

Question Bank for PG Course

প্রাণীবিদ্যা (ZOOLOGY)

ষষ্ঠ(ক) পত্র (Paper - VIA)

Quantitative Biology and Biotechnology: PGZO-VIA

1. What is the function of the objective lens in nearly all the fluorescence microscopes ?
2. What is the characteristics of Simple random sampling ?
3. What is the value of Variance (σ^2) of a Poisson distribution, if the value of Mean (μ) of that distribution is 'm' ?
4. When does a *Type II error of inference* occur in hypothesis testing ?
5. How the concentration of acrylamide is important to determine the resolution of the gel and to study proteins of different molecular weight in Sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) ?
6. What should be the relation between the computed F value and the critical F value (F_α) for a chosen significance level (α), if the Null hypothesis is retained in ANOVA, for finding whether or not there is any significant difference between the groups ?
7. What type of Correlation exists between blood sugar level and blood insulin level in animal samples ?
8. Why the Dimethyl sulfoxide (DMSO) may be used as a Cryoprotectant ?
9. In a study to separate the living cells from dead cells by FACS technique, ethidiummonoazide (EMA) has been used. Which cells will be separated out from the rest, on the basis of containing EMA inside these cells ?
10. Which areas of Biotechnology may have benefitted by applications of Bioinformatics?
11. Arrange the following steps about "sandwich" ELISA (Enzyme-linked immunosorbent assay) in chronological order
 - i. Apply a chemical which is converted by the enzyme into a colour or florescent or electrochemical signal
 - ii. Prepare a surface to which a known quantity of capture antibody is bound and after blocking the non-specific binding sites on the surface, apply the antigen-containing sample to the plate
 - iii. Apply enzyme- linked secondary antibodies which are specific to the primary antibodies
 - iv. Apply primary antibodies that bind specifically to the antigen
12. How do the caspases induce Programmed Cell Death (Apoptosis) ?
13. What is the example of Electrochemical Transducer as the key part of a biosensor ?
14. What is the basis of separation of any desired substance from a solution by Affinity chromatography ?
15. Beer's law gives the relation between which of the two factors ?