**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**
**(For candidates admitted during the academic year 2006 – 07)**

**SUBJECT CODE: BY/PC/BB35**

**M. Sc. DEGREE EXAMINATION, NOVEMBER 2008**
**BIOTECHNOLOGY**
**THIRD SEMESTER**

**COURSE : CORE**
**PAPER : BIOPHYSICS & BIOSTATISTICS**
**TIME : 3 HOURS** **MAX. MARKS: 100**

## SECTION – A

**ANSWER ALL QUESTIONS.** **10 x 2 = 20**

1. Define Enthalpy and Entropy.
2. Define Epimer and Anomer.
3. What are Supramolecules? Give examples.
4. What is meant by protein denaturation?
5. RBCs Number of 10 reasons are given below:
   52 64 37 45 34 52 40 35 39 and 43 lac/$mm^3$
   find out the median of this series.
6. What are pictograms and cartograms?
7. State any two important properties of Poissons distribution.
8. Define students 't' statistics and mention its uses.
9. Define Null Hypothesis and Standard Error.
10. Give the formula for computing Pearsonian correlation coefficient.

## SECTION – B

**ANSWER ANY FOUR QUESTIONS, EACH WITHIN 600 WORDS.** **(4 x 10 = 40)**

11. Briefly explain the processes that generates NP.
12. Explain chemical shift in NMR with an example.
13. How can a polypeptide chain or a protein can be sequenced by N Terminal sequencing method?
14. Calculate standard deviation and co-efficient of variation for the following data of weights (grams) of Anabas.
    16 18 12 14 16 20 21 16 15 14
15. On the basis of the following data can it be calculated that smoking and being ailment are independent.

| | Lung ailment | No Lung ailment |
|---|---|---|
| Smokers | 75 | 105 |
| Non smokers | 25 | 95 |

..2

16. The incidence of occupational disease in an industry is such that the workmen have 20% chance of suffering from it. What is the probability that out of 5 workmen selected.
    a) Two will get the disease
    b) None will suffer
    c) Three or more will suffer form the disease

## SECTION – C

**ANSWER ANY TWO QUESTIONS, EACH WITHIN 1500 WORDS. (2 x 20 = 40)**

17. Explain the Watson – crick model of DNA and also write about the structural polymorphosis in DNA.
18. Briefly explain about Transport Across membrane.
19. a) Calculate the probable systolic blood pressure of an adult aged 55 from the data provided.

| Age | 36 | 38 | 42 | 56 | 60 |
|---|---|---|---|---|---|
| Blood Pressure | 115 | 118 | 140 | 147 | 155 |

    b) Write short note on
        i) Absolute and relative measures of dispersion
        ii) Qualitative and quantitative variables /data
        iii) Variable

20. A certain measure was used on four plots of land A,B,C and D. Four beds were prepared in each plot and the measure used. The output of the crop in the beds of plots A,B,C, & D is given below.

| A | B | C | D |
|---|---|---|---|
| 8 | 9 | 15 | 6 |
| 12 | 3 | 10 | 8 |
| 1 | 7 | 4 | 10 |
| 3 | 1 | 7 | 8 |

Find out whether the difference in the means of the population of corps of the plots is significant or not.

*******