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J-MQA-101-T

Seat No. _____

M. Pharm. (Pharmaceutical Quality Assurance) (Sem. I) Examination

January - 2020

MQA-101.T : Modern Pharmaceutical Analytical Techniques

Time : **3** Hours] [Total Marks : **75**

Instructions : (1) Figure to the right indicates full marks.
(2) Draw neat and clean diagram as required.

1 Answer the following questions : **10×2=20**

(a) Explain about K band and B band with suitable example.
(b) How we can differentiate primary amine and amino acid with the help of IR ?
(c) Explain briefly about Shielding effect.
(d) What is fluorescence Quenching ?
(e) What are the application of Mass Spectrometry ?
(f) Enlist different types of sources used in X-ray instrument. Discuss any one.
(g) What are the difference between HPLC and HPTLC ?
(h) Explain briefly about Spin Spin Coupling.
(i) What are the difference between Atomic absorption and atomic emission spectroscopy ?
(j) What is the main difference between Modulated DSC and Hyper DSC ?

2 Answer any **two** out of the following : **2×10=20**

(a) What is the principle of Mass spectrometer ? Draw the diagram of Mass Spectrometer. Enlist and discuss in detail about various ionization technique used in mass spectrometer.
(b) What is Chromatography ? Enumerate different types of chromatography techniques. Discuss about affinity and ion-exchange chromatography in detail.
(c) Explain Bragg's law, instrumentation and applications of X-ray diffractometer. Enlist the different X-ray diffraction methods. Discuss in detail any two.

3 Answer any **seven** out of the following : **7×5=35**

(a) Define chromophore and Auxochrome with suitable examples. Enlist and discuss about various electronic transition observed in UV spectrometery.

(b) Enlist various types of detectors used in gas chromatography. Discuss in detail any two.

(c) Write an informative note on paper and zone electrophoresis.

(d) What are the principles of FT-NMR and 13C NMR ? Mention the applications of NMR spectroscopy.

(e) Discuss about FT-IR instrument.

(f) Write a brief note on : Ion selective electrodes in potentiometry.

(g) Write a brief note on isoelectric focusing.

(h) What is the principle of TGA ? Discuss about factor affecting TGA. Mention briefly advantage and disadvantage of TGA.

(i) Differentiate :

(i) Stretching and bending vibrations

(ii) Fluorescence and phosphorescence