University of Sargodha

BS 2nd Term Examination 2015

Subject: Computer Science **Paper: Probability & Statistics (Math-2110)**

Time Allowed: 2:30 Hours 12281 **Maximum Marks: 80**

Note: Objective part is compulsory. Attempt any three questions from subjective parts.

Objective Part (Compulsory)

Q#1 Write short answers of the following questions. (16 x 2 = 32)

i. Differentiate between Parameter and Statistic.
ii. Differentiate between Primary and Secondary Data.
iii. What is Stem and Leaf Plot?
iv. Define Probability.
v. Define Discrete Probability Distribution.
vi. Define Mean of a Random Variable.
vii. Describe the Parameters of Hypergeometric Distribution.
viii. Write down the Mean and Variance of Standard Normal Distribution.
ix. Define Random Sampling.
x. Define Lower and Upper Limit of Confidence Interval.
xi. Write down the expression of Confidence Interval for Proportion.
xii. Define Statistical Hypothesis.
xiii. Differentiate between Null and Alternative Hypothesis.
xiv. Define Test Statistic.
xv. Define Regression.
xvi. What is meant by Nonlinear Regression Model?

SUBJECTIVE PART

Maximum Marks: 48

Note: Attempt any three questions. All questions carry equal marks.

Q#2 Given the following grouped frequency table find the mean.

Class	111-115	116-120	121-125	126-130	131-135	136-140	141-145	146-150	151-155	156-160
Freq	1	2	4	11	9	14	7	6	3	1

Q#3 A group of 220 university students were asked how much time they spent using Internet each week. The results have been tabulated below. Using this information, calculate the standard deviation of hours spent on internet by the 220 students.

Hours	10-14	15-19	20-24	25-29	30-34	35-39	40-44
No. of students	2	12	23	60	77	38	8

Q#4 Given a normal distribution with mean $\mu = 50$ and standard deviation $\sigma = 10$, find the following probabilities:

a) $P(X>70)$ b) $P(X<40)$

c) $P(45<X<62)$ d) $P(55<X<65)$

Q#5 Given the following sets of values:

X	6.5	5.3	8.6	1.2	4.2	2.9	1.1	3.0
Y	3.2	2.7	4.5	1.0	2.0	1.7	0.6	1.9

a) Compute the regression equation for Y on X i-e $Y = a + bX$

b) Compute the standard error of estimate, $s_{y.x}$

Q#6 A form of intelligence test was given to random samples of Statisticians and Mathematicians in a certain university. The statistics obtained are given below:

	Sample Size	Mean Score	Standard Deviation
Statisticians	300	13.50	2.40
Mathematicians	200	12.90	2.50

Is the difference between mean scores significant?