

CSIR NET 2017 DECEMBER

278. Choose the correct statement from the following:

- (a) Disulfide bonds in a 20-residue peptide can be formed only if the cysteines are adjacent to each other
- (b) The amino acid isoleucine has only one chiral center
- (c) Both bases and sugar contribute to chirality of nucleic acids
- (d) The pI of aspartic acid is less than that of glutamic acid

279. Choose the INCORRECT statement from the following:

- (a) Allosteric enzymes function through reversible non-covalent binding of allosteric modulators or effectors
- (b) Monoclonal antibodies that catalyze hydrolysis of esters or carbonates can be produced
- (c) Enzymes are not inhibited irreversibly by heavy metals such as Hg²⁺, Ag⁺
- (d) Acid phosphatases hydrolyze biological phosphate esters at pH 5.0

280. What is the effect of sudden increase in the levels of ATP and citrate on an erythrocyte undergoing glycolysis?

- (a) It inhibits glycolysis
- (b) It stimulates glycolysis
- (c) The rate of glycolysis remains unaltered
- (d) The rate of glycolysis increases gradually

281. The ϕ and ψ values of a strand composed of all D-amino acids will mainly occupy which quadrant in the Ramachandran plot?

- (a) Upper left
- (b) Upper right
- (c) Lower left
- (d) Lower right

282. In a signaling event, binding of an extracellular ligand activates G-protein coupled receptor (GPCR) that eventually activates phospholipase C-. Which one of the following statements truly reflects the function of phospholipase C-?

- (a) Phospholipase C-converts PI (3, 4, 5) P, to PI(4,5)P₂
- (b) Phospholipase C-converts PI (4) P to PI (4, 5) P₂
- (c) Phospholipase C-converts PI (4, 5) P₂ to diacylglycerol and IP₃
- (d) Phospholipase C-converts PI (5) P to PI (4, 5) P₂

283. Match the coenzymes in column I serving as transient to carriers of specific atoms or functional groups in column II:

Column I	Column II
A. Coenzyme A	(i) Aldehyde groups
B. Flavin adenine dinucleotide	(ii) Amino groups
C. Pyridoxal phosphate	(iii) Hydrogen atoms
D. Thiamine pyrophosphate	(iv) Acyl groups

Select correct combinations from the options below:

- (a) A-(iv), B-(iii), C-(ii), D-(i)
- (b) A-(iii), B-(iv), C-(i), D-(ii)
- (c) A-(i), B-(ii), C-(iii), D-(iv)
- (d) A-(ii), B-(i), C-(iv), D-(iii)

284. Out of the statements mentioned below:

- A. L-threonine and L-allo-threonine interact identically with plane polarized light
- B. Van der Waals interactions are always attractive
- C. Poly(pro) II-helix is not stabilized by intermolecular hydrogen bonds

D. The folding of a protein is associated with an overall positive change in free energy and negative change in entropy

E. Lysine acetylation on histone is associated with loosening of the histone complex from DNA

Which of the following combinations is CORRECT?

(a) A and C

(b) B and D

(c) C and E

(d) D and E

285. The following statements are made:

A. α and β anomers of glucose are interconvertible and the ratio of their abundance is 1:2, respectively

B. Single chain lipids (C14) form micelles and double chain lipids form bilayers in water

C. Replacement of a canonical Watson-Crick pairing by Wobble base pairs does not change

D. Major of DNA readily accommodates

the surface properties in RNA several groove common structural motifs in protein

E. Replacement of a non-canonical Watson-Crick than the minor groove pairing by Wobble base pairs changes the surface properties in I-NNA

Which one of the following combinations is

INCORRECT?

(a) A and D

(b) B and E

(c) C and E

(d) B and C

286. From the following statements

- A. Enzymes enhance reaction rates by a factor of 2 to 10
- B. The activation energy for a reaction is lowered by enzymes
- C. The interactions between enzymes and substrates are hydrogen bonding, hydrophobic and ionic
- D. Substrate concentration does not affect the rate of enzyme catalyzed reactions

Pick the combination with all INCORRECT statements.

- (a) A, B
- (b) B, C
- (c) A, C
- (d) A, D

287. Match the chemical agents that interfere in the oxidative phosphorylation process with their respective mode of action.

Column I	Column II
A. Antimycin A	(i) Inhibits FO component of ATP synthase
B. Oligomycin	(ii) Disrupts inner mitochondrial membrane potential
C. Valinomycin	(iii) Prevents electron transport from Fe/S cluster to ubiquinone
D. Rotenone	(iv) Blocks electron transfer from cytochrome b to cytochrome C1
	(v) Inhibits adenine nucleotide translocase

Choose the correct combination from below:

- (a) A-(ii), B-(iv), C-(v), D-(iii)
- (b) A-(iv), B-(i), C-(ii), D-(iii)
- (c) A-(i), B-(iii), C-(ii), D-(v)

(d) A-(v), B-(ii), C-(iv), D-(ii)

288. A polymer is synthesized from an achiral amino acid. Conformation of the polymer can be investigated by the following techniques:

A. Fiber diffraction

B. Nuclear magnetic resonance spectroscopy

C. Circular dichroism spectroscopy

D. Differential scanning calorimetry

Choose the combination which would indicate that the polymer adopts a helical conformation.

(a) A,C

(b) B, D

(c) A,B

(d) C,D