Q. 16 Which of the following statements is not true about enzyme inhibitors?

(a) Inhibit the catalytic activity of the enzyme

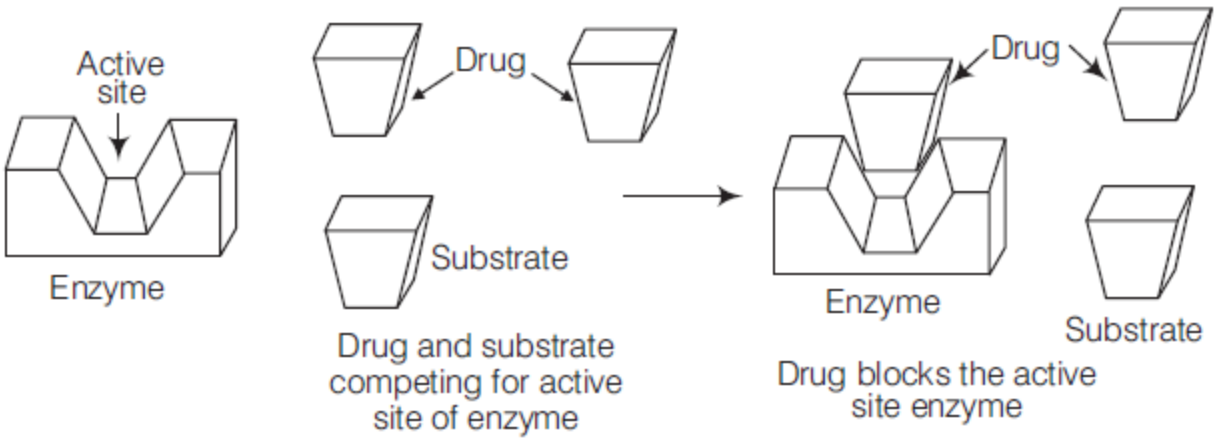
(b) Prevent the binding of substrate

(c) Generally a strong covalent bond is formed between an inhibitor and an enzyme

(d) Inhibitors can be competitive or non-competitive

Ans. *(c)* Drugs can block the binding site of the enzyme and present the binding of substrate, or can inhibit the catalytic activity of the enzyme.Such drugs are called enzyme inhibitors. Drugs inhibit the attachment of substrate on active site of enzyme in two different ways.

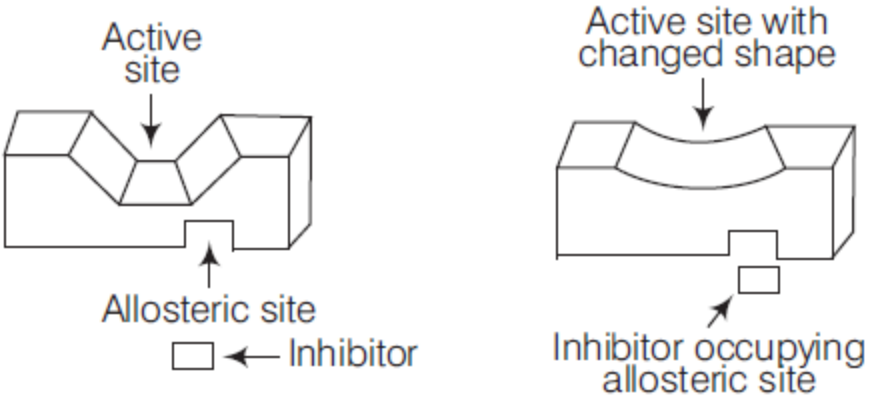
(i) Drugs which compete with natural substrate for their attachment on the active sites of enzymes are called competitive inhibitors.



Competitive inhibitors (Drug and substrate competing for active site)

(ii) However, some drugs do not bind to the active site but bind to a different site of enzyme *i.e.,* allosteric site which changes the shape of the active site of the enzyme in such a way that the natural substrate cannot recognize it. Such enzymes are called non-competitive inhibitors.

Generally, a weak bond such as hydrogen bonding, van der, Waals' interactions etc., is formed between the enzyme and inhibitor.



Non-competitive inhibitor changes the active site of enzyme after binding at allosteric site