

School: School of Medicine and Allied Health Sciences	Level: Bachelor	
Program: Pharmacy	Year/Part: II/II	Superintendent's Sign:
Subject: Quality Assurance & Instrumental Analysis (BP403)		Code No.

GROUP A (Multiple-Choice Questions)	[10×1=10]	Maximum Time: 20 Minutes
<i>i. This group contains 10 multiple-choice questions (MCQs).</i> <i>ii. Answers must be marked on the MCQ Answer Sheet.</i> <i>iii. You may use the main answer sheet for rough work.</i> <i>iv. Marks will not be awarded for answers with cutting, erasing, overwriting, or multiple shaded options.</i> <i>v. The MCQ question paper must be returned along with the MCQ answer sheet.</i>		Code No.:

- Atomic emission spectroscopy is
 - The measurement of intensity of emitted light at a particular wavelength from the atoms that are excited thermally.
 - The measurement of absorbance of emitted light at a particular wavelength from the atoms that are excited thermally.
 - The measurement of intensity of emitted light at a particular wavelength from the atoms that are excited by monochromatic light.
 - The measurement of intensity of absorbed light at a particular wavelength from the atoms that are excited thermally.
- In hollow cathode lamp of atomic absorption spectroscopy, the cathode is made up of coated with
 - Graphite
 - Copper
 - Carbon black
 - Same as analyte element of interest
- Which of the spectroscopic techniques require electromagnetic radiation with the highest frequency?
 - IR spectroscopy
 - UV visible spectroscopy
 - X ray diffraction
 - NMR spectroscopy
- Main purpose of cleaning validation is
 - To ensure that equipment is free from contaminants after cleaning
 - To increase production speed
 - To reduce the cost of raw materials
 - To design new drugs
- The primary goal of Quality Assurance (QA) in pharmaceuticals is
 - To increase production speed
 - To ensure the quality, safety, and efficacy of pharmaceutical products
 - To reduce the cost of raw materials
 - To minimize the number of employees
- How many signals would you expect to see in the ^1H NMR spectrum of butane?
 - 1
 - 2
 - 3
 - 4
- The correct order for the basic features of a mass spectrometer is
 - acceleration, deflection, detection, ionization
 - ionisation, acceleration, deflection, detection
 - acceleration, ionisation, deflection, detection
 - acceleration, deflection, ionisation, detection
- What are the dimensions of the molar absorptivity in the Beer's law expression ?
 - Moles per liter
 - Liters per mol.centimeter
 - Grams per mole
 - Micrograms per square centimeter
- Fluorimetry is based on
 - Absorption Spectroscopy
 - Scattering spectroscopy
 - Emission spectroscopy
 - Thermogravimetry
- The proton nmr spectrum of propane will consist of
 - triplet and a singlet
 - a triplet and a quartet
 - doublet and a sextet
 - a triplet and a septet

MCQ Answer Sheet

Marks Secured: _____

In Words: _____

Examiner's Sign: _____ Date: _____

Scrutinizer's Marks: _____

In Words: _____

Scrutinizer's Sign: _____ Date: _____

Corrected Fill			
(A)	(B)	(C)	(D)
Incorrected Fill			
(A)	(B)	(C)	(D)

1. (A) (B) (C) (D)	6. (A) (B) (C) (D)
2. (A) (B) (C) (D)	7. (A) (B) (C) (D)
3. (A) (B) (C) (D)	8. (A) (B) (C) (D)
4. (A) (B) (C) (D)	9. (A) (B) (C) (D)
5. (A) (B) (C) (D)	10. (A) (B) (C) (D)

Manmohan Technical University
Office of the Controller of Examinations
Exam Year: 2082, Jestha **(Model Question)**

School: School of Medicine and Allied Health Sciences	Level: Bachelor	Time: 3 Hours
Program: Pharmacy	Year/Part: II/II	Full Marks: 50
Subject: Quality Assurance & Instrumental Analysis (BP403)		Pass Marks: 25

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

GROUP A (Multiple-Choice Questions are provided on separate sheet)

[10x1=10]

GROUP B (Problem-Based Question)

[1x10=10]

1. Suppose you are analyzing a new unknown compound in pharmaceutical research laboratory. You need a qualitative and quantitative analysis of such compound using various spectroscopic methods. Answer the following questions in detail.
 - a. Define spectroscopic method of analysis and classify them. Write the application of various spectroscopic method in pharmaceutical analysis. (3)
 - b. Which spectroscopic method is best for the identification of such compound? Explain with its principle in brief. (3)
 - c. How do you determine the molecular mass of the compound by spectroscopic method? Explain in detail with illustrating with spectrum. (4)

GROUP C (Long Answer Questions: Attempt Any Four)

[4x5=20]

2. Write about the various electronic transition in Uv visible spectroscopy in brief. Discuss about the calculation of λ_{\max} in Uv visible spectroscopy.
3. Elaborate Quality assurance and its significance in the pharmaceuticals. Write about the GLP and Good documentation practice in brief.
4. Define equipment qualification. Explain about the various types of equipment qualification.
5. Discuss the role of the hollow cathode lamp (HCL) in AAS. Why is it the preferred light source, and how does it ensure specificity in AAS measurements?
6. Explain the instrumentation of NMR with illustrated diagram. Write about the Chemical shift in brief.

GROUP D (Short Answer Questions - Attempt Any Five)

[5x2=10]

7. Write about the solvent used in Nuclear Magnetic Resonance spectroscopy.
8. Discuss about the various ionization methods in mass spectroscopy.
9. How X ray are produced in X-ray Diffraction?
10. How is the Beer-Lambert Law used to determine the concentration of a solute in a solution?
11. Write about the quenching in fluorimetry.
12. How do you determine the number of signals in NMR?