

GANPAT UNIVERSITY
B.Tech Sem. Vth Biomedical & Instrumentation Engineering
Regular Exam November / December-2012
2BM506: Analytical Instrumentation

Total Marks-70

Time: 3 Hours

Instructions:-

1. All the questions are compulsory.
2. Answer of each section must be written in separate answer books.
3. Figure to the right indicate marks.
4. Assume data, if needed.
5. Conventional terms / notations are used.

Section – I

Que-1

- a) Write a short note on Centrifuge.
- b) What are the different types of Balances? Explain each in detail with neat diagram.

OR

Que-1

- a) Draw and explain Autoclave with neat diagram in detail.
- b) Write applications of each:
Hot air oven, Flame photometer, Spectrophotometer, Microscope, Colorimeter, Centrifuge, Mass spectrometer, Autoclave, Pulse oximeter, Auto cell counter

Que-2

- a) Explain principle of Oximetry with neat diagram.
- b) Draw and explain Coulter counter.

OR

Que-2

- a) Draw and explain basic components of analytical instrumentation. Also give pros and cons of instrumental analysis.
- b) Give the difference between optical Spectrometer and mass spectrometer.

Que-3

- a) Name the general laboratory instruments. Explain any one of it.
- b) What is the importance of blood cell counting? What are the different methods of cell counting? Explain microscopic method.

Section – II

Que-4

[12]

- a) Why blood gas analysis is important? Explain blood pO₂ measurement with neat diagram.
- b) Explain principle of Spectrometry with neat diagrams.

OR

Que-4

[12]

- a) Draw and explain Multichannel Colorimeter in detail.
- b) Draw and explain Gas-liquid Chromatography in detail.

[11]

Que-5

- a) Explain Flame photometer with all diagrams.
- b) Give names of methods which are used for separation in instrumental analysis.

OR

Que-5

[11]

- a) Explain Electrophoresis with neat diagram.
- b) Draw and explain Thermal conductivity analyzer.

[12]

Que-6

- a) Draw and explain Electronic Microscope.
- b) Explain Picoscale with neat diagram.

----- END OF PAPER -----