Zoology (Hons.) Paper-VI

Answer five questions, selecting two from each Group and Q.No. 1 is compulsory.

1. Select the most appropriate answer out of the choices given in each of the following :

(a) The term plasmid was originally used by :
(i) Leaderberg (ii) Crick (iii) Nirenberg (iv) Tatum

(b) Restriction endonuclease is :
(i) Bam-H1 (ii) Eco R-1 (iii) Hind-III (iv) All of these

(c) PBR-322 is a :
(i) Phage (ii) Cosmid (iii) Bacteriophage (iv) Plasmid

(d) Template dependent enzyme is :
(i) DNA polymerase (ii) DNA ligase
(iii) RNA polymerase (iv) None of these

(e) Which of the following is not a vector ?
(i) Plasmid (ii) Cosmid
(iii) Lambda phage (iv) Virusoid

(f) DNA fingerprint profile will be exactly identical in :
(i) F_1 offsprings (ii) Twins
(iii) Siblings (iv) None of these

(g) To make cDNA library which one of the following is used :
(i) RNA polymerase (ii) DNA polymerase
(iii) Reverse transcriptase (iv) All of these

(h) DNA fingerprinting was discovered by :
(i) Mullis (ii) Wilmut
(iii) Nirenberg (iv) Jeffreys

(i) Baking is necessary in southern blotting because it :
(i) Removes shrinkage in NC membranes
(ii) Denatures DNA
(iii) Activates ssDNA for hybridization
(iv) Cross-links DNA to membrane

(j) ELISA is a technique to detect the presence of :
(i) Antigen in a smaple (ii) Antibody in a sample
(iii) Defective DNA in a smaple (iv) Both (i) and (ii)

(k) DNA polymerase requires :
(i) Ca^{++} (ii) K^{+} (iii) Mn^{++} (iv) Mg^{++}

(l) If out of 200 cases of kidney transplants 80 cases are successful, then the probability of survival will be :
(i) 0.6 (ii) 0.5 (iii) 0.4 (iv) 0.3

(m) Pearsonian coefficient of correlation applies forassociated variables that are :
(i) Normally distributed (ii) Binomially distributed
(iii) Asymmetrically distributed (iv) All of these

(n) If a dice is thrown twice, the number of possible outcomes will be :
(i) 16 (ii) 12 (iii) 24 (iv) 36

(o) Rejecting a true null hypothesis is known as :
(i) No error (ii) Type one error (iii) Type two error (iv) None of these

(p) In test of independence for 3 x 4 contingency, table value of df is equal to :
(i) 2 (ii) 4 (iii) 6 (iv) 12

(q) 't'-test measures mean obtained by :
(i) One set of observations (ii) Two sets of observations
(iii) Three setsof observations (iv) All of these

(r) Value of correlation coefficients lies between :
(i) 0 and 1 (ii) -1 and + 1 (iii) -0.4 and + 0.4 (iv) None of these

(s) Significance of simple regression coefficient can be tested by :
(i) 't'-test (ii) F-test (iii) Z-test (iv) Both (i) and (ii)

(t) Normal distribution curve is :
(i) Unimodal (ii) Bimodal
(iii) Multimodal (iv) All of these

Group-A

2. What do you mean by cloning vectors ? Describe the role of Lamdaphage and Charonphage as cloning vectors.

3. What is DNA foot printing ? Describe the procedure for determination of DNA sequences by DNA foot printing method.
4. Describe, in detail, southern blotting. Add a note on its applications.
5. What is ELISA ? Describe its methods and applications.
6. Write short notes on any two of the following :
   (a) Shuttle vectors (b) Reverse transcriptase (c) DNA ligase (d) Lac-z gene
   (e) Reotriction endonuclease

Group-B

7. Describe the procedure usually followed in testing a hypothesis. Differentiate between one-tailed and two-tailed tests.
8. Enumerate the hypothesis on which Chi-square test is based. Explain, with suitable example, Chi-square test of Goodness of fit.
9. What do you mean by regression and regression line ? Describe regression equation of y on x with suitable examples.
10. Discuss the various applications of a computer in biostatistics.