GOV 603 Final Exam Study Guide Paper details: Please answer the following questions Sampling: fundamental concepts (e.g., differences between population and sample; sampling frame, target population, etc.) What are the benefits and limitations of using a sample vs. population? Types of samples Random or probability samples (simple random, systematic, stratified, cluster) Nonrandom or nonprobability samples (purposive, convenience, quota, snowball) Under what circumstance is each type of sampling appropriate? What are the strengths and limitations of the different types of sampling? Survey research, Interview, and Focus Groups: Survey research and survey methodology Difference between surveys and personal interviews or focus groups Life cycle of a survey from a process and design perspective Response and nonresponse rate; potential sources of survey response errors and how to address them Types of surveys E.g., face to face, mail, email, Internet, telephone, group administration Strengths and limitations of the types of surveys Survey instrument (questionnaire) design Types of questions (e.g., closed-ended and open-ended), advantages and disadvantages of each Question wording (issues of objectivity and clarity), question order, response quality, and archived surveys Interviews and focus groups Qualitative Data Management and Methods Ways to ensure validity and reliability in qualitative research Strengths and limitations of qualitative data collection techniques. Descriiptive Statistics & Statistical Inference Frequencies Interpret frequencies and contingency tables Measures of central tendency & Dispersion Interpret mean, median, and mode for variables at the appropriate levels of measurements Interpret range, interquartile range, and standard deviation for variables at the appropriate levels of measurements Hypothesis or significance tests Distinction between null and alternative hypotheses One-sided and two-sided hypotheses testing Implications of errors in statistical inference (Type 1 & Type 2 errors) Interpret level of significance and p-values Measures of Association for Categorical (Nominal & Ordinal) Variables Interpret contingency tables (cross-tabulation) Interpret the Chi-square test of independence Correlation and Regression Analysis for Quantitative (Interval-Ratio) Variables Interpret correlation output (strength, significance, and direction of the relationship) Interpret the following components of bivariate regression analysis output Global F-test significance for model fit R-squared (coefficient of determination) – what is it, and what does it indicate? Determine whether regression coefficients are statistically significant – i.e., understand how to interpret the p-values Interpret the intercept (constant) and coefficient of the independent variable(s) – i.e., how does a one-unit change in the IV affect the DV? Draw conclusions about whether to reject or fail to reject the null hypothesis and policy implications Strengths and limitations of bivariate and multiple regression analysis Research Ethics (Review the short PowerPoint & Recording in Week 8) Understand the principles of ethical research (Belmont Report)