

Anekant Education Society's  
Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati  
(Autonomous)

Department of Botany

**Class: M.Sc. I, Subject: BOT 4104 Advanced Botanical Techniques**

**Question Bank**

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**Short Answer Questions**

**(Each Carry 2 Marks)**

- 1) Define Resolution.
- 2) What is Maceration?
- 3) Enlist applications of Gel filtration chromatography.
- 4) What is chromatography?
- 5) Define dispersion of light.
- 6) Define Autoradiography.
- 7) What is Camera Lucida?
- 8) Give difference between Paper chromatography and TLC method
- 9) Define Magnification.
- 10) Give application of ELISA.
- 11) Enlist types of Centrifuge.
- 12) What is light Microscope?
- 13) Give difference between Antigen and Antibody.
- 14) What is Isoelectric Focusing?
- 15) Give application of Flow Cytometry.
- 16) What is Radioisotopes?
- 17) Give the properties of Light.
- 18) What is Molar Coefficient?
- 19) What is MS and IR Spectroscopy?
- 20) Define Affinity Chromatography.
- 21) What is Ocular Micrometer?
- 22) Give the application of NMR Spectroscopy.
- 23) What is Denaturing?
- 24) What is Electrical Conductivity?
- 25) Write a principle of TEM.
- 26) What is Rotars and give its types.
- 27) Enlist DNA sequencing methods.
- 28) What is DNA Microarray.
- 29) Comment on PCR Technique.
- 30) What is GISH?
- 31) Enlist the types of chromatography.
- 32) What is Monochromators?
- 33) Enlist the parts of light microscope.
- 34) Enlist the types of Chromatography.
- 35) Write difference between mobile phase and stationary phase in Chromatography.

- 36) Define Isotopes and give its examples.
- 37) Enlist types of Microtome.
- 38) Define Spectroscopy.
- 39) What is transmitted fluorescence and epifluorescence?
- 40) Give the principle of Electrophoresis.

### Write a short note

(Each Question carries 4 Marks)

- 1) Write briefly on Phase Contrast Microscope.
- 2) Describe HPLC techniques in details.
- 3) Write a note on Histological and Cytological techniques.
- 4) Working and Applications of Spectrophotometer.
- 5) Explain PAGE.
- 6) State Working Principle of Flow Cytometry.
- 7) Explain 2 Dimensional gel electrophoresis Techniques.
- 8) DNA Sequencing by Maxam- Gilbert's Method.
- 9) Write a note on Safe handling of Radioisotopes.
- 10) Describe squash technique.
- 11) Write on Micrometry.
- 12) Write a note on double or multiple staining.
- 13) Write Principle working and application of P<sup>H</sup> meter.
- 14) Write on Ultra Centrifugation.
- 15) Write on measurements of Radioactivity.
- 16) Write briefly on Spectroflurometry.
- 17) Explain UV-Visible spectroscopy.
- 18) Write on confocal microscopy.
- 19) Give an account of isoelectric focusing.
- 20) Write on factors affecting centrifugation.
- 21) Enlist radio isotopes used in Biology and Write their properties.
- 22) Write a note on NMR.
- 23) Draw a neat labelled sketches of confocal microscopy and add its applications.
- 24) Write a note on Microtomy.
- 25) State a principles of spectroscopic techniques.
- 26) What is density gradient centrifugation?
- 27) Write a note on TLC.
- 28) Comment on SDS-PAGE gel electrophoresis.
- 29) Write note on green Fluorescence protein.
- 30) Explain Pulse field gel electrophoresis.
- 31) Write a note on maceration technique.

### Long Answer Questions

(Each question Carried 6 Marks)

- 1) Ion exchange chromatography.
- 2) What is electron microscope? Describe working of TEM.
- 3) Write principle and applications of X-ray crystallography.

- 4) Comment on ELISA and its applications.
- 5) Give an account of Agarose Gel Electrophoresis.
- 6) Explain the radio immune assay method.
- 7) Explain principle and working method of Atomic Absorption Spectroscopy.
- 8) What is Microtomy? Add a note Lesser assisted Microtomy.
- 9) Give an account of Agarose Gel Electrophoresis.
- 10) Describe Sanger's method of DNA sequencing.
- 11) Discuss the properties of Light.
- 12) Describe Immuno precipitation.
- 13) Explain high speed centrifugation.
- 14) Write on Non-Radio labeled techniques.
- 15) Describe Pyrosequencing technique.
- 16) Give an account of Scintillation counters.
- 17) Describe Mass Spectroscopy in details.
- 18) Discuss Antigen-antibody reaction in details.
- 19) Rocket immuno-electrophoresis.
- 20) Give an account of PCR techniques and its advantages.
- 21) Explain HPTLC.
- 22) Give an account of Gas Chromatography.
- 23) Explain the techniques of Automated DNA sequencing.
- 24) What is DNA finger printing? Describe various steps involved in DNA finger printing.
- 25) Comment on pH meter.

**Broad Answer Question**

**(12 Marks Each)**

- 1) State Beer and Lambert's law and Explain it by spectroscopy.
- 2) Comment on concept of partition coefficient. Add a note on paper and thin layer Chromatography.
- 3) Define spectroscopy. Comment on UV-Visible, NMR Spectroscopy.
- 4) What is Radioactivity? Add a note on detection and measurement of radioactivity with Geiger-Muller counter and Wilson cloud chamber.
- 5) Comment on concept of microscopy. Add a note on Light microscopy and confocal microscopy.
- 6) Define spectroscopy. Comment on IR and MS Spectroscopy.