Total No. of printed pages = 3

PY 132706

Roll No. of candidate | | | | | | | | | | |

2023

B.Pharm. 7th Semester End-Term Examination (Repeater)

PHARMACEUTICAL ANALYSIS — III

(Old Regulation)

Full Marks – 100 Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *six* from the rest.

1. Answer *all* : (10 × 1 = 10)

(i) The Beer-Lambert Law

(a) Relates absorbance, concentration, path length and molar absorption coefficient

(b) Tells us the volume of the sample

(c) Relates frequency and wavelength

(d) Allows us to calculate how conjugated the system is

(ii) Which of the following doesn't absorb UV light?

(a) Paracetamol (b) Aspirin

(c) Chloralhydrate (d) Phenobarbitone

(iii) Which of the following is not an absorption spectroscopy?

(a) Fluorimetry (b) Mass spectrometry

(c) Flame photometry (d) UV Visible spectrophotometry

(iv) Which of the following component of a monochromator is the dispersing element?

(a) The collimating lens (b) The entrance slit

(c) Prism (d) None of the above

(v) Xenon arc is a light source used in

(a) Spectrofluorimeter (b) IR spectrophotometer

(c) Flame photometer (d) None of the above

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(vi) Which of the following is not used in FTIR?

(a) Monochromator (b) Interferometer

(c) Light source (d) Detector

(vii) In reversed phase HPLC

(a) A hydrophobic stationary phase is combined with a polar mobile phase

(b) A hydrophobic stationary phase is combined with a non-polar mobile phase

(c) A hydrophilic stationary phase is combined with a polar mobile phase

(d) A hydrophilic stationary phase is combined with a non-polar mobile phase

(viii) In mass spectrometer the sample is bombarded with

(a) Proton (b) Electron

(c) Alpha particle (d) Beta Particle

(ix) Which of the following compound will show only one signal in H^1 NMR?

(a) 2, 2-dichloropropane (b) 1, 2-dichloropropane

(c) 1, 3-dichloropropane (d) 1,1-dichloropropane

(x) X-ray diffraction technique is not used to study the physical property of which of the followings?

(a) Crystals (b) Liquid

(c) Metal (d) Solids

2. Define and derive Beer-Lambert's law. List out the different parts of a UV-Visible spectrophotometer. With a neat figure, explain the working of a double split UV-Visible spectrophotometer. (8 + 3 + 4 = 15)

3. Explain the basic principle of IR spectroscopy. Mention the different vibrations that occur in IR spectroscopy. Explain why IR graph is recorded in transmittance? With diagram explain the working of a FTIR instrument. (3 + 5 + 2 + 5 = 15)

4. With neat diagram explain the theory of fluorescence and phosphorescence. Why the wave length of emitted light is more than the absorbed light? Enlist and explain the factors affecting fluorescence. (6 + 2 + 7 = 15)

5. Explain the principle of NMR. Explain the terms Chemical Shift, Spin-Spin Coupling and Coupling Constant. (6 + 3 + 3 + 3 = 15)

6. Define ELISA. With diagram explain the different types of ELISA. Enlist some applications of ELISA. (2 + 9 + 4 = 15)

7. Write the principle of HPLC. With neat diagram explain the different parts and working of HPLC. Write some applications of HPLC. (4 + 7 + 4 = 15)

8. What is detected using mass spectrometry? Define molecular ion peak and base peak Explain the theory of mass spectrometry. (2 + 4 + 9 = 15)

9. Write note on any THREE : (3 × 5 = 15)

   (a) Woodward fisher rule

   (b) Working of Photomultiplier tube

   (c) Bolometer

   (d) RIA