AFNS TEST 9,10 September 2025

Question: Angular velocity at 12 rpm?
Correct Answer: 1.26 rad/s
Explanation: ω = (12 × 2π) / 60 = 1.26 rad/s.
Related Question 1: How do you convert rpm to rad/s?
Correct Answer: Multiply rpm by 2π/60.
Related Question 2: What is the angular velocity of a wheel rotating at 60 rpm?
Correct Answer: 6.28 rad/s

AFNS ACDEMIC NOTES

ARMED FORCES NURSING SERVICES

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یہ نوٹس صرف تعلیمی مقاصد کے لیے تیار کیے گئے ہیں اور ان کا مواد مکمل طور پر ہماری محنت اور علم پر مبنی ہے۔ یہ ڈیمو نوٹس ہیں اور ہماری لیکچر سلائیڈز پر مبنی ہیں۔ ان نوٹس کو کسی بھی صورت میں نقل کرنا یا بغیر اجازت استعمال کرنا غیر قانونی اور غیر اخلاقی ہے۔ تمام حقوق محفوظ ہیں۔

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اگر آپ آرمی، نیوی یا ایئر فورس کی کسی بھی برانچ کے امتحان کی تیاری کرنا چاہتے ہیں تو ہم سے رابطہ کریں: 03066892208

AFNS TEST 9,10 September 2025

Question: What happens when dielectric is placed in a capacitor?
Correct Answer: Capacitance increases
Explanation: Dielectric reduces effective field, increasing stored charge for same voltage.
Related Question 1: What is the effect of inserting a dielectric in a charged capacitor?
Correct Answer: It increases the stored charge.
Related Question 2: What happens to the voltage across a capacitor when a dielectric is inserted?
Correct Answer: The voltage decreases for a constant charge.

AFNS TEST 9,10 September 2025

Question: Ohm's law with R = 10 Ω, I = 2 A gives V = ?
Correct Answer: 20 V
Explanation: V = IR = 10 × 2 = 20.
Related Question 1: What happens to the current if the resistance increases while the voltage remains constant?
Correct Answer: The current decreases.
Related Question 2: What is the unit of resistance?
Correct Answer: Ohm

AFNS TEST 9,10 September 2025

Question: Which solid has weak intermolecular forces?
Correct Answer: I_2
Explanation: Iodine is held by weak van der Waals forces compared to H_2O, sugar, or graphite.
Related Question 1: What type of intermolecular forces exist in H_2O?
Correct Answer: Hydrogen bonding
Related Question 2: What is an example of a solid held by metallic bonds?
Correct Answer: Copper

AFNS TEST 9,10 September 2025

Question: Hydrate stability order?
Correct Answer: Formaldehyde > Acetaldehyde > Acetone
Explanation: Smaller carbonyl carbon stabilizes hydration more effectively.
Related Question 1: Which aldehyde has the lowest hydration stability?
Correct Answer: Acetone
Related Question 2: What is the role of water in the formation of hydrates?
Correct Answer: Water adds to the carbonyl carbon, forming a hydrate.

AFNS TEST 9,10 September 2025

Question: Oxidation of primary alcohol with PCC forms?
Correct Answer: Aldehyde
Explanation: PCC stops oxidation at the aldehyde stage without forming acids.
Related Question 1: What does PCC stand for?
Correct Answer: Pyridinium chlorochromate
Related Question 2: What does oxidation of a secondary alcohol form?
Correct Answer: Ketone

AFNS TEST 9,10 September 2025

Question: Ethanol + conc. H_2SO_4 at 170°C produces?
Correct Answer: Ethene
Explanation: Concentrated H_2SO_4 at high temperature dehydrates ethanol to ethene.
Related Question 1: What is the mechanism of dehydration of ethanol?
Correct Answer: Elimination (E1) mechanism
Related Question 2: What is produced when ethanol undergoes complete oxidation?
Correct Answer: Acetic acid

AFNS TEST 9,10 September 2025

Question: Kolbe's synthesis gives?
Correct Answer: Salicylic acid
Explanation: Phenol reacts with CO_2 under pressure to form salicylic acid.
Related Question 1: What is salicylic acid used for?
Correct Answer: It is used to make aspirin.
Related Question 2: What is the starting material for Kolbe's synthesis?
Correct Answer: Phenol

AFNS TEST 9,10 September 2025

Question: Oxidation of toluene produces?
Correct Answer: Benzoic acid
Explanation: Side chain oxidation of the aromatic methyl group yields benzoic acid.
Related Question 1: What is the catalyst used for the oxidation of toluene?
Correct Answer: Potassium permanganate ($KMnO_4$)
Related Question 2: What is the functional group of benzoic acid?
Correct Answer: Carboxyl group (-COOH)

AFNS TEST 9,10 September 2025

Question: Aldol condensation occurs between?
Correct Answer: Aldehydes/ketones with α-hydrogen
Explanation: The α-hydrogen allows enolate formation, essential for the aldol reaction.
Related Question 1: What type of bond is formed during aldol condensation?
Correct Answer: Carbon-carbon bond
Related Question 2: What product is formed in aldol condensation?
Correct Answer: β-hydroxy aldehyde or ketone

AFNS TEST 9,10 September 2025

Question: Which process occurs in mitochondria?
Correct Answer: Cellular respiration (Krebs cycle + ETC)
Explanation: Mitochondria are the site of aerobic energy production.
Related Question 1: What is the final electron acceptor in the electron transport chain?
Correct Answer: Oxygen
Related Question 2: Where does glycolysis occur?
Correct Answer: In the cytoplasm

AFNS TEST 9,10 September 2025

Question: What is the critical temperature of a substance?
Correct Answer: The temperature above which a substance cannot exist as a liquid, regardless of pressure.
Related Question 1: What happens to the substance above its critical temperature?
Correct Answer: It becomes a supercritical fluid.
Related Question 2: What is the relationship between pressure and boiling point?
Correct Answer: As pressure increases, the boiling point also increases.

AFNS TEST 9,10 September 2025

Question: What is the function of a catalyst in a chemical reaction?
Correct Answer: It speeds up the reaction without being consumed.
Related Question 1: How does a catalyst affect the activation energy?
Correct Answer: It lowers the activation energy of the reaction.
Related Question 2: Can a catalyst be reused?
Correct Answer: Yes, because it is not consumed in the reaction.

AFNS TEST 9,10 September 2025

Question: What is a magnetic field?
Correct Answer: A region around a magnet where magnetic forces are exerted.
Related Question 1: What produces a magnetic field?
Correct Answer: Moving electric charges or current
Related Question 2: What is the unit of magnetic field?
Correct Answer: Tesla (T)

AFNS TEST 9,10 September 2025

Question: What is the difference between a vector and a scalar quantity?
Correct Answer: A vector has both magnitude and direction, while a scalar has only magnitude.
Related Question 1: What is an example of a vector quantity?
Correct Answer: Velocity
Related Question 2: What is an example of a scalar quantity?
Correct Answer: Temperature

AFNS TEST 9,10 September 2025

Question: What is the function of an electric field?
Correct Answer: It exerts a force on charged particles, causing them to move.
Related Question 1: What is the unit of electric field?
Correct Answer: Newton per coulomb (N/C)
Related Question 2: What creates an electric field?
Correct Answer: A charged particle

AFNS TEST 9,10 September 2025

Question: Which alkane gives aldehyde on oxidation?
Correct Answer: Methane
Explanation: Methane on controlled oxidation forms formaldehyde (methanal), the simplest aldehyde.
Related Question 1: Which compound is formed when ethane undergoes oxidation?
Correct Answer: Ethanol
Related Question 2: What happens when methane is oxidized further?
Correct Answer: It forms formic acid.

AFNS TEST 9,10 September 2025

Question: Esterification occurs between which two compounds?
Correct Answer: Alcohol + Carboxylic acid
Explanation: Esterification is the reaction of an alcohol with a carboxylic acid, producing an ester and water.
Related Question 1: What type of acid is involved in ester formation?
Correct Answer: Carboxylic acid
Related Question 2: Which catalyst is commonly used in esterification?
Correct Answer: Sulfuric acid (H_2SO_4)

AFNS TEST 9,10 September 2025

Question: NAD is not a nucleotide.
Correct Answer: True
Explanation: NAD is a coenzyme made of nucleotides but itself is not a single nucleotide.
Related Question 1: What are the components of NAD?
Correct Answer: Nicotinamide, adenine, and ribose
Related Question 2: What is the role of NAD in cellular metabolism?
Correct Answer: It acts as an electron carrier.