Code: 15R00505

R15

B.Pharm III Year I Semester (R15) Supplementary Examinations January 2023

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Write about various electronic transitions in organic molecules.
(b) Define chromophore with examples.
(c) What are the applications of electrophoresis in analyzing macromolecules?
(d) Write the principle involved in 'Gel electrophoresis' and its significance.
(e) What is coupling constant?
(f) Write the applications of ^{13}C NMR.
(g) Differentiate between finger print region and functional group region in IR spectroscopy.
(h) Write the principle of mass spectrometry.
(i) Write the significance of ELISA test.
(j) Write the uses of IR in bioanalytical techniques.

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2 Explain various deviations of Beer Lambert's law.

OR

3 Discuss the principle and theory involved in the UV spectroscopy.

4 (a) Write the principle and methodology involved in paper electrophoresis.
(b) Write a note on capillary electrophoresis.

OR

5 (a) Discuss the factors influencing the electrophoretic conditions.
(b) Write the principle, instrumentation and applications of gel electrophoresis.

6 Discuss the principle of working of a FT NMR.

OR

7 Explain in detail about the chemical shift and various factors affecting the chemical shift value.

8 Describe the sample handling techniques in IR spectroscopy.

OR

9 Explain the Electron Impact (EI) ionization with example.

10 Explain any one bioanalytical technique with example.

OR

11 Explain the applications of UV spectroscopy in bioanalysis with a suitable example.

*****

Code: 15R00505

R15

B.Pharm III Year I Semester (R15) Supplementary Examinations February 2022

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define chromophore with examples.
(b) Define Beer Lambert's law.
(c) What are the principles of electrophoresis?
(d) What are the components used in the electrophoretic techniques?
(e) Name the reference materials used in the NMR? Mention the purpose of it.
(f) What is coupling constant?
(g) What id m/e ration in Mass spectroscopy?
(h) Mass spectroscopy is coupled with GC or LC. What are the reasons for coupling?
(i) In what way the UV spectroscopy is utilized in the bio-analysis?
(j) What is the purpose of performing bioassay?

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2 (a) Discuss the principle and theory involved in the UV spectroscopy.
(b) Describe various detectors used in UV spectroscopy.

OR

3 (a) Explain various chemical derivatisation techniques in UV spectroscopy.
(b) Explain various deviations of Beer Lambert's law.

4 (a) What are the various advantages and disadvantages of Gel electrophoresis?
(b) What are the factors affecting electrophoresis?

OR

5 (a) What is electrophoretic mobility? Explain with an equation.
(b) Discuss various applications and limitations of electrophoresis.

6 (a) Explain the principle involved in NMR Spectroscopy with a neat diagram.
(b) Describe design and working principles of various parts of NMR spectrometer.

OR

7 (a) Enumerate various applications of NMR spectroscopy.
(b) What are the factors affecting coupling constant?

8 (a) Explain the Electron Impact (EI) ionization with example.
(b) Write the principle and applications of IR spectroscopy.

OR

9 (a) Describe the Chemical Ionization (CI) with suitable example.
(b) What are the structural effects on vibrational frequency?

10 (a) What are the modern approaches in bioassay?
(b) Describe the bioassay of antibiotics with an example.

OR

11 (a) Enumerate various chromatographic techniques used in the bioanalysis.
(b) Describe various principles of Bioassay.

*****

Code: 15R00505

R15

B.Pharm III Year I Semester (R15) Supplementary Examinations February 2022

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours | Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define chromophore with examples.
(b) Define Beer Lambert's law.
(c) What are the principles of electrophoresis?
(d) What are the components used in the electrophoretic techniques?
(e) Name the reference materials used in the NMR? Mention the purpose of it.
(f) What is coupling constant?
(g) What id m/e ration in Mass spectroscopy?
(h) Mass spectroscopy is coupled with GC or LC. What are the reasons for coupling?
(i) In what way the UV spectroscopy is utilized in the bio-analysis?
(j) What is the purpose of performing bioassay?

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2 (a) Discuss the principle and theory involved in the UV spectroscopy.
(b) Describe various detectors used in UV spectroscopy.

OR

3 (a) Explain various chemical derivatisation techniques in UV spectroscopy.
(b) Explain various deviations of Beer Lambert's law.

4 (a) What are the various advantages and disadvantages of Gel electrophoresis?
(b) What are the factors affecting electrophoresis?

OR

5 (a) What is electrophoretic mobility? Explain with an equation.
(b) Discuss various applications and limitations of electrophoresis.

6 (a) Explain the principle involved in NMR Spectroscopy with a neat diagram.
(b) Describe design and working principles of various parts of NMR spectrometer.

OR

7 (a) Enumerate various applications of NMR spectroscopy.
(b) What are the factors affecting coupling constant?

8 (a) Explain the Electron Impact (EI) ionization with example.
(b) Write the principle and applications of IR spectroscopy.

OR

9 (a) Describe the Chemical Ionization (CI) with suitable example.
(b) What are the structural effects on vibrational frequency?

10 (a) What are the modern approaches in bioassay?
(b) Describe the bioassay of antibiotics with an example.

OR

11 (a) Enumerate various chromatographic techniques used in the bioanalysis.
(b) Describe various principles of Bioassay.

*****

R19

R15

Code: 15R00505

B.Pharm III Year I Semester (R15) Supplementary Examinations February 2022

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Define chromophore with examples.
(b) Define Beer Lambert's law.
(c) What are the principles of electrophoresis?
(d) What are the components used in the electrophoretic techniques?
(e) Name the reference materials used in the NMR? Mention the purpose of it.
(f) What is coupling constant?
(g) What id m/e ration in Mass spectroscopy?
(h) Mass spectroscopy is coupled with GC or LC. What are the reasons for coupling?
(i) In what way the UV spectroscopy is utilized in the bio-analysis?
(j) What is the purpose of performing bioassay?

PART – B

(Answer all the questions: 05 X 10 = 50 Marks)

2 (a) Discuss the principle and theory involved in the UV spectroscopy.
(b) Describe various detectors used in UV spectroscopy.

OR

3 (a) Explain various chemical derivatisation techniques in UV spectroscopy.
(b) Explain various deviations of Beer Lambert's law.

4 (a) What are the various advantages and disadvantages of Gel electrophoresis?
(b) What are the factors affecting electrophoresis?

OR

5 (a) What is electrophoretic mobility? Explain with an equation.
(b) Discuss various applications and limitations of electrophoresis.

6 (a) Explain the principle involved in NMR Spectroscopy with a neat diagram.
(b) Describe design and working principles of various parts of NMR spectrometer.

OR

7 (a) Enumerate various applications of NMR spectroscopy.
(b) What are the factors affecting coupling constant?

8 (a) Explain the Electron Impact (EI) ionization with example.
(b) Write the principle and applications of IR spectroscopy.

OR

9 (a) Describe the Chemical Ionization (CI) with suitable example.
(b) What are the structural effects on vibrational frequency?

10 (a) What are the modern approaches in bioassay?
(b) Describe the bioassay of antibiotics with an example.

OR

11 (a) Enumerate various chromatographic techniques used in the bioanalysis.
(b) Describe various principles of Bioassay.

*****

Code: 15R00505

R15

B.Pharm III Year I Semester (R15) Supplementary Examinations August 2021

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) A solution of 0.5 MNaOH is observed no peak in UV region 200nm-400nm by UV spectrophotometer. Explain.

(b) Write about various electronic transitions in organic molecules.

(c) Write the principle of electrophoresis.

(d) Write the principle involved in capillary electrophoresis.

(e) What is harmor frequency and free induction decay in NMR spectroscopy?

(f) What is the Larmor frequency?

(g) Write the principle of mass spectrometry.

(h) Write the difference between Fermi resonance and overtone in IR spectra.

(i) Write any two applications of bioassay.

(j) Write the significance of ELISA test.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) Explain Beer's-Lambert's law. Write a note on the solvents used in UV-Vis spectroscopy.

(b) What happens on absorption of UV or IR radiation by a molecule?

OR

3 (a) Write a note on chromophore and auxochrome concept.

(b) Write a note on different types of shifts taking place in UV spectroscopy.

UNIT – II

4 (a) Discuss the factors influencing the electrophoretic conditions.

(b) Write the principle, instrumentation and applications of gel electrophoresis.

OR

5 (a) Write a note on different types of electrophoresis.

(b) Explain the applications of electrophoresis in analyzing the macromolecules.

UNIT – III

6 (a) Write a note on the principle of C^{13} NMR spectroscopy.

(b) Write a note on spin-spin splitting pattern.

OR

7 (a) Discuss the importance of coupling constant in structure elucidation.

(b) Explain chemical shift and its significance.

UNIT – IV

8 (a) Write a note on MALDI technique in mass spectrometry.

(b) Give a brief account on McLafferty rearrangement.

OR

9 (a) Describe the sample handling techniques in IR spectroscopy.

(b) Write about various ionization techniques in mass spectrometry.

UNIT – V

10 (a) Write a note on modern approaches in bioanalytical techniques.

(b) Explain with suitable example on the role UV spectroscopy in bioanalysis.

OR

11 Discuss in detail about Bioassay.

*****

Code: 15R00505

R15

B.Pharm III Year I Semester (R15) Regular & Supplementary Examinations November/December 2019

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Explain the principle of PCR.
(b) What is molecular ion?
(c) Define electrophoresis with example.
(d) What is the difference between horizontal and vertical gel electrophoresis apparatus?
(e) Write the applications of ^{13}C NMR.
(f) Define the term chemical shift.
(g) Write the name and uses of various ionization methods in mass spectroscopy.
(h) Write the applications of IR spectroscopy.
(i) Name the various bio analytical techniques with examples.
(j) Write the uses of IR in bio analytical techniques.

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) Write a note on the principle and instrumentation of UV Spectroscopy.
(b) Write the applications of UV Spectroscopy.

OR

3 (a) Derive the equation for Beer-Lambert's law.
(b) Write the applications of Beer-Lambert's law.

UNIT – II

4 (a) Write a note on the principle and instrumentation of capillary electrophoresis.
(b) Explain the design of vertical gel electrophoresis apparatus.

OR

5 (a) Enlist the factors influencing capillary electrophoresis technique.
(b) Write the application of electrophoresis in analyzing macromolecules.

UNIT – III

6 (a) Explain in detail the various factors affecting the chemical shift value.
(b) Explain about spin-spin coupling and spin-spin splitting with examples.

OR

7 (a) Discuss the principle of working of a FT NMR.
(b) Write the applications of ^{1}H NMR.

UNIT – IV

8 (a) Write a note on the types of the ionization techniques used in mass spectrometry.
(b) Write the applications of mass spectroscopy.

OR

9 (a) Write the principle and instrumentation of IR spectroscopy.
(b) Explain the structural effects on vibrational frequency.

UNIT – V

10 (a) Explain the Modern approaches in Bioanalysis.
(b) How the UV-Visible spectroscopy used in Bioanalysis?

OR

11 (a) Write the various Bioassay methods.
(b) Explain in detail about any one bioassay with example.

*****

Code: 15R00505

R15

B.Pharm III Year I Semester (R15) Supplementary Examinations June/July 2019

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours | Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) How many signals does the aldehyde $(CH_3)_3CCH_2CHO$ have in ^1H NMR and ^{13}C NMR spectra?
(b) What is the principle of gel electrophoresis?
(c) Define chemical shift.
(d) What are coupling constant?
(e) Give the pharmaceutical application of IR.
(f) Define bathochromic shift with example.
(g) Define λ max of compound.
(h) What is the Larmor frequency?
(i) What is molar extinction coefficient?
(j) What are basic requirement for a successful mass spectroscopic analysis?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Write a note on electronic transition in organic molecule.

OR

3 Explain in detail Beers lamberts law & its limitation.

UNIT – II

4 Explain principle design of electrophoresis.

OR

5 Discuss on various electrophoresis techniques.

UNIT – III

6 Write a detailed note on chemical shift in NMR.

OR

7 What is the coupling constant? Give factors affecting it.

UNIT – IV

8 Comment on ionization method in mass spectroscopy

OR

9 Comment on fragmentation pattern.

UNIT – V

10 Write a detailed note on bioassay.

OR

11 Write about bioanalytical spectroscopic techniques.

*****

Code: 15R00505

R15

B.Pharm III Year I Semester (R15) Supplementary Examinations June/July 2019

APPLICATION OF SPECTROSCOPIC METHODS IN MOLECULAR STRUCTURE DETERMINATION

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) How many signals does the aldehyde $(CH_3)_3CCH_2CHO$ have in ^1H NMR and ^{13}C NMR spectra?
(b) What is the principle of gel electrophoresis?
(c) Define chemical shift.
(d) What are coupling constant?
(e) Give the pharmaceutical application of IR.
(f) Define bathochromic shift with example.
(g) Define λ max of compound.
(h) What is the Larmor frequency?
(i) What is molar extinction coefficient?
(j) What are basic requirement for a successful mass spectroscopic analysis?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Write a note on electronic transition in organic molecule.

OR

3 Explain in detail Beers lamberts law & its limitation.

UNIT – II

4 Explain principle design of electrophoresis.

OR

5 Discuss on various electrophoresis techniques.

UNIT – III

6 Write a detailed note on chemical shift in NMR.

OR

7 What is the coupling constant? Give factors affecting it.

UNIT – IV

8 Comment on ionization method in mass spectroscopy.

OR

9 Comment on fragmentation pattern.

UNIT – V

10 Write a detailed note on bioassay.

OR

11 Write about bioanalytical spectroscopic techniques.

*****