

**Sardar Patel University**  
**B. Sc. Six Semester Examination**  
**Saturday, 09<sup>th</sup> April, 2016**  
**02:30 p.m. to 05:30 p.m.**

**US06CBNF06: Structural Bioinformatics and RDBMS - II**

**Note:**

1. Figures to the right indicate marks.
2. Draw neat and labeled diagram, wherever necessary.

Q.1 Attempt the followings [10 x 1 = 10]

- i) Arrangement of  $\alpha$ -helices and  $\beta$ -strands into discrete folding units is known as
  - a) Primary structure
  - b) Secondary structure
  - c) Super primary
  - d) Super secondary structure
- ii) Expression of protein occur in
  - a) Structural genomics
  - b) Functional genomics
  - c) Comparative genomics
  - d) None of these
- iii) Which of the following group of proteins assist in the folding of other proteins?
  - a) Proteases
  - b) Proteosomes
  - c) Templates
  - d) Chaperones
- iv) Which of the following factors is most likely to influence how a protein folds into its native conformation?
  - a) The establishment of bonding interactions with other parts of the peptide backbone.
  - b) The rotation of the peptide bond.
  - c) The formation of the maximum possible number of beta-sheets in the final folded structure.
  - d) The formation of the maximum number of cis-peptide bonds in the peptide backbone.
- v) Which of the following statements best describes the role of proteins as therapeutic targets?
  - a) Very few drugs exert their effects by interacting with proteins.
  - b) Drugs targeting enzymes usually activate their target protein.
  - c) Drugs often work by enhancing the binding of an enzyme's substrate.
  - d) Drugs targeting proteins are often very specific and can be less likely to produce side effects.
- vi) The \_\_\_\_\_ clause is another section of the selection of the select statement.
  - a) Group by
  - b) Having
  - c) sub query
  - d) where
- vii) The address field of an index is called \_\_\_\_\_.
  - a) View
  - b) Index
  - c) Row id
  - d) column id
- viii) The SQL keyword BETWEEN is used:
  - a) for ranges
  - b) to limit the columns displayed
  - c) as a wildcard
  - d) None
- ix) \_\_\_\_\_ function divides one numeric expression by another and returns the remainder.
  - a) POWER
  - b) MOD
  - c) ROUND
  - d) REMAINDER
- x) What is the purpose of MIN function in Oracle?
  - a) It returns the minimum value in the expression
  - b) It is use for decrementing the integer value
  - c) MIN is not a Oracle function
  - d) None of the above

Q.2 Attempt any **ten** of the followings

[10 x 2 =20]

- i) What is levinthal paradox?
- ii) Differentiate between freeware and shareware
- iii) Write down the full form of GOR, PHD, RCSB & RASMOL.
- iv) Differentiate between primary and tertiary structure of protein.
- v) Draw a  $\beta$ -sheet composed of two parallel  $\beta$ -strands that are each 4 residues in length.
- vi) What is 2-D and 3-D structure of protein?
- vii) List all scalar functions.
- viii) Explain Group By clause.
- ix) How reverse index is create?
- x) Explain the use of commit.
- xi) Explain ASCII function with example.
- xii) List all Character functions available in oracle.

Q.3 A) Giving suitable example, discuss the principle of protein folding. [10]

**OR**

Q.3 A) Discuss the role of protein misfolding in the progression of Alzheimer's and mad cow disease. [6]

B) Describe the working of FASTA. [4]

Q.4 A) What are the methods used for the secondary structure prediction of protein? Discuss any two in detail. [10]

**OR**

Q.4 A) Write a note on Ramchandran Plot. [5]

B) Explain the various protein databases in detail. [5]

Q.5 A) List all Scalar functions available in oracle and explain any Three of them with appropriate syntax and example [10]

**OR**

Q.5 A) Explain NVL & DECODE with syntax and example. [6]

B) Discuss the types and functions of scalar [4]

Q.6 A) What is use of sequences? Explain creating & dropping it with example [10]

**OR**

Q.6 A) What is view? Why it is created, explain it syntax & example. [6]

B) Giving example, explain referencing a sequence. [4]

\*\*\*\*\*