(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 154505 Roll No. | | | | | | | | | | |

B.TECH.

(SEM. V) THEORY EXAMINATION, 2015-16

MODERN ANALYTICAL TECHNIQUES

[Time:3 hours] **[Maximum Marks:100**

Note : The Question Paper contain three Sections.

Section-A

Q.1 Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2x10=20)

(a) What do you understand by bathochromic and hydrochromic shift ?

(b) Discuss principle of chromatography.

(c) What do you mean by Mclafferty re-arrangement?

(d) How number and position of bands is calculated in IR spectrum of a compound ?

(e) Define isoelectric focusing.

(f) What do you understand by membrane fouling ?

(g) Write the role of ammonium persulfate and dithiothreitol in SDS-PAGE.

(h) Give two applications of ion-exchange chromatography.

(i) Define molar absorption coefficent.

(j) Write the principle of electrophoresis.

Section-B

Note: Attempt any five questions from this section :

(10x5=50)

Q2. Define Beer-Lambert's law. How it is useful in determining the concentration of an analyte ?

Q3. What are the different components of HPLC ? How mobile phase is optimised ?

Q4. Write the details of atomic absorption spectrography ?

Q5. What is spin-spin coupling ? Explain giving examples and applications.

Q6. Explain sheilding and desheilding effect in NMR.

Q7. Explain the principle and applications of gel filtration chromatography. How this technique is used for determination of molecular weights of proteins ?

Q8. Discuss the methodology involved in separation of proteins by polyacrylamide gel electrophoresis.

Q9. Discuss principle, instrumentation and applications of Circular Dichroism.

Section-C

Note: Attempt any two questions from this section :

(15x2=30)

Q10. Discuss theory, instrumentation and application of centrifugation.

Q11. Explain various types of chromatography ? How they differ from each other ?

Q12. Write a note on X-Ray deffraction technique. How this is used in structural analysis of biomolecules.

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