred for broadcast application of contact herbicides, for an even uniform spray pattern.
(A): Solid cone
(B): Hollow cone
(C): Flat fan
(D): Flood type
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): When calibrating sprayers for uniformity, it is best to catch and record the number of ounces sprayed by each nozzle over a _____ second period, then replace any nozzle whose output differs more than _____ percent from the average of all nozzles on the sprayer boom.
(A): 15; 5
(B): 20; 10
(C): 25; 15
(D): 30; 20
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Soil compaction is the:
(A): Amount of salt in a soil
(B): Ability for water to penetrate the pores in the soil
(C): Physical consolidation of the soil by an applied force that destroys structure and reduces porosity.
(D): Force that makes the soil stick together
(Correct): C

(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Which of the following furrow openers are preferable for use when trash accumulation is a problem?
(A): Double-disk
(B): Chisel-boot
(C): Shoe-type
(D): None of the above
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What hazardous pollutant is often found in fish?
(A): Benzene
(B): Arsenic
(C): Mercury
(D): Asbestos
(Correct): C
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What primary air pollutant is produced when there is insufficient oxygen for complete combustion of a fossil fuel?
(A): Carbon dioxide
(B): Nitrogen dioxide
(C): Carbon monoxide
(D): Sulfur dioxide
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): What was the result when coal-fired power plants built taller smoke stacks?
(A): The solution to pollution was dilution
(B): Acid rain decreased
(C): Acid deposition spread over hundreds of miles
(D): Emissions were eliminated by 50%
(Correct): C
(Points): 1

(Type): multiplechoice

(Category): 0
(Random answers): 0
(Question): Which pollutant reduces the rate of growth of plants?
(A): Ozone
(B): Carbon monoxide
(C): Sulfur dioxide
(D): Nitrogen dioxide
(Correct): A
(Points): 1

(Type): multiplechoice
(Category): 0
(Random answers): 0
(Question): Anaerobic digestion of animal wastes produces what?
(A): Methane
(B): Carbon dioxide
(C): Hydrogen sulfide
(D): All of the above
(Correct): D
(Points): 1

(STARTIGNORE)
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