



Question Bank For PG Course

Zoology

Paper-6A

QUANTITATIVE BIOLOGY AND BIOTECHNOLOGY : PGZO-VIA

Question 1

What is the function of the objective lens in nearly all the fluorescence microscopes?

Question 2

What are the characteristics of Simple random sampling?

Question 3

What is the value of Variance (σ^2) of a Poisson distribution, if the value of Mean (μ) of that distribution is 'm'?

Question 4

When does a *Type II error of inference* occur in hypothesis testing?

Question 5

How is the concentration of acrylamide 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)?

Question 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?

Question 7

What type of Correlation exists between blood sugar level and blood insulin level in animal samples?

Question 8

Why is Dimethyl sulfoxide (DMSO) used as a Cryoprotectant?

Question 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?

Question 10

Which areas of Biotechnology may have benefitted by applications of Bioinformatics?

Question 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

Question 12

How do the caspases induce Programmed Cell Death (Apoptosis)?

Question 13

What is the example of Electrochemical Transducer as the key part of a biosensor?

Question 14

What is the basis of separation of any desired substance from a solution by Affinity chromatography?

Question 15

Beer’s law gives the relation between which of the two factors?

Question 16

What must be the correlation coefficient, If there is a very strong correlation between two variables?

Question 17

What is the nature of a Normal Distribution on the basis of kurtosis?

Question 18

What are the types of probability sampling?

Question 19

When does a Type I error of inference occur in hypothesis testing?

Question 20

What is the value of constant difference (d) in the following Arithmetic Progression (AP) series? 0.35, 0.76, 1.17, 1.58, 1.99,.....;

Question 21

What are the reasons for preferring Analysis of variance (ANOVA)?

Question 22

What is the relationship between Standard Deviation (SD) and Variance?

Question 23

What would be the probability (P) of random occurrence for any event, other than the sure event?

Question 24

What are the applications of Northern blotting?

Question 25

Why is the dichroic mirror used in a fluorescence microscope?

Question 26

In which part of the plasma membrane of a normal and living eukaryotic cell, do the phosphatidylserine (PS) and phosphatidylethanolamine mainly occur?

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Question 28

Which adsorbent material can be used as the stationary phase in Thin- Layer chromatography (TLC)?

Question 29

What is the pH of Tris buffer, used in preparing the Stacking gel for SDS- PAGE technique?

Question 30

What is the full form of 'FACS'?