

## CSIR NET 2018 JUNE

289. both Which cis- one and of trans the following conformation? peptides can coexist in

- (a) Ala-Ala-CONH<sub>2</sub>
- (b) Pro-Gly-CONH<sub>2</sub>
- (c) Asn-Gly-CONH<sub>2</sub>
- (d) Val-Pro-CONH<sub>2</sub>

290. Which one of the following statements is NOT correct?

- (a) Allosteric enzymes do not obey Michaelis-Menten kinetics
- (b) The free-energy change provides information about the spontaneity but not rate of a reaction
- (c) Competitive and non-competitive inhibitions are kinetically indistinguishable
- (d) A  $K_{cat}/K_M$  (s<sup>-1</sup>) of  $\sim 2 \times 10^8$  for an enzyme indicates that the value is close to diffusion controlled rate of encounter

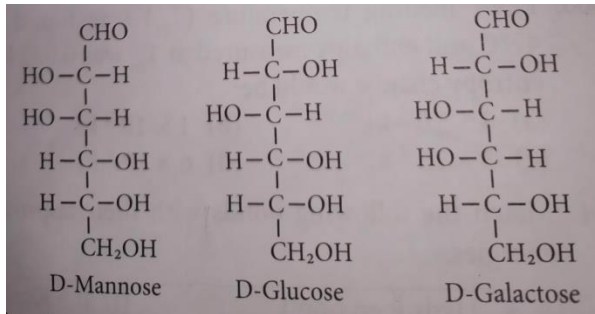
291. Which one of the following pairs of amino acids are glucogenic and ketogenic in nature?

- (a) Alanine and lysine
- (b) Lysine and leucine
- (c) Isoleucine and phenylalanine
- (d) Aspartate and lysine

292. The (OH<sup>-</sup>) of 0.1 N HCL solution is:

- (a) 10<sup>-14</sup> M
- (b) 10<sup>-13</sup> M
- (c) 10<sup>-12</sup> M
- (d) 10<sup>-7</sup> M

293. Following are structures of stereoisomers of aldohexoses which differ in the stereochemistry:



Based on above structures, following information was given below:

- A. D-glucose and D-mannose are epimers because they differ in the stereochemistry at C-2 position
- B. D-glucose and D-galactose are epimers because they differ in the stereochemistry at C-4 position
- C. D-mannose and D-glucose are epimers because they differ in the stereochemistry at C-3 position
- D. D-galactose and D-glucose are epimers because they differ in the stereochemistry at C-5 position

Choose one of the correct combinations of above statements

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

294. Following statements are made related to protein structure:

- A. The hydrogen bonding patterns between the CO and NH groups are  $n \rightarrow n + 3$  in  $\alpha$ -helix;
- $n \rightarrow n + 4$  in 310 helix and  $n + 5$  in  $n$  helix

B. In a  $\beta$  turn, there are 10 atoms between the hydrogen bond donor and acceptor

C. In a turn, there are 6 atoms between the hydrogen bond donor and acceptor

D. Parallel sheets have evenly spaced hydrogen bonds, which bridge the strands at an angle

Which one of the following combinations of above are correct?

(a) A and C

(b) A and B

(c) C and D

(d) B and D

296. From the following statements:

A. Biosynthesis of proteins and nucleic acids from precursors results in production of chemical energy in the form of ATP, NADH, NADPH and FADH<sub>2</sub>

B. The spontaneity of a reaction in cells does not depend whether  $\Delta G^\circ$  for the reaction is positive or negative

C. Both oxidative phosphorylation and photo-phosphorylation involve oxidation of H<sub>2</sub>O to O<sub>2</sub>

D. Only chemical potential energy contributes to proton motive force in mitochondria.

Which one of the following combinations represents all incorrect statements ?

(a) A, B, C

(b) B, C, D

(c) A, B, D

(d) A, C, D

297. Match the enzymes in column A with their respective biological function in column B:

Column A	Column B
A. Lipases	(i) Catalysis of ATP- dependent translocation of the aminophospholipids, phosphatidylethanolamine and phosphatidylserine from the extracellular to the cytosolic leaflet of the plasma membrane
B. Flippases	(ii) Catalysis of ATP-dependent translocation of plasma membrane phospholipids from the cytosolic to the extracellular leaflet.
C. Floppases	(iii) Catalyze hydrolysis of triacylglycerols.
D. Scramblase	(iv) Catalyze the movement of any membrane phospholipid across the bilayer down its concentration gradient.

Choose the correct combinations of answers from the options given below:

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