FYUGP 2nd Semester Final Examination 2026
Subject: Skill Enhancement Course (Statistics)
Paper Code: SEC0216903N
Paper: Applied Analytics with Excel

Full Marks: 30 **Time: 1.5 Hour**

1. Answer the following questions as directed: 1×5=5

a) The arguments to be inserted in the function CHISQ.INV to compute inverse of the left-tail chi-square distribution is
i) probability, deg_freedom ii) x, deg_freedom iii) x, probability
iv) deg_freedom
(Choose the correct option)

b) Write the margin of error in obtaining confidence interval for mean in drawing a random sample of size n from a normal population with mean μ and variance σ^2.

c) Pearson product moment correlation coefficient between two datasets is obtained by _____ (Fill in the blank).

d) Write the function to obtain two-tailed probability of t-distribution in excel.

e) Write one application of F-test.

2. Answer the following questions: (any five) 2×5=10

a) Define Cumulative distribution function of a random variable.

b) Write the steps to calculate probability at x=5 for 9 and 10 degrees of freedom for an F- Distribution in excel.

c) Briefly describe the steps to obtain Cumulative distribution function of a random variable following students t-distribution in excel with an example.

d) Define of level of significance.

e) Write the procedure to obtain mean of a Binomial population with parameters n=10, p=0.5 in excel.

f) Write the quantile function of a Poisson random variate with parameter λ=2.

g) What is the 95% confidence interval of mean of a $N(\mu, \sigma^2)$ population.

h) Briefly describe the use of "IF()" in testing statistical hypothesis in excel.

i) How would you find $P(X \leq 5)$ and $P(X = 4)$ in excel, if $X \sim B(10, 1/2)$.

j) Give the interpretation of the following statement "the p-value for an F-test for testing the equality of variances of two data sets is 0.0861301".

3. Answer the following questions: (any three) 3×5=15

a) let $X_1, X_2, X_3, \ldots \ldots X_8$ be a random sample of size 8 from a normal population with mean μ_0(known) and unknown variance. Describe the procedure to obtain a 90% confidence interval for the mean and testing $H_0: \mu = \mu_0$ against $H_A: \mu \neq \mu_0$. (given $t_{0.10}(7)$=1.86) in excel.

b) Write the test statistic for testing the equality of two population means for equal but unknown population variances based on two independent samples of size n1 and n2. Briefly describe also, the test functions in excel for two samples when

i) sample sizes are unequal and independent and
ii) sample sizes are equal $n_1 = n_2 = n$(say) and dependent.

c) Describe how would you fit a Binomial distribution to a data set and check the goodness of fit of the data using Karl Pearson's Chi-square test in excel. Give with an example.

d) Write the procedure to obtain mean and variance of a Poisson population with parameter λ=5 in excel.

e) Describe how you would perform a test for a data set to be drawn from $N(\mu, \sigma^2)$ Population in excel. Also mention some of the well-known test for testing Normality of a data set.

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