**PHYSIOLOGY**

Course ID: 52516                                        Paper: SH/PHY/503/DSE-1(T)

**Course Title:  Biological Statistics**

Time: 1 Hour 15 Minutes                                        Full Marks: 25

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**1.  Answer any five questions from the following:**                    $1\times5=5$

(a) What is probability sampling?

(b) Define standard error of mean.

(c) What is Kurtosis?

(d) Differentiate between cluster sampling and simple random sampling.

(e) What is cumulative frequency?

(f) What do you mean by statistics of location?

(g) What are the characteristics of normal curve?

(h) What is Mann -Whitney U test?

**2. Answer any two questions from the following:**                    $5\times2=10$

(a) Median is more important than mean for calculating statistical averages-Justify the statement. Mention the relation among man, median and mode.                    2+3=5

(b) What is frequency polygon? How frequency polygon curve is constructed?

                                                                            1+4 =5

(c) What is pie diagram? Draw a pie diagram for the following frequency distribution of blood groups in a sample.                    1+4 =5

| Blood groups | O | A | B | AB | Total |
|---|---|---|---|---|---|
| Frequencies | 342 | 190 | 152 | 76 | 760 |

(d) Compute the mean and SD of body heights (cm) in the following distribution.  2+3=5

| Class Intervals | 156 - 160 | 161 - 165 | 166 -170 | 171 - 175 | 176 -180 |
|---|---|---|---|---|---|
| Frequencies | 4 | 14 | 25 | 11 | 6 |

**3. Answer any one question from the following:**                                    **10×1=10**

(a) Give a brief description of different types of data with suitable examples. Compute the mean, median and mode from the following marks obtaining economics students  -    2+8=10

| Marks obtained | Number of students |
|---|---|
| 11-20 | 42 |
| 21-30 | 38 |
| 31-40 | 125 |
| 41-50 | 84 |
| 51-60 | 45 |
| 61-70 | 36 |
| 71-80 | 30 |

(b) What is degree of freedom? The body weights (Kg) of 8 adult male and 8 adult female are presented respectively. Find whether or not the mean weight of male is significantly higher than that of female.

2+8=10

| Males | 50 | 58 | 60 | 55 | 59 | 56 | 54 | 64 |
|---|---|---|---|---|---|---|---|---|
| Females | 49 | 52 | 51 | 56 | 55 | 53 | 52 | 48 |

$t_{0.05(14)}=1.761$, $t_{0.025(14)}=2.145$, $t_{0.01(14)}=2.624$, $t_{0.005(14)}=2.977$