KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food. Engg) 2011 Admission

Vth Semester Final Examination- December /January -2013

Cat. No: Basc.3110
Title: Statistics (1+1)

Marks: 80
Time: 3 hours

I. Fill in the blanks **(1 x 10 =10)**

1. Probability ranges between ---------- and ----------.
2. If the coefficient of variation of a distribution is 50 and its standard deviation 20, the arithmetic mean shall be ----------.
3. The two regression lines for the variables X and Y intersect at the point ----------.
4. When all experimental units are homogeneous, the most suitable design for an experiment is ----------.
5. Statistical Quality Control takes care of the variation due to ---------- causes.

State whether the following statements are true or false

6. Absolute measure of dispersion can be used for purposes of comparison.
7. There are no limits to the value of co-efficient of correlation.
8. The mean of binomial distribution is *np* and its standard deviation is $\sqrt{npq}$.
9. The 100% inspection is always full proof.
10. Arithmetic mean is not always the best measure of central tendency.

II. Answer any TEN questions **(3 x 10 = 30)**

1. Distinguish between parameter and statistic.
2. Define Karl Pearson's coefficient of correlation. How do you interpret it?
3. What do you understand by regression? Point out its uses.
4. What is meant by standard error of mean and what are its practical uses?
5. What is 'analysis of variance' and where is it used?
6. What is Poisson distribution? Give examples where it can be applied.
7. How are control limits set for c-chart?
8. Describe scatter diagram.
9. Find the GM of 20,45,23,60.
10. What is randomization in an experimental design?
11. If the mean of a Binomial distribution is 40 and standard deviation in 6, calculate n,p and q.
12. If A and B are any two mutually exclusive events, then p(A) = 0.2, P (B) = 0.6, calculate P(AuB)

III. Answer any six of the following **(5 x 6 = 30)**

1. What is normal distribution? Highlight its important properities and uses.
2. Explain the basic principles of experimentation.
3. Explain how the association between two attributes measured by the x^2
4. Explain one way classification.
5. How do you test the equality of two means of normal populations $N(\mu_1, \sigma_1^2)$ *and* $N(\mu_2, \sigma_2^2)$ when σ_1^2 and σ_2^2 are known.
6. Explain the procedure of fitting orthogonal polynomials.
7. State and prove addition theorem of probability.
8. Explain RBD.

IV. Answer an essay on any ONE **(10 x 1 = 10)**

1. (a) Calculate the mean and median for the following data:

Value	0-9	10-19	20-29	30-39	40-49	50-59	60-69
Frequency	8	10	15	20	15	80	8

(b) The age and blood pressure of 10 women are:

Age	56	42	36	47	49	42	60	72	63	55
Blood pressure	147	125	118	128	145	140	155	160	149	150

(i) Determine the least square regression equation of blood pressure on age.

(ii) Estimate the blood pressure of a woman whose age is 45 years.

2 (a) Ten specimens of copper wires drawn from a large lot have the following breaking strength (in kg.wt.)

578, 572,570, 568,572,578,570,572,569, 548

Test whether the mean breaking strength of the lot may be taken to be 578 kg.wt.

(b) Five hundred students in a school were graded according to their intelligence and the economic conditions of their homes. Examine whether there is any association between economic conditions at home and intelligence.

Economic conditions	Intelligence		Total
	Good	Bad	
Rich	85	75	160
Poor	165	175	340
Total	250	250	500

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