Department of Education,Sabaragamuwa/weekly school

week- 2

Subject-Business Statistics

Prepared by -
Zonal Education Office,Rathnapura.

Grade-13

Competency 11.0 – Uses Statistical inference for making business decisions.

Competency Level 7.2 – Builds the sampling distribution of sample mean for statistical inference.

1.)Employee salaries of a firm distributes normally with mean Rs.25,000 and standard deviation Rs.6,000.If a sample of 9 employees is drawn in random.

(i) State the mean and variance of the sampling distribution of sample means.Hence write the sampling distribution of sample means.
(ii) What is the probability that an employee in the sample getting a salary of Rs.30,000 or more.
(iii) If the probability of getting a salary less than or equal to Rs.20,000 to be maintained at 10% level,what should be the sample size?

2.)When considered an assembling process of packaging sugar the average mass of a packet sugar was 500g.Once a sample of 49 packets was checked the standard deviation of the mass was 10g(the mass of the packets distributes normally)

(i) Write the mean and variance of the sampling distribution of sample means.
(ii) State the sampling distribution of sample means.
(iii) Find the probability of the sample mean being less than 499g.
(iv) Find the probability of the sample mean being in the range 495g-510g.
(v) Suppose that the sample size has been increased upto 100.
(a)Find the probability of the sample mean being less than 499g.
(b)Find the probability of the sample mean falls in the range 495g to 510g.

(vi)Compare the results of (iii) and (iv) above with the results of (v).

(vii)Describe the difference of the probabilities observed once the sample size was increased from 49 to 100.