*Name* : .....

*Roll No.* : .....

*Invigilator's Signature :* .....

**CS/B.PHARM(NEW)/SEM-6/PT-610A/2012**

**2012**

**COMPUTER APPLICATION IN PHARMACEUTICAL TECHNOLOGY & CLINICAL PHARMACY**

*Time Allotted* : 3 Hours *Full Marks* : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) In a database table *tb_students* three fields are there : *roll_num*, *name* and *age*.

   Identify the SQL statement that will fetch the names of the students having age above 16 years.

   a) SELECT roll_num, name FROM tb_students

   b) SELECT name, age FROM tb_students ORDER BY age

   c) SELECT name FROM tb_students WHERE age > 16

   d) SELECT name FROM tb_students WHERE age > 16 years.

ii) The descriptor of lipophilicity as designed by Hansch is $\pi = \log\left(\frac{P_x}{P_H}\right)$ where $P_H$ stands for

a) partition coefficient of substituted compound

b) partition coefficient of unsubstituted compound

c) partition coefficient of hydrogen

d) partial pressure of substituted compound.

iii) In QSAR the biological activity of a compound is usually expressed by

a) biological activity produced by a certain concentration of the drug

b) potency (expressed by $1/C$ ) where $C$ is the concentration of the drug required to produce a fixed biological activity

c) log $P$, where $P$ is the partition coefficient of the drug in octanol/water system

d) none of these.

iv) In Computer Aided Drug Design 'Ligand-based approach' is employed when

a) the structure of the receptor is unknown to the investigator

b) the structure of the receptor is known to the investigator

c) the structure of the drug molecule is unknown

d) the structure of the drug molecule is known.

v) With a SQL Data Definition Language (DDL) we cannot do by which one of the following tasks ?

a) Create table

b) Declare the type of each field

c) Create the integrity constraints

d) Query information from the database.

vi) A command that lets you change one or more fields in a record is
   a) insert  b) modify
   c) lookup  d) none of these.

vii) The most open source DBMS is
   a) Microsoft SQL Server  b) Microsoft Access
   c) MySQL  d) Oracle.

viii) One of the causes of the failure of the file system is
   a) data availability  b) fixed record
   c) sequential record  d) lack of security.

ix) The correlation coefficient between two variables $x$ and $y$ is
   a) $\frac{\text{cov}(x,y)}{\sigma_x \sigma_y}$  b) $\frac{\text{cov}(x,y)}{\sigma_x + \sigma_y}$
   c) $\frac{\text{cov}(x,y)}{\sigma_x - \sigma_y}$  d) 0.

x) Update the database mean
   a) revisiting the database structure of schema
   b) revisiting the file structure
   c) changing one or more database
   d) normalization of database.

xi) Which of the following levels of abstraction involves the views of data ?
   a) External level  b) Conceptual level
   c) Physical level  d) None of these.

## GROUP – B

### ( Short Answer Type Questions )

Answer any *three* of the following. $3 \times 5 = 15$

2. a) Define coefficient of determination.
   b) Prove that if two variables $x$ & $y$ are independent then they are uncorrelated. 2 + 3

3. Describe the three level of architecture of a database system.

4. Define and discuss data constraints. What is a cascading update ? What is a SQL view ? 2 + 2 + 1
5. Write about Fujita Ban method in drug design.
6. Write the basic structure of SQL SELECT, INSERT, UPDATE and DELETE query with a common example in each case.

## GROUP – C

### ( Long Answer Type Questions )

Answer any *three* of the following. 3 × 15 = 45

7. Write a short note on Rational Drug design (RDD). What are descriptors in QSAR ? Discuss how Hansch Analysis is carried out to predict biological action of drugs. 6 + 2 + 7
8. Discuss general methodology involved in molecular modeling and thus discuss energy minimization. Name two QSAR/docking softwares. Write the advantages and disadvantages of QSAR and combinatorial chemistry in the area of drug discovery. 8 + 2 + 5
9. a) Compare and contrast 2D and 3D QSAR.
   b) Write in detail about 3D QSAR study.
   c) Write a note on solution phase parallel synthesis. 4 + 6 + 5
10. a) Write in detail about the various descriptors used in 2D QSAR study.
    b) Write a note on different structure elucidation methods used in solid phase synthesis. 10 + 5
11. a) Write an account on the pharmacophore mapping in drug designing.
    b) Write an account on the Virtual screening and database searching in QSAR.
    c) Write an account on Homology modelling in drug design. 5 + 5 + 5

==========