JEM005 Econometrics A
State final exam questions

1. **Linear regression model - Estimation of regression coefficients and a variance of disturbances**
Least squares estimation of regression coefficients and the classical assumptions. Estimation of σ^2

2. **Linear regression model - Verification of assumptions**
Normality, homoscedasticity, redundancy, significance of estimates of regression coefficients (t-tests), Durbin-Watson test, the coefficient of determination, residual plots, influential observations

3. **Estimation Frameworks in econometrics**
General overview of estimation frameworks, parametric estimation and inference (likelihood-based methods), semiparametric estimation (GMM, empirical likelihood), properties of estimators

4. **Quantile Regressions**
Quantile regressions, Quantiles and conditional quantiles

5. **Maximum Likelihood Estimators**
Basic likelihood concepts, score functions, principle of ML and its properties, Quasi and pseudo-MLE

6. **Generalized Method of Moments**
The method of moments, GMM, properties, testing hypothesis in the GMM framework

7. **Simulation-based estimation and inference**
Computer-intensive, simulation-based methods, bootstrap, maximum simulated likelihood estimation, moment-based simulation estimation

8. **Endogeneity and Instrumental variables**
IV estimation, Multiple Instruments (2SLS), asymptotic theory and robust inference, measurement errors and omitted variables

9. **Generalized Least Squares, non - i.i.d. errors**
Generalized regression models and heteroscedasticity (efficient estimation via (F)GLS), Seemingly unrelated regressions

10. **Models for Panel Data I (static panel data methods)**
Advantages of panel data; basic overview of linear panel models; pooled, random effects and fixed effect models; SUR versus Panel Data Models; target parameters and estimation by GLS; applications

11. **Panel data models - Fixed effects**
One-way error component model with fixed effects, within transformation, least squares dummy variables estimator, test for fixed effects, tests of poolability

12. **Panel data models - Random effects**
One-way error component model random effects, properties of variance-covariance matrix of disturbances, estimators of variance components, estimators of coefficients (within / between / pooled OLS / GLS). Hausman's specification test

13. Models for Panel Data II (Dynamic linear panel data models)
Extensions of basic models; types of exogeneity; endogenous regressors; dynamic models; Discrete Choice Panel data methods, GMM methods for Panel models

14. Discrete Choice models
Review of linear probability models for binary discrete choice models, advantages, Logit and Probit models, specification issues

15. **Extended Discrete Choice models**
Multinomial logit and conditional logit models, pooled discrete choice models

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