DATABASE MANAGEMENT SYSTEM - 203

Time : Three Hours]

[Maximum Marks : 60

Note :   Attempt two questions each from Section A and B carrying 12 marks each, and the entire Section C.

Section - A

1. Explain various characteristic of DMBS.
2. What is DBA ? Explain various responsibilities of DBA.
3. Write a note on E-R model.
4. Explain data independence and mapping between different levels.

Section - B

5. What do you mean by Normal Form ? Explain various Normal forms through examples.
6. What is Data Concurrency ? Explain various methods of handling it.
7. Explain various methods of implementing Database security.
8. Explain the following concepts with respect to MS-Access :
   (a)   Working with database and tables.
   (b)   Sorting and Filtering controls.

Section - C

9. Answer all the following :
   (i)   Discuss the difference between a Composite key and a Composite attribute.
   (ii)   Define Non-prime attributes.   (iii)   Define Key.
   (iv)   Explain the implications of Database approach.
   (v)   Define Relational algebra.
   (vi)   Define Functional dependency.

(6×2=12)

BIOPHYSICS - VII

Time : Three Hours]

[Maximum Marks : 70

Note :   Attempt two questions each from Section A and B carrying 12 marks each, and the entire Section C consisting of 11 short answer type questions carrying 2 marks each.

Section - A

1. (a)   Discuss the concept of Entropy and Enthalpy. Find Entropy change due to heating and mixing of gases.
   (b)   Describe differential scaning calorimetry
2. (a)   Describe Physical chemist and Biological standard states.   (8+4=12)
   (b)   What are Coupled reactions ?
3. (a)   Discuss Schrödinger's equation, and state Uncertainty principle.   (8+4=12)
   (b)   Explain the motion of a particle in one-dimensional box.
4. (a)   Explain the terms Reaction rate, Order of a reaction and Half life.   (8+4=12)
   (b)   Discuss Flow method and Relaxation method.   (6+6=12)

Section - B

5. (a)   Discuss Visible, U.V. and IR spectroscopy.

(b) Derive Beer's Lambert's Law. (8+4=12)

6. Discuss NMR and Mass spectrometry. Give their principle and biological applications. 12
7. Discuss Electrophoretic techniques giving their principle and applications in purification and characterization of Biomolecules. 12
8. Distinguish between TLC and HPLC. Discuss their principle and applications. 12

Section - C

9. Write short answer of the following :
   (a) Define Free energy and Bound energy.
   (b) What is Entropy of a spontaneous reaction ?
   (c) Which amino acids have fluorescence ?
   (d) How Isoelectric focussing separates protein ?
   (e) What is Quantum mechanical tunnelling ?
   (f) What is Isotope effect ?
   (g) Give principle of Spectrofluorimetry.
   (h) Give biological application os ORD and CD spectroscopy.
   (i) What is Immunoelectrophoresis ?
   (j) What is Complex reaction ?
   (k) What is Affinity chromatography ? (11×2=22)