22/04/2021

PY 132706

Roll No. of candidate

2021

B.Pharm. 7th Semester (Repeater) Examination

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 questions :   (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 component of a monochromator is the dispersing element?

     (a) The collimating lens

     (b) The entrance slit

     (c) Prism

     (d) None of the above

   (iii) IR spectroscopic graph is recorded as

     (a) Absorbance V/S frequency

     (b) Absorbance V/S wave length

     (c) Percent Transmittance V/S Wave number

     (d) None of the above

[Turn over

(iv) Which is not used in FTIR

    (a) Detector

    (b) Monochromator

    (c) Light source

    (d) All 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

(vi) Photomultiplier tube is used as detector in

    (a) IR spectroscopy

    (b) Mass spectrometry

    (c) UV spectroscopy

    (d) All of the above

(vii) Red shift is a

    (a) Shifting of lambda max to a shorter wavelength

    (b) Shifting of lambda max to a longer wavelength

    (c) Increase in intensity of absorbance

    (d) Decrease in the intensity of absorbance

(viii) The base peak in a mass spectrum is

    (a) The peak corresponding to the parent ion

    (b) The lowest mass peak

    (c) The peak set to 100 %

    (d) The highest mass peak

(ix) Mass spectrometer separates ions on the basis of which of the following?

    (a) Mass

    (b) Charge

    (c) Mass to charge ratio

    (d) Molecular weight

(x) Presence of ^{13}C isotope in a sample shows

    (a) M^+ peak

    (b) M+1 peak

    (c) M+2 peak

    (d) Base peak

2. Write about the different electronic transitions of UV Visible spectroscopy. With a neat diagram explain the different parts of a double beam UV Visible spectrophotometer. (7+8=15)

3. Differentiate between dispersive IR and FTIR. Why transmittance is recorded in FTIR? Explain the working of interferometer in FTIR. Mention any five representative wave numbers for functional group. (4+2+4+5=15)

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

5. Explain about the different vibration that takes place in IR spectroscopy. Draw a typical IR graph and name the different regions. Write some applications of IR spectroscopy. (7+4+4=15)

6. Explain the principle of fluorescence and phosphorescence. Write about the factors affecting fluorescence. (7+8=15)

7. Explain the principle of Radioimmunoassay (RIA) and Enzyme-Linked Immuno Sorbent Assay (ELISA). (7+8=15)

8. Write short note on any three : (3 × 5 = 15)
   (a) Photomultiplier tube
   (b) Woodward Fieser rule
   (c) Barrier Layer Cell
   (d) Ionization techniques of Mass Spectrometry

9. 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)