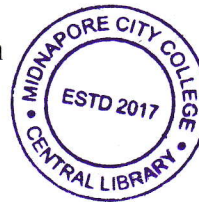


The West Bengal University of Health Sciences
B.Sc. in Medical Microbiology 2nd Semester December, 2022
Examination

Subject : Instrumentation



Time : 2 hrs.

Full Marks : 50

Attempt all questions

1. Answer all the question : 10 x 1
- Calomel electrode is found in _____ :
i) BOD incubator. ii) Gel electrophoresis. iii) Colorimeter. iv) pH meter.
 - During taking OD of a yellow-coloured solution, which filter can be selected for absorption of light?
i) Blue. ii) Green. iii) Yellow. iv) Red.
 - Working range of IR-spectrophotometer _____ :
i) 190-400nm. ii) 190-700nm. iii) 400-700nm. iv) 700-1500nm.
 - If you are working with a 100X objective, then the magnification is _____ :
i) 10X. ii) 100X. iii) 1000X. iv) 10000X.
 - Preferred mobile phase for the reverse phase for the reverse phase chromatography is _____ :
i) Hexane/water. ii) Methanol/water.
iii) Deionized water. iv) Ionic buffer solution.
 - HPLC works at _____ :
i) 6 psi. ii) 60 psi. iii) 600 psi. iv) 6000 psi.
 - Vertical laminar flow cabinet is safer than horizontal laminar flow cabinet, because _____ :
i) Does blow the air directly towards the operator.
ii) Doesn't blow the air directly towards the operator.
iii) Air comes from behind the working bench.
iv) Air directly hits the operator.
 - In an autoclave, if the pressure increased to 15 psi, then temperature of steam will be _____ :
i) 100°C. ii) 110°C. iii) 121°C. iv) 126°C.
 - Working concentration of agarose gel electrophoresis ranges _____ :
i) 0.5%-3%. ii) 2-5%. iii) 8-12%. iv) 15-20%.
 - Working percentage of CO₂ in a CO₂ incubator is _____ :
i) 1%. ii) 3%. iii) 5%. iv) 10%.
2. Answer **any four** of the following questions : 4 x 2
- Name the two instruments where HEPA filter is being used.
 - Write the application of BSL type B2.
 - What are the uses of a shaking incubator in a microbiology laboratory?
 - What is angular velocity?
 - What is resolving power of a microscope?
 - Write the application of phase contrast microscope.
3. Answer **any four** of the following questions. 4 x 4
- Classify microscope with their application.
 - Discuss the working principle of an autoclave.
 - What is dichroic mirror? Where do you find it?
 - Make a drawing of light path of fluorescent microscope.
 - Write the comparison between spectrophotometry vs colorimetry.
 - Make a note on density gradient centrifugation.
4. Answer **any two** of the following questions :
- Write the comparison between TEM and SEM. Discuss the different components of a laboratory microscope. 2+6
 - Classify HPLC based on principle of separation. Describe the different components of a HPLC machine. 2+6
 - Write the working principle of electrophoresis. What is Wick flow? Which are the different factors influencing the electrophoretic separation? 3+2+3