Q.5) Consider the following statements with reference to Reverse vaccinology:

1. Reverse vaccinology uses the expressed genomic sequences to find new potential vaccines.
2. The major advantage for reverse vaccinology is finding vaccine targets quickly and efficiently.

Which of the statements given above is/are correct?

a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

Q.5) Solution (c)

Basic Information:

The term "reverse vaccinology" was proposed by Rappuoli (2000) and represents a genome-based approach to vaccine development. In comparison with the conventional approach, which requires a laborious process of selection of individual components important for immunity, reverse vaccinology offers the possibility of using genomic information derived from in silico analysis of sequenced organisms. This approach can significantly reduce the time necessary for the identification of candidate vaccines, and enables systematic identification of all potential antigens of pathogens, including those which are difficult or currently impossible to culture.

Explanation:

Reverse vaccinology uses the expressed genomic sequences to find new potential vaccines. Normal vaccines are created using the pathogenic organism. The term reverse refers to the use of expressed DNA over the purified proteins from the organism itself.

The major advantage for reverse vaccinology is finding vaccine targets quickly and efficiently. Traditional methods may take decades to unravel pathogens and antigens, diseases and immunity. Earlier, we had to do a viral culture in the laboratory to develop a vaccine, and this was time-consuming. The 'reverse vaccinology' technique has been available for the last 10 to 15 years.

Using 'reverse vaccinology', vaccinations were developed for meningococcal and staphylococcal infections all through the world, she added.

So, both statement is correct here.