

Exam Date & Time: 25-Nov-2019 (02:00 PM - 05:00 PM)



IP
Common paper
MPH, MIP, MPL, MPA
MOA, MPB, MPL, MPB

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

Modern Pharmaceutical Analytical Techniques [PQA-MIP101T - S3]

Marks: 75

Duration: 180 mins.

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

- 1) Explain the quantitative UV methods for single component. (10)
- 2)
 - a) Explain the standard addition method for the quantitative determination of metal ions by flame photometry.
 - b) How the thiamine, Phenytoin, and aluminium are converted in to fluorescent compounds? (4+6) (10)
- 3)
 - a) How the number of neighboring protons for each type is identified using PNMR spectrum? Explain with suitable example
 - b) How ^{13}C NMR is different from ^1H NMR? Explain. (5+5) (10)
- 4) Explain with suitable example the fragmentation rules in electron impact mass spectroscopy. (10)
- 5) Heptane and toluene were separated with retention times of 15.4 and 16.5 min respectively on a 1.0 meter packed column. An unretained species passed through the column in 1.8 min. The peak widths measured at the base were 1.15 min for heptane and 1.20 min for toluene.
 - a) Calculate the resolution between the peaks.
 - b) Calculate the number of theoretical plates for heptane and toluene. (10)
 - c) Calculate the plate heights for heptane and toluene.
 - d) Calculate what column length will be necessary to achieve a resolution of 1.5 on this column.
 - e) Calculate the capacity factor for heptane and toluene.

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

- 6) Explain the working of Golay cell detector (5)
- 7) List the advantages of ELISA over Radio immunoassay. (5)
- 8) Explain the care and rejuvenation of Glass electrode. (5)

- 9) A sample of pesticide is analyzed by gas chromatography. A 0.1 micro litre injection of a standard containing 0.234 mg/l gives a peak of area 34873. The same volume injection of a sample solution gives an area of 39945. What is the concentration in %w/v of the pesticide in the sample solution? (5)
- 10) Discuss in detail the pharmaceutical applications of thermoanalytical techniques (5)

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Exam Date & Time: 28-Dec-2019 (10:00 AM - 01:00 PM)



- MIP
- MPC
- MPA
- M.P.B
- MPL
- MPA

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Modern Pharmaceutical Analytical Techniques [PQA-MIP101T]

Marks: 75

Duration: 180 mins.

SECTION - A

Answer all the questions.

Answer the following (10 marks x 5 = 50 marks)

- 1) Explain the Instrumentation for double beam UV/Visible spectrometer in brief. (10)
- 2) a) Explain the interferences in flame photometry in brief
b) Explain the special methods of sample handling for solids in IR spectroscopy (5+5 marks) (10)
- 3) What is chemical shift? Explain the factors affecting chemical shift with suitable example. (10)
- 4) Discuss the ionization techniques in Mass spectrometry. (10)
- 5) a) Differentiate TLC and HPTLC
b) Explain the derivatization in GC with examples (5+5) (10)

SECTION - B

Answer all the questions.

Answer the following (5 marks x 5 = 25 marks)

- 6) List the qualitative applications of UV/Visible spectroscopy. (5)
- 7) Explain the experimental requirements for ELISA (5)
- 8) Derive an expression for Bragg's equation (5)
- 9) Explain the pre and post column derivatization in HPLC (5)
- 10) List the applications of Differential scanning calorimetry and Differential thermal analysis (5)

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